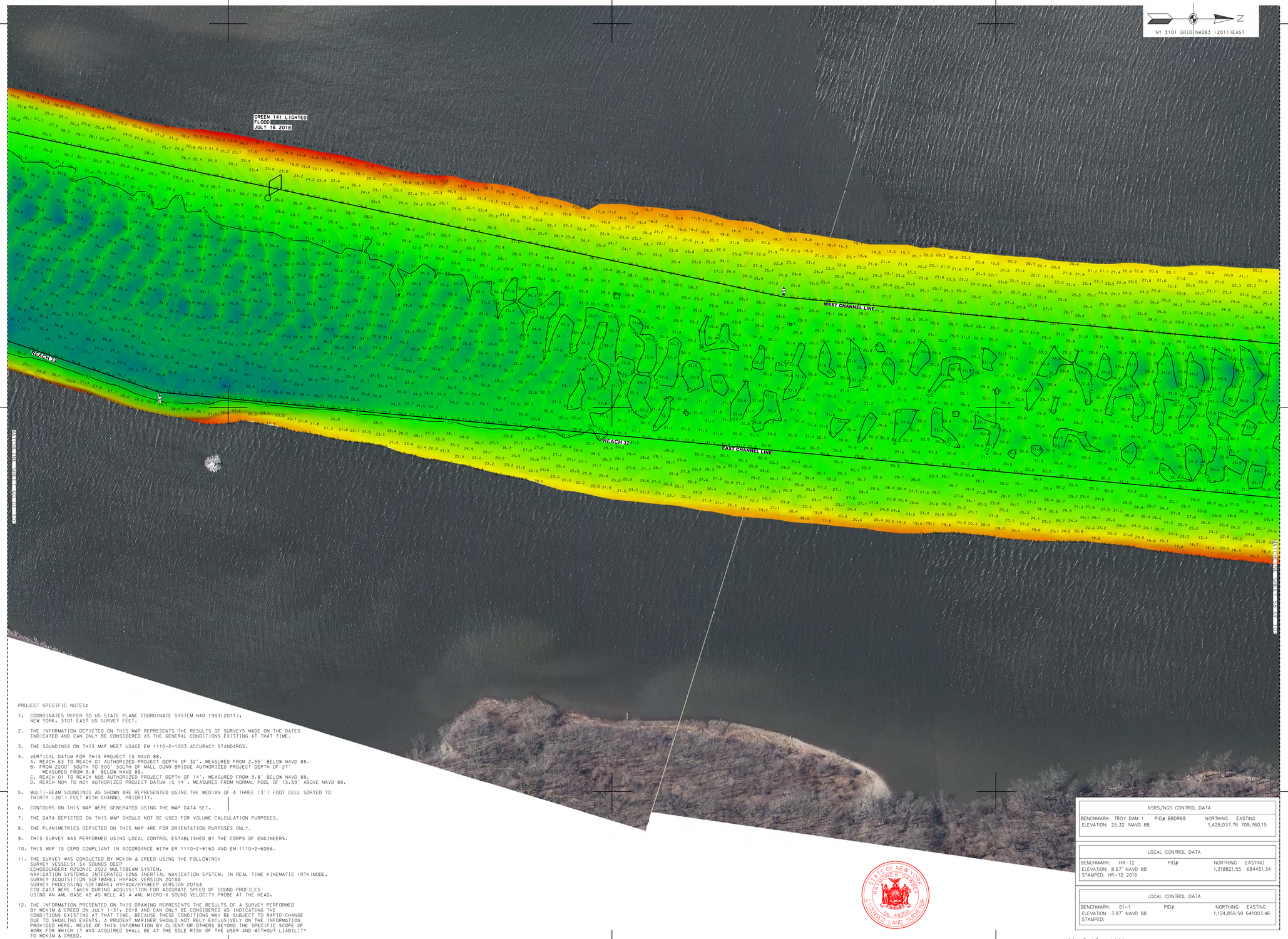



PROJECT SPECIFIC NOTES:

1. COORDINATES REFER TO US STATE PLANE COORDINATE SYSTEM NAD 1983(2011). NEW YORK. 3101 EAST US SURVEY FEET.
2. THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS THE GENERAL CONDITIONS EXISTING AT THAT TIME.
3. THE SOUNDINGS ON THIS MAP MEET USACE EM 1110-2-1003 ACCURACY STANDARDS.
4. VERTICAL DATUM FOR THIS PROJECT IS NAVD 88.
   A. REACH 63 TO REACH 01 AUTHORIZED PROJECT DEPTH OF 32', MEASURED FROM 2.55' BELOW NAVD 88.
   B. FROM 2200' SOUTH TO 900' SOUTH OF MALL DUNN BRIDGE AUTHORIZED PROJECT DEPTH OF 27' MEASURED FROM 3.8' BELOW NAVD 88.
   C. REACH 01 TO REACH N05 AUTHORIZED PROJECT DEPTH OF 14', MEASURED FROM 3.8' BELOW NAVD 88.
   D. REACH N04 TO N01 AUTHORIZED PROJECT DATUM IS 14', MEASURED FROM NORMAL POOL OF 13.59' ABOVE NAVD 88.
5. MULTI-BEAM SOUNDINGS AS SHOWN ARE REPRESENTED USING THE MEDIAN OF A THREE (3') FOOT CELL SORTED TO THIRTY (30') FEET WITH CHANNEL PRIORITY.
6. CONTOURS ON THIS MAP WERE GENERATED USING THE MAP DATA SET.
7. THE DATA DEPICTED ON THIS MAP SHOULD NOT BE USED FOR VOLUME CALCULATION PURPOSES.
8. THE PLANIMETRICS DEPICTED ON THIS MAP ARE FOR ORIENTATION PURPOSES ONLY.
9. THIS SURVEY WAS PERFORMED USING LOCAL CONTROL ESTABLISHED BY THE CORPS OF ENGINEERS.
10. THIS MAP IS CEPD COMPLIANT IN ACCORDANCE WITH ER 1110-2-8160 AND EM 1110-2-6056.
11. THE SURVEY WAS CONDUCTED BY MCKIM & CREED USING THE FOLLOWING:
    SURVEY VESSELS: SV SOUNDS DEEP
    ECHOSOUNDER: R2SONIC 2022 MULTIBEAM SYSTEM.
    NAVIGATION SYSTEMS: INTEGRATED I2NS INERTIAL NAVIGATION SYSTEM. IN REAL TIME KINEMATIC (RTK)MODE.
    SURVEY ACQUISITION SOFTWARE: HYPACK VERSION 2018A
    SURVEY PROCESSING SOFTWARE: HYPACK/HYSWEEP VERSION 2018A
    CTD CAST WERE TAKEN DURING ACQUISITION FOR ACCURATE SPEED OF SOUND PROFILES USING AN AML BASE X2 AS WELL AS A AML MICRO-X SOUND VELOCITY PROBE AT THE HEAD.
12. THE INFORMATION PRESENTED ON THIS DRAWING REPRESENTS THE RESULTS OF A SURVEY PERFORMED BY MCKIM & CREED ON JULY 1-31, 2018 AND CAN ONLY BE CONSIDERED AS INDICATING THE CONDITIONS EXISTING AT THAT TIME. BECAUSE THESE CONDITIONS MAY BE SUBJECT TO RAPID CHANGE DUE TO SHOALING EVENTS, A PRUDENT MARINER SHOULD NOT RELY EXCLUSIVELY ON THE INFORMATION PROVIDED HERE. REUSE OF THIS INFORMATION BY CLIENT OR OTHERS BEYOND THE SPECIFIC SCOPE OF WORK FOR WHICH IT WAS ACQUIRED SHALL BE AT THE SOLE RISK OF THE USER AND WITHOUT LIABILITY TO MCKIM & CREED.

| NSRS/NGS CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: TROY DAM 1 | PID# BBDR68 | NORTHING | EASTING |
| ELEVATION: 25.32' NAVD 88 | | 1,428,037.76 | 709,760.15 |

| LOCAL CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: HR-12 | PID# | NORTHING | EASTING |
| ELEVATION: 8.67' NAVD 88 | | 1,318821.55 | 684451.34 |
| STAMPED: HR-12 2016 | | | |

| LOCAL CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: 01-1 | PID# | NORTHING | EASTING |
| ELEVATION: 3.87' NAVD 88 | | 1,124,859.59 | 641003.46 |
| STAMPED: | | | |

STATE OF NEW YORK
RAYMOND B. PARKER
No. 49350
LICENSED LAND SURVEYOR

US Army Corps of Engineers ®
New York District

| MARK | DESCRIPTION | DATE | APPR. |
|---|---|---|---|
| | | | |

| MARK | DESCRIPTION | DATE | APPR. |
|---|---|---|---|
| | | | |

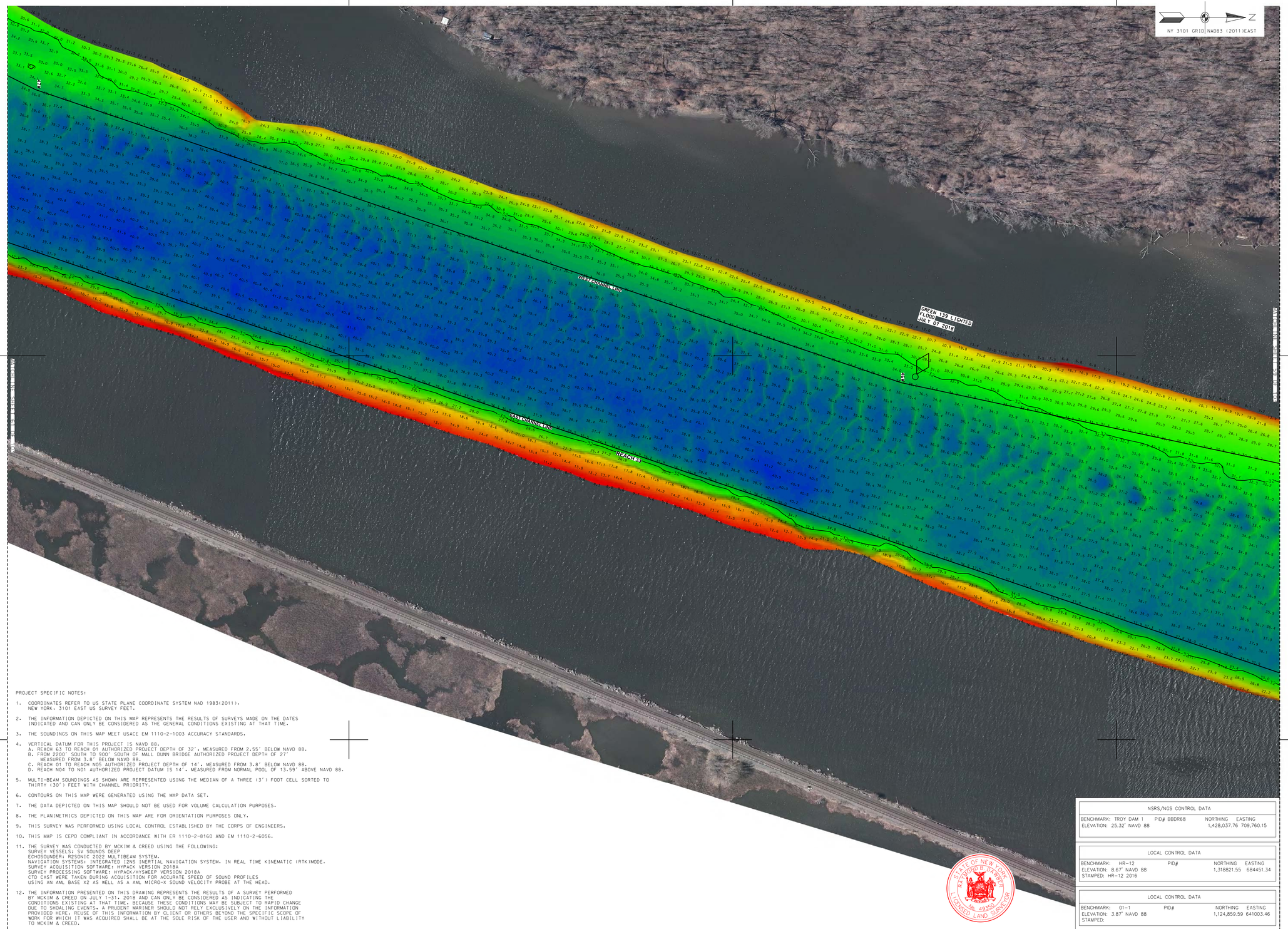
U.S. ARMY CORPS OF ENGINEERS
NEW YORK DISTRICT
NEW YORK, NY

McKIM & CREED
243 NORTH FRONT STREET
WILMINGTON, NORTH CAROLINA 28401
TELEPHONE: (910) 251-0348
FAX: (910) 251-4362

DESIGNED BY: DLJ
DWN BY: MBH
CKD BY: RBD
SUBMITTED BY: DLJ
PLOT SCALE: 1" = 100'
PLOT DATE: 20-Nov-2018
SIZE: ANSI F
DATE: JULY 31, 2018
SOLICITATION NO.:
CONTRACT NO.: W912DS-14-D-0004
ISSUE DATE: NOV 2018
FILE NUMBER:
FILE NAME: VH101-058890053_HUDSON_MB.DGN

# HYDROGRAPHIC CONDITIONS SURVEY
## HUDSON RIVER FEDERAL NAVIGATION CHANNEL
## REACH 32-33

SHEET IDENTIFICATION
VH-159
SHEET 59 OF 103




PROJECT SPECIFIC NOTES:

1. COORDINATES REFER TO US STATE PLANE COORDINATE SYSTEM NAD 1983(2011). NEW YORK, 3101 EAST US SURVEY FEET.
2. THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS THE GENERAL CONDITIONS EXISTING AT THAT TIME.
3. THE SOUNDINGS ON THIS MAP MEET USACE EM 1110-2-1003 ACCURACY STANDARDS.
4. VERTICAL DATUM FOR THIS PROJECT IS NAVD 88.
   A. REACH 63 TO REACH 01 AUTHORIZED PROJECT DEPTH OF 32'. MEASURED FROM 2.55' BELOW NAVD 88.
   B. FROM 2200' SOUTH TO 900' SOUTH OF MALL DUNN BRIDGE AUTHORIZED PROJECT DEPTH OF 27' MEASURED FROM 3.8' BELOW NAVD 88.
   C. REACH 01 TO REACH N05 AUTHORIZED PROJECT DEPTH OF 14'. MEASURED FROM 3.8' BELOW NAVD 88.
   D. REACH N04 TO N01 AUTHORIZED PROJECT DATUM IS 14'. MEASURED FROM NORMAL POOL OF 13.59' ABOVE NAVD 88.
5. MULTI-BEAM SOUNDINGS AS SHOWN ARE REPRESENTED USING THE MEDIAN OF A THREE (3') FOOT CELL SORTED TO THIRTY (30') FEET WITH CHANNEL PRIORITY.
6. CONTOURS ON THIS MAP WERE GENERATED USING THE MAP DATA SET.
7. THE DATA DEPICTED ON THIS MAP SHOULD NOT BE USED FOR VOLUME CALCULATION PURPOSES.
8. THE PLANIMETRICS DEPICTED ON THIS MAP ARE FOR ORIENTATION PURPOSES ONLY.
9. THIS SURVEY WAS PERFORMED USING LOCAL CONTROL ESTABLISHED BY THE CORPS OF ENGINEERS.
10. THIS MAP IS CEPD COMPLIANT IN ACCORDANCE WITH ER 1110-2-8160 AND EM 1110-2-6056.
11. THE SURVEY WAS CONDUCTED BY MCKIM & CREED USING THE FOLLOWING:
    SURVEY VESSELS: SV SOUNDS DEEP
    ECHOSOUNDER: R2SONIC 2022 MULTIBEAM SYSTEM.
    NAVIGATION SYSTEMS: INTEGRATED I2NS INERTIAL NAVIGATION SYSTEM. IN REAL TIME KINEMATIC (RTK)MODE.
    SURVEY ACQUISITION SOFTWARE: HYPACK VERSION 2018A
    SURVEY PROCESSING SOFTWARE: HYPACK/HYSWEEP VERSION 2018A
    CTD CAST WERE TAKEN DURING ACQUISITION FOR ACCURATE SPEED OF SOUND PROFILES
    USING AN AML BASE X2 AS WELL AS A AML MICRO-X SOUND VELOCITY PROBE AT THE HEAD.
12. THE INFORMATION PRESENTED ON THIS DRAWING REPRESENTS THE RESULTS OF A SURVEY PERFORMED BY MCKIM & CREED ON JULY 1-31, 2018 AND CAN ONLY BE CONSIDERED AS INDICATING THE CONDITIONS EXISTING AT THAT TIME. BECAUSE THESE CONDITIONS MAY BE SUBJECT TO RAPID CHANGE DUE TO SHOALING EVENTS, A PRUDENT MARINER SHOULD NOT RELY EXCLUSIVELY ON THE INFORMATION PROVIDED HERE. REUSE OF THIS INFORMATION BY CLIENT OR OTHERS BEYOND THE SPECIFIC SCOPE OF WORK FOR WHICH IT WAS ACQUIRED SHALL BE AT THE SOLE RISK OF THE USER AND WITHOUT LIABILITY TO MCKIM & CREED.

| NSRS/NGS CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: TROY DAM 1 | PID# BBDR68 | NORTHING | EASTING |
| ELEVATION: 25.32' NAVD 88 | | 1,428,037.76 | 709,760.15 |

| LOCAL CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: HR-12 | PID# | NORTHING | EASTING |
| ELEVATION: 8.67' NAVD 88 | | 1,318821.55 | 684451.34 |
| STAMPED: HR-12 2016 | | | |

| LOCAL CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: 01-1 | PID# | NORTHING | EASTING |
| ELEVATION: 3.87' NAVD 88 | | 1,124,859.59 | 641003.46 |
| STAMPED: | | | |

STATE OF NEW YORK
RAYMOND B. O'KEEFE
No. 49259
LICENSED LAND SURVEYOR

SCALE 1" = 100'
0 100 200 300 400

US Army Corps of Engineers ®
New York District

| MARK | DESCRIPTION | DATE | APPR. | MARK | DESCRIPTION | DATE | APPR. |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

DESIGNED BY:
DRAWN BY: MBH
SUBMITTED BY: DJJ
PLOT SCALE: 1:100
PLOT BY:
SIZE: ANSI F

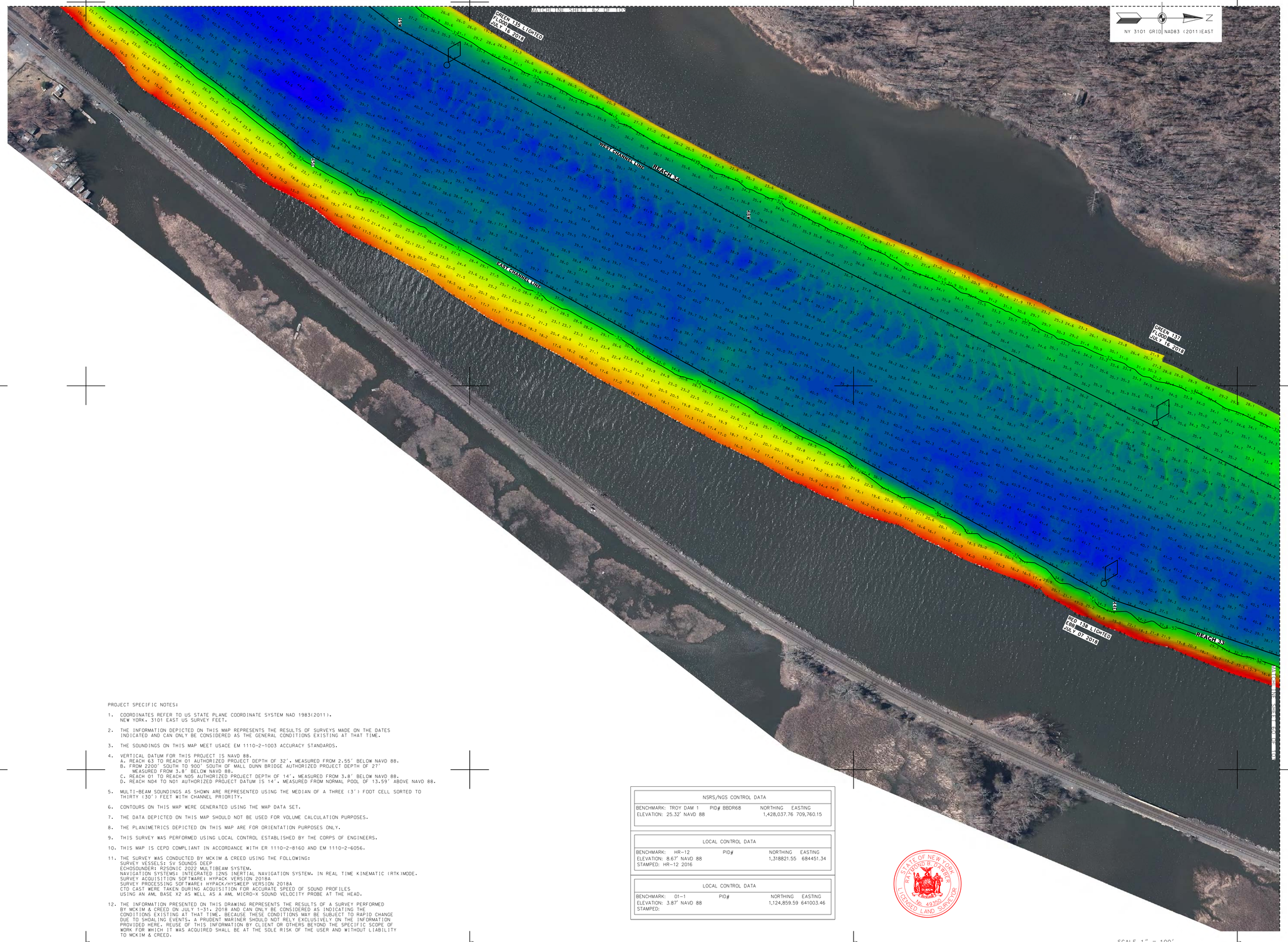
DATE: JULY 31, 2018
SOLICITATION NO.:
CONTRACT NO.: W912DS-14-D-0004
FILE NUMBER:
ISSUE DATE: NOVEMBER 2018
FILE NAME: V:\101\05889005\3_HUDSON_MB.DGN

U.S. ARMY CORPS OF ENGINEERS
NEW YORK DISTRICT
NEW YORK, NY

McKIM & CREED
245 NORTH FRONT STREET
WILMINGTON, NORTH CAROLINA 28401
TELEPHONE: (910) 251-8444
FAX: (910) 251-4282

# HYDROGRAPHIC CONDITIONS SURVEY
## HUDSON RIVER FEDERAL NAVIGATION CHANNEL
## REACH 33

SHEET IDENTIFICATION
VH-160
SHEET 60 OF 103




PROJECT SPECIFIC NOTES:

1. COORDINATES REFER TO US STATE PLANE COORDINATE SYSTEM NAD 1983(2011). NEW YORK. 3101 EAST US SURVEY FEET.
2. THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS THE GENERAL CONDITIONS EXISTING AT THAT TIME.
3. THE SOUNDINGS ON THIS MAP MEET USACE EM 1110-2-1003 ACCURACY STANDARDS.
4. VERTICAL DATUM FOR THIS PROJECT IS NAVD 88.
   A. REACH 63 TO REACH 01 AUTHORIZED PROJECT DEPTH OF 32'. MEASURED FROM 2.55' BELOW NAVD 88.
   B. FROM 2200' SOUTH TO 900' SOUTH OF MALL DUNN BRIDGE AUTHORIZED PROJECT DEPTH OF 27' MEASURED FROM 3.8' BELOW NAVD 88.
   C. REACH 01 TO REACH N05 AUTHORIZED PROJECT DEPTH OF 14'. MEASURED FROM 3.8' BELOW NAVD 88.
   D. REACH N04 TO N01 AUTHORIZED PROJECT DATUM IS 14'. MEASURED FROM NORMAL POOL OF 13.59' ABOVE NAVD 88.
5. MULTI-BEAM SOUNDINGS AS SHOWN ARE REPRESENTED USING THE MEDIAN OF A THREE (3') FOOT CELL SORTED TO THIRTY (30') FEET WITH CHANNEL PRIORITY.
6. CONTOURS ON THIS MAP WERE GENERATED USING THE MAP DATA SET.
7. THE DATA DEPICTED ON THIS MAP SHOULD NOT BE USED FOR VOLUME CALCULATION PURPOSES.
8. THE PLANIMETRICS DEPICTED ON THIS MAP ARE FOR ORIENTATION PURPOSES ONLY.
9. THIS SURVEY WAS PERFORMED USING LOCAL CONTROL ESTABLISHED BY THE CORPS OF ENGINEERS.
10. THIS MAP IS CEPD COMPLIANT IN ACCORDANCE WITH ER 1110-2-8160 AND EM 1110-2-6056.
11. THE SURVEY WAS CONDUCTED BY MCKIM & CREED USING THE FOLLOWING:
    SURVEY VESSELS: SV SOUNDS DEEP
    ECHOSOUNDER: R2SONIC 2022 MULTIBEAM SYSTEM.
    NAVIGATION SYSTEMS: INTEGRATED I2NS INERTIAL NAVIGATION SYSTEM. IN REAL TIME KINEMATIC (RTK)MODE.
    SURVEY ACQUISITION SOFTWARE: HYPACK VERSION 2018A
    SURVEY PROCESSING SOFTWARE: HYPACK/HYSWEEP VERSION 2018A
    CTD CAST WERE TAKEN DURING ACQUISITION FOR ACCURATE SPEED OF SOUND PROFILES USING AN AML BASE X2 AS WELL AS A AML MICRO-X SOUND VELOCITY PROBE AT THE HEAD.
12. THE INFORMATION PRESENTED ON THIS DRAWING REPRESENTS THE RESULTS OF A SURVEY PERFORMED BY MCKIM & CREED ON JULY 1-31, 2018 AND CAN ONLY BE CONSIDERED AS INDICATING THE CONDITIONS EXISTING AT THAT TIME. BECAUSE THESE CONDITIONS MAY BE SUBJECT TO RAPID CHANGE DUE TO SHOALING EVENTS, A PRUDENT MARINER SHOULD NOT RELY EXCLUSIVELY ON THE INFORMATION PROVIDED HERE. REUSE OF THIS INFORMATION BY CLIENT OR OTHERS BEYOND THE SPECIFIC SCOPE OF WORK FOR WHICH IT WAS ACQUIRED SHALL BE AT THE SOLE RISK OF THE USER AND WITHOUT LIABILITY TO MCKIM & CREED.

| NSRS/NGS CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: TROY DAM 1 | PID# BBDR68 | NORTHING | EASTING |
| ELEVATION: 25.32' NAVD 88 | | 1,428,037.76 | 709,760.15 |

| LOCAL CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: HR-12 | PID# | NORTHING | EASTING |
| ELEVATION: 8.67' NAVD 88 | | 1,318821.55 | 684451.34 |
| STAMPED: HR-12 2016 | | | |

| LOCAL CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: 01-1 | PID# | NORTHING | EASTING |
| ELEVATION: 3.87' NAVD 88 | | 1,124,859.59 | 641003.46 |
| STAMPED: | | | |

STATE OF NEW YORK
RAYMOND R. DARBY
No. 49350
LICENSED LAND SURVEYOR

US Army Corps of Engineers ®
New York District

| MARK | DESCRIPTION | DATE | APPR. |
|---|---|---|---|
| | | | |

| MARK | DESCRIPTION | DATE | APPR. |
|---|---|---|---|
| | | | |

U.S. ARMY CORPS OF ENGINEERS
NEW YORK DISTRICT
NEW YORK, NY

McKIM & CREED
243 NORTH FRONT STREET
WILMINGTON, NORTH CAROLINA 28401
TELEPHONE: (910) 251-8444
FAX: (910) 251-8282

| | |
|---|---|
| DESIGNED BY: DBA | DATE: MAY 31, 2018 |
| DWN BY: MBH | CKD BY: RBD |
| SUBMITTED BY: DLJ | SOLICITATION NO.: |
| PLOT SCALE: 1" = 100' | CONTRACT NO.: W912DS-14-D-0004 |
| SIZE: ANSI F | ISSUE DATE: MAY 2018 |
| FILE NAME: VH101-056890053_HUDSON_MB.DGN | FILE NUMBER: |

# HYDROGRAPHIC CONDITIONS SURVEY
## HUDSON RIVER FEDERAL NAVIGATION CHANNEL
## REACH 33-34

SHEET IDENTIFICATION
VH-161
SHEET 61 OF 103

1 2 3 4 5

D C B A

N=1248000 N=1249000 N=1250000 N=1251000

E=681000 E=682000 E=683000

NY 3101 GRID NAD83 (2011) EAST

| NSRS/NGS CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: TROY DAM 1 | PID# BBDR68 | NORTHING | EASTING |
| ELEVATION: 25.32' NAVD 88 | | 1,428,037.76 | 709,760.15 |

| LOCAL CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: HR-12 | PID# | NORTHING | EASTING |
| ELEVATION: 8.67' NAVD 88 | | 1,318821.55 | 684451.34 |
| STAMPED: HR-12 2016 | | | |

| LOCAL CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: 01-1 | PID# | NORTHING | EASTING |
| ELEVATION: 3.87' NAVD 88 | | 1,124,859.59 | 641003.46 |
| STAMPED: | | | |

AREA 33' DEEPENED TO -40' NAVD 88 2018

REACH 1

REACH 2

REACH 3

MATCH LINE SHEET 61 OF 162

SCALE 1" = 100'
0 100 200 300 400

PROJECT SPECIFIC NOTES:

1. COORDINATES REFER TO US STATE PLANE COORDINATE SYSTEM NAD 1983(2011). NEW YORK. 3101 EAST US SURVEY FEET.
2. THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS THE GENERAL CONDITIONS EXISTING AT THAT TIME.
3. THE SOUNDINGS ON THIS MAP MEET USACE EM 1110-2-1003 ACCURACY STANDARDS.
4. VERTICAL DATUM FOR THIS PROJECT IS NAVD 88.
   A. REACH 63 TO REACH 01 AUTHORIZED PROJECT DEPTH OF 32'. MEASURED FROM 2.55' BELOW NAVD 88.
   B. FROM 2200' SOUTH TO 900' SOUTH OF MALL DUNN BRIDGE AUTHORIZED PROJECT DEPTH OF 27' MEASURED FROM 3.8' BELOW NAVD 88.
   C. REACH 01 TO REACH N05 AUTHORIZED PROJECT DEPTH OF 14'. MEASURED FROM 3.8' BELOW NAVD 88.
   D. REACH N04 TO N01 AUTHORIZED PROJECT DATUM IS 14'. MEASURED FROM NORMAL POOL OF 13.59' ABOVE NAVD 88.
5. MULTI-BEAM SOUNDINGS AS SHOWN ARE REPRESENTED USING THE MEDIAN OF A THREE (3') FOOT CELL SORTED TO THIRTY (30') FEET WITH CHANNEL PRIORITY.
6. CONTOURS ON THIS MAP WERE GENERATED USING THE MAP DATA SET.
7. THE DATA DEPICTED ON THIS MAP SHOULD NOT BE USED FOR VOLUME CALCULATION PURPOSES.
8. THE PLANIMETRICS DEPICTED ON THIS MAP ARE FOR ORIENTATION PURPOSES ONLY.
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10. THIS MAP IS CEPD COMPLIANT IN ACCORDANCE WITH ER 1110-2-8160 AND EM 1110-2-6056.
11. THE SURVEY WAS CONDUCTED BY MCKIM & CREED USING THE FOLLOWING:
    SURVEY VESSELS: SV SOUNDS DEEP
    ECHOSOUNDER: R2SONIC 2022 MULTIBEAM SYSTEM.
    NAVIGATION SYSTEMS: INTEGRATED I2NS INERTIAL NAVIGATION SYSTEM. IN REAL TIME KINEMATIC (RTK) MODE.
    SURVEY ACQUISITION SOFTWARE: HYPACK VERSION 2018A
    SURVEY PROCESSING SOFTWARE: HYPACK/HYSWEEP VERSION 2018A
    CTD CAST WERE TAKEN DURING ACQUISITION FOR ACCURATE SPEED OF SOUND PROFILES USING AN AML BASE X2 AS WELL AS A AML MICRO-X SOUND VELOCITY PROBE AT THE HEAD.
12. THE INFORMATION PRESENTED ON THIS DRAWING REPRESENTS THE RESULTS OF A SURVEY PERFORMED BY MCKIM & CREED ON JULY 1-31, 2018 AND CAN ONLY BE CONSIDERED AS INDICATING THE CONDITIONS EXISTING AT THAT TIME. BECAUSE THESE CONDITIONS MAY BE SUBJECT TO RAPID CHANGE DUE TO SHOALING EVENTS, A PRUDENT MARINER SHOULD NOT RELY EXCLUSIVELY ON THE INFORMATION PROVIDED HERE. REUSE OF THIS INFORMATION BY CLIENT OR OTHERS BEYOND THE SPECIFIC SCOPE OF WORK FOR WHICH IT WAS ACQUIRED SHALL BE AT THE SOLE RISK OF THE USER AND WITHOUT LIABILITY TO MCKIM & CREED.

STATE OF NEW YORK
RAYMOND B. PARKER
No. 49350
LICENSED LAND SURVEYOR

US Army Corps of Engineers ®
New York District

| MARK | DESCRIPTION | DATE | APPR. |
|---|---|---|---|
| | | | |

| MARK | DESCRIPTION | DATE | APPR. |
|---|---|---|---|
| | | | |

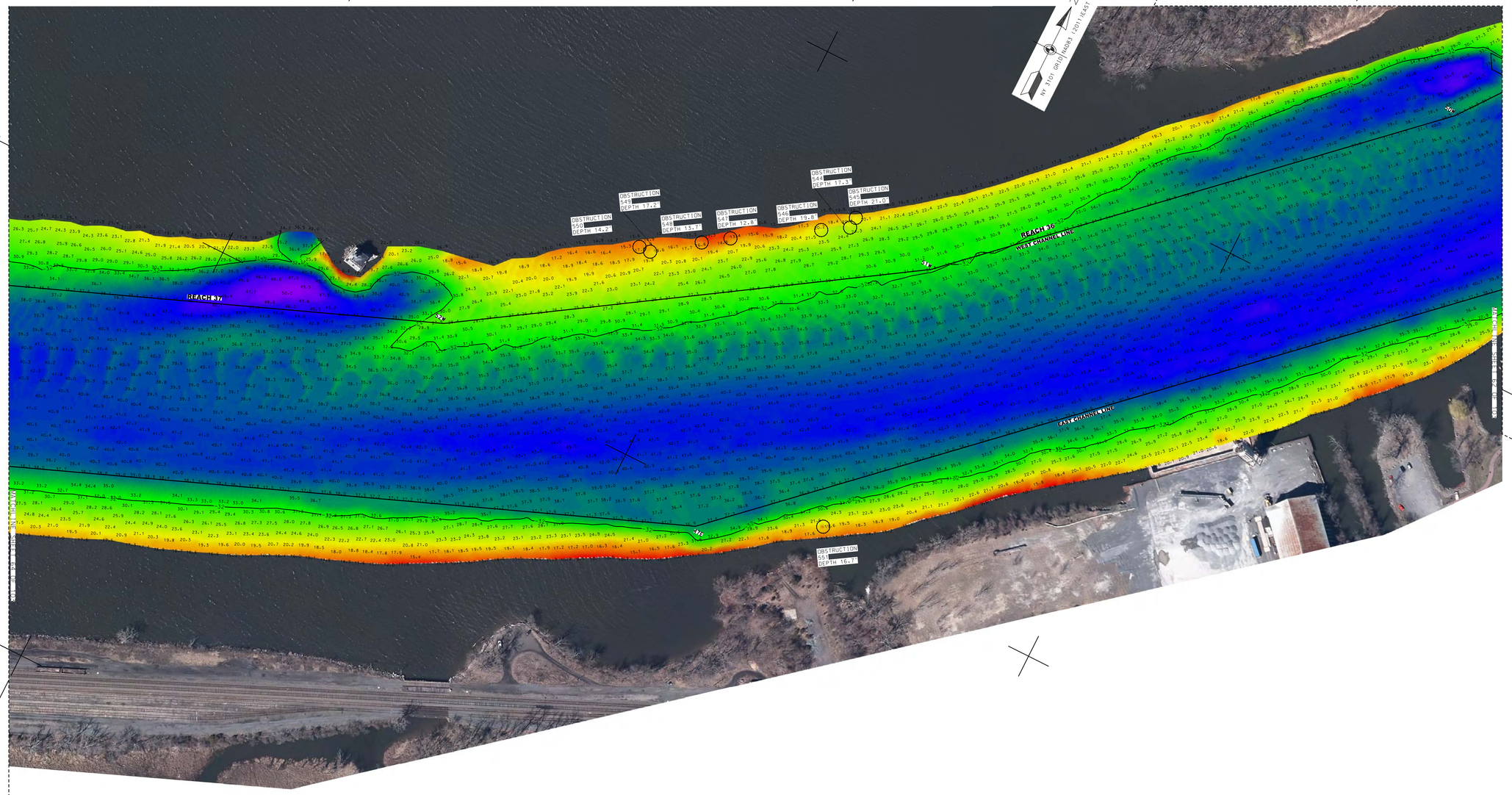
U.S. ARMY CORPS OF ENGINEERS
NEW YORK DISTRICT
NEW YORK, NY

McKIM & CREED
243 NORTH FRONT STREET
WILMINGTON, NORTH CAROLINA 28401
TELEPHONE: (910) 251-8444
FAX: (910) 251-8282

| | |
|---|---|
| DESIGNED BY: DBJ | DATE: MAY 31, 2018 |
| DWN BY: MBH | CKD BY: RBD |
| SUBMITTED BY: DLJ | SOLICITATION NO.: |
| PLOT SCALE: 1" = 100' | CONTRACT NO.: W912DS-14-D-0004 |
| PLOT DATE: 8/6/2018 | ISSUE DATE: AUGUST 2018 |
| SIZE: ANSI F | FILE NUMBER: |
| FILE NAME: VH101-056890063_HUDSON_MB.DGN | |

# HYDROGRAPHIC CONDITIONS SURVEY
## HUDSON RIVER FEDERAL NAVIGATION CHANNEL
## REACH 35

SHEET IDENTIFICATION
VH-162
SHEET 62 OF 162




PROJECT SPECIFIC NOTES:

1. COORDINATES REFER TO US STATE PLANE COORDINATE SYSTEM NAD 1983(2011). NEW YORK, 3101 EAST US SURVEY FEET.
2. THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS THE GENERAL CONDITIONS EXISTING AT THAT TIME.
3. THE SOUNDINGS ON THIS MAP MEET USACE EM 1110-2-1003 ACCURACY STANDARDS.
4. VERTICAL DATUM FOR THIS PROJECT IS NAVD 88.
   A. REACH 63 TO REACH 01 AUTHORIZED PROJECT DEPTH OF 32', MEASURED FROM 2.55' BELOW NAVD 88.
   B. FROM 2200' SOUTH TO 900' SOUTH OF MALL DUNN BRIDGE AUTHORIZED PROJECT DEPTH OF 27' MEASURED FROM 3.8' BELOW NAVD 88.
   C. REACH 01 TO REACH N05 AUTHORIZED PROJECT DEPTH OF 14', MEASURED FROM 3.8' BELOW NAVD 88.
   D. REACH N04 TO N01 AUTHORIZED PROJECT DATUM IS 14', MEASURED FROM NORMAL POOL OF 13.59' ABOVE NAVD 88.
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7. THE DATA DEPICTED ON THIS MAP SHOULD NOT BE USED FOR VOLUME CALCULATION PURPOSES.
8. THE PLANIMETRICS DEPICTED ON THIS MAP ARE FOR ORIENTATION PURPOSES ONLY.
9. THIS SURVEY WAS PERFORMED USING LOCAL CONTROL ESTABLISHED BY THE CORPS OF ENGINEERS.
10. THIS MAP IS CEPD COMPLIANT IN ACCORDANCE WITH ER 1110-2-8160 AND EM 1110-2-6056.
11. THE SURVEY WAS CONDUCTED BY MCKIM & CREED USING THE FOLLOWING:
    SURVEY VESSELS: SV SOUNDS DEEP
    ECHOSOUNDER: R2SONIC 2022 MULTIBEAM SYSTEM.
    NAVIGATION SYSTEMS: INTEGRATED I2NS INERTIAL NAVIGATION SYSTEM. IN REAL TIME KINEMATIC (RTK) MODE.
    SURVEY ACQUISITION SOFTWARE: HYPACK VERSION 2018A
    SURVEY PROCESSING SOFTWARE: HYPACK/HYSWEEP VERSION 2018A
    CTD CAST WERE TAKEN DURING ACQUISITION FOR ACCURATE SPEED OF SOUND PROFILES USING AN AML BASE X2 AS WELL AS A AML MICRO-X SOUND VELOCITY PROBE AT THE HEAD.
12. THE INFORMATION PRESENTED ON THIS DRAWING REPRESENTS THE RESULTS OF A SURVEY PERFORMED BY MCKIM & CREED ON JULY 1-31, 2018 AND CAN ONLY BE CONSIDERED AS INDICATING THE CONDITIONS EXISTING AT THAT TIME, BECAUSE THESE CONDITIONS MAY BE SUBJECT TO RAPID CHANGE DUE TO SHOALING EVENTS. A PRUDENT MARINER SHOULD NOT RELY EXCLUSIVELY ON THE INFORMATION PROVIDED HERE. REUSE OF THIS INFORMATION BY CLIENT OR OTHERS BEYOND THE SPECIFIC SCOPE OF WORK FOR WHICH IT WAS ACQUIRED SHALL BE AT THE SOLE RISK OF THE USER AND WITHOUT LIABILITY TO MCKIM & CREED.

STATE OF NEW YORK
RAYDOD B. PARKER
No. 49358
LICENSED LAND SURVEYOR

| NSRS/NGS CONTROL DATA | | |
|---|---|---|
| BENCHMARK: TROY DAM 1 | PID# BBDR68 | NORTHING EASTING |
| ELEVATION: 25.32' NAVD 88 | | 1,428,037.76 709,760.15 |

| LOCAL CONTROL DATA | | |
|---|---|---|
| BENCHMARK: HR-12 | PID# | NORTHING EASTING |
| ELEVATION: 8.67' NAVD 88 | | 1,318821.55 684451.34 |
| STAMPED: HR-12 2016 | | |

| LOCAL CONTROL DATA | | |
|---|---|---|
| BENCHMARK: 01-1 | PID# | NORTHING EASTING |
| ELEVATION: 3.87' NAVD 88 | | 1,124,859.59 641003.46 |
| STAMPED: | | |

SCALE 1" = 100'
0 100 200 300 400

US Army Corps of Engineers
New York District

| MARK | DESCRIPTION | DATE | APPR. | MARK | DESCRIPTION | DATE | APPR. |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

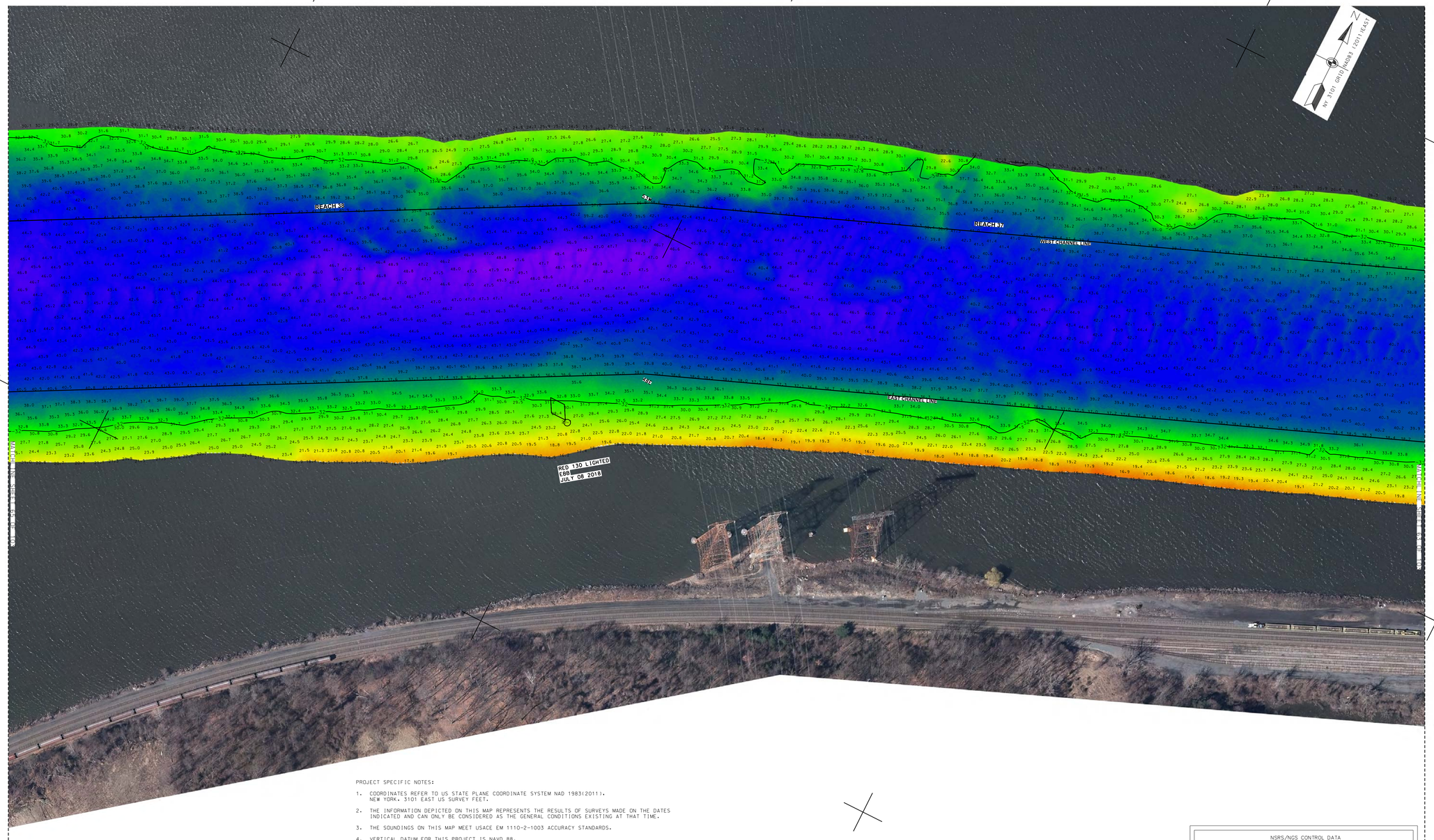
DESIGNED BY: DGC
DWN BY: MBH
CKD BY: RBD
SUBMITTED BY: DLJ
PLOT SCALE: 1:50
SIZE: ANSI F
DATE: JULY 31, 2018
SOLICITATION NO.:
CONTRACT NO.: W912DS-14-D-0004
ISSUE DATE: NOVEMBER 2018
FILE NUMBER:
FILE NAME: VH101-058890053_HUDSON_MIDLOGN

U.S. ARMY CORPS OF ENGINEERS
NEW YORK DISTRICT
NEW YORK, NY

McKIM & CREED
243 NORTH FRONT STREET
WILMINGTON, NORTH CAROLINA 28401
TELEPHONE: (910) 341-0448
FAX: (910) 251-8282

# HYDROGRAPHIC CONDITIONS SURVEY
## HUDSON RIVER FEDERAL NAVIGATION CHANNEL
## REACH 36-37

SHEET IDENTIFICATION
VH-163
SHEET 63 OF 103




PROJECT SPECIFIC NOTES:

1. COORDINATES REFER TO US STATE PLANE COORDINATE SYSTEM NAD 1983(2011). NEW YORK. 3101 EAST US SURVEY FEET.

2. THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS THE GENERAL CONDITIONS EXISTING AT THAT TIME.

3. THE SOUNDINGS ON THIS MAP MEET USACE EM 1110-2-1003 ACCURACY STANDARDS.

4. VERTICAL DATUM FOR THIS PROJECT IS NAVD 88.
   A. REACH 63 TO REACH 01 AUTHORIZED PROJECT DEPTH OF 32'. MEASURED FROM 2.55' BELOW NAVD 88.
   B. FROM 2200' SOUTH TO 900' SOUTH OF MALL DUNN BRIDGE AUTHORIZED PROJECT DEPTH OF 27' MEASURED FROM 3.8' BELOW NAVD 88.
   C. REACH 01 TO REACH N05 AUTHORIZED PROJECT DEPTH OF 14'. MEASURED FROM 3.8' BELOW NAVD 88.
   D. REACH N04 TO N01 AUTHORIZED PROJECT DATUM IS 14'. MEASURED FROM NORMAL POOL OF 13.59' ABOVE NAVD 88.

5. MULTI-BEAM SOUNDINGS AS SHOWN ARE REPRESENTED USING THE MEDIAN OF A THREE (3') FOOT CELL SORTED TO THIRTY (30') FEET WITH CHANNEL PRIORITY.

6. CONTOURS ON THIS MAP WERE GENERATED USING THE MAP DATA SET.

7. THE DATA DEPICTED ON THIS MAP SHOULD NOT BE USED FOR VOLUME CALCULATION PURPOSES.

8. THE PLANIMETRICS DEPICTED ON THIS MAP ARE FOR ORIENTATION PURPOSES ONLY.

9. THIS SURVEY WAS PERFORMED USING LOCAL CONTROL ESTABLISHED BY THE CORPS OF ENGINEERS.

10. THIS MAP IS CEPD COMPLIANT IN ACCORDANCE WITH ER 1110-2-8160 AND EM 1110-2-6056.

11. THE SURVEY WAS CONDUCTED BY MCKIM & CREED USING THE FOLLOWING:
    SURVEY VESSELS: SV SOUNDS DEEP
    ECHOSOUNDER: R2SONIC 2022 MULTIBEAM SYSTEM.
    NAVIGATION SYSTEMS: INTEGRATED I2NS INERTIAL NAVIGATION SYSTEM. IN REAL TIME KINEMATIC (RTK)MODE.
    SURVEY ACQUISITION SOFTWARE: HYPACK VERSION 2018A
    SURVEY PROCESSING SOFTWARE: HYPACK/HYSWEEP VERSION 2018A
    CTD CAST WERE TAKEN DURING ACQUISITION FOR ACCURATE SPEED OF SOUND PROFILES USING AN AML BASE X2 AS WELL AS A AML MICRO-X SOUND VELOCITY PROBE AT THE HEAD.

12. THE INFORMATION PRESENTED ON THIS DRAWING REPRESENTS THE RESULTS OF A SURVEY PERFORMED BY MCKIM & CREED ON JULY 1-31, 2018 AND CAN ONLY BE CONSIDERED AS INDICATING THE CONDITIONS EXISTING AT THAT TIME. BECAUSE THESE CONDITIONS MAY BE SUBJECT TO RAPID CHANGE DUE TO SHOALING EVENTS. A PRUDENT MARINER SHOULD NOT RELY EXCLUSIVELY ON THE INFORMATION PROVIDED HERE. REUSE OF THIS INFORMATION BY CLIENT OR OTHERS BEYOND THE SPECIFIC SCOPE OF WORK FOR WHICH IT WAS ACQUIRED SHALL BE AT THE SOLE RISK OF THE USER AND WITHOUT LIABILITY TO MCKIM & CREED.

STATE OF NEW YORK
RAYMOND B. DWYER
LICENSED LAND SURVEYOR
No. 49350

NSRS/NGS CONTROL DATA

| BENCHMARK: TROY DAM 1 | PID# BBDR68 | NORTHING | EASTING |
|---|---|---|---|
| ELEVATION: 25.32' NAVD 88 | | 1,428,037.76 | 709,760.15 |

LOCAL CONTROL DATA

| BENCHMARK: HR-12 | PID# | NORTHING | EASTING |
|---|---|---|---|
| ELEVATION: 8.67' NAVD 88 | | 1,318821.55 | 684451.34 |
| STAMPED: HR-12 2016 | | | |

LOCAL CONTROL DATA

| BENCHMARK: 01-1 | PID# | NORTHING | EASTING |
|---|---|---|---|
| ELEVATION: 3.87' NAVD 88 | | 1,124,859.59 | 641003.46 |
| STAMPED: | | | |

SCALE 1" = 100'
0 100 200 300 400

US Army Corps of Engineers
New York District

| MARK | DESCRIPTION | DATE | APPR. |
|---|---|---|---|
| | | | |

| MARK | DESCRIPTION | DATE | APPR. |
|---|---|---|---|
| | | | |

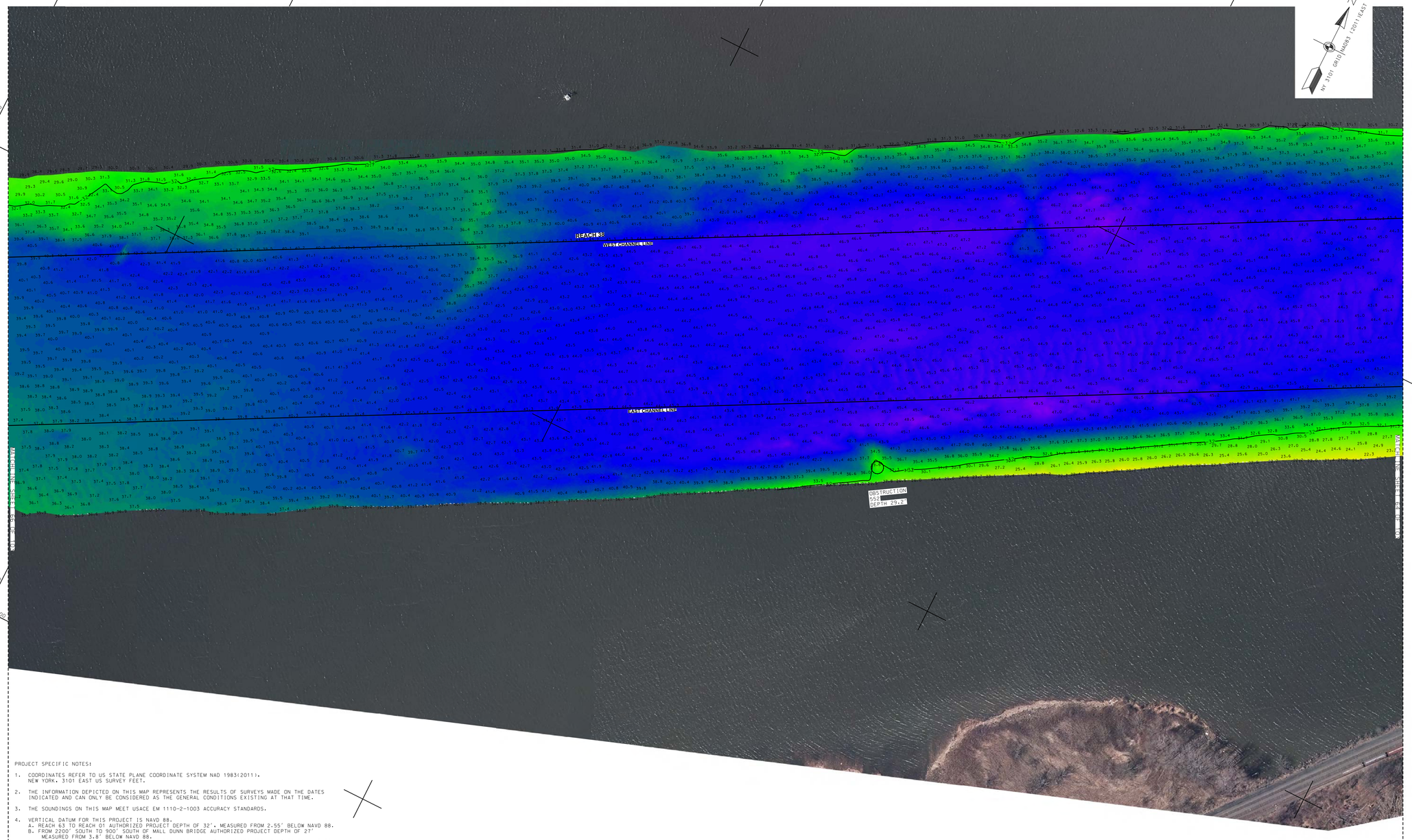
U.S. ARMY CORPS OF ENGINEERS
NEW YORK DISTRICT
NEW YORK, NY

McKIM & CREED
243 NORTH FRONT STREET
WILMINGTON, NORTH CAROLINA 28401
TELEPHONE (910) 251-8448
FAX (910) 251-8282

| | |
|---|---|
| DESIGNED BY: DBA | DATE: JULY 31, 2018 |
| DWN BY: MBH | SOLICITATION NO.: |
| CKD BY: RBD | CONTRACT NO.: W912DS-14-D-0004 |
| SUBMITTED BY: DLJ | FILE NUMBER: |
| PLOT SCALE: 1" = 100' | ISSUE DATE: NOVEMBER 2018 |
| SIZE: ANSI F | FILE NAME: VH101-056890063_HUDSON_MB.DGN |

# HYDROGRAPHIC CONDITIONS SURVEY
## HUDSON RIVER FEDERAL NAVIGATION CHANNEL
## REACH 37-38

SHEET IDENTIFICATION
VH-164
SHEET 64 OF 103




PROJECT SPECIFIC NOTES:

1. COORDINATES REFER TO US STATE PLANE COORDINATE SYSTEM NAD 1983(2011). NEW YORK. 3101 EAST US SURVEY FEET.
2. THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS THE GENERAL CONDITIONS EXISTING AT THAT TIME.
3. THE SOUNDINGS ON THIS MAP MEET USACE EM 1110-2-1003 ACCURACY STANDARDS.
4. VERTICAL DATUM FOR THIS PROJECT IS NAVD 88.
   A. REACH 63 TO REACH 01 AUTHORIZED PROJECT DEPTH OF 32'. MEASURED FROM 2.55' BELOW NAVD 88.
   B. FROM 2200' SOUTH TO 900' SOUTH OF MALL DUNN BRIDGE AUTHORIZED PROJECT DEPTH OF 27' MEASURED FROM 3.8' BELOW NAVD 88.
   C. REACH 01 TO REACH N05 AUTHORIZED PROJECT DEPTH OF 14'. MEASURED FROM 3.8' BELOW NAVD 88.
   D. REACH N04 TO N01 AUTHORIZED PROJECT DATUM IS 14'. MEASURED FROM NORMAL POOL OF 13.59' ABOVE NAVD 88.
5. MULTI-BEAM SOUNDINGS AS SHOWN ARE REPRESENTED USING THE MEDIAN OF A THREE (3') FOOT CELL SORTED TO THIRTY (30') FEET WITH CHANNEL PRIORITY.
6. CONTOURS ON THIS MAP WERE GENERATED USING THE MAP DATA SET.
7. THE DATA DEPICTED ON THIS MAP SHOULD NOT BE USED FOR VOLUME CALCULATION PURPOSES.
8. THE PLANIMETRICS DEPICTED ON THIS MAP ARE FOR ORIENTATION PURPOSES ONLY.
9. THIS SURVEY WAS PERFORMED USING LOCAL CONTROL ESTABLISHED BY THE CORPS OF ENGINEERS.
10. THIS MAP IS CEPD COMPLIANT IN ACCORDANCE WITH ER 1110-2-8160 AND EM 1110-2-6056.
11. THE SURVEY WAS CONDUCTED BY MCKIM & CREED USING THE FOLLOWING:
    SURVEY VESSELS: SV SOUNDS DEEP
    ECHOSOUNDER: R2SONIC 2022 MULTIBEAM SYSTEM.
    NAVIGATION SYSTEMS: INTEGRATED IXNS INERTIAL NAVIGATION SYSTEM. IN REAL TIME KINEMATIC (RTK)MODE.
    SURVEY ACQUISITION SOFTWARE: HYPACK VERSION 2018A
    SURVEY PROCESSING SOFTWARE: HYPACK/HYSWEEP VERSION 2018A
    CTD CAST WERE TAKEN DURING ACQUISITION FOR ACCURATE SPEED OF SOUND PROFILES
    USING AN AML BASE X2 AS WELL AS A AML MICRO-X SOUND VELOCITY PROBE AT THE HEAD.
12. THE INFORMATION PRESENTED ON THIS DRAWING REPRESENTS THE RESULTS OF A SURVEY PERFORMED BY MCKIM & CREED ON JULY 1-31, 2018 AND CAN ONLY BE CONSIDERED AS INDICATING THE CONDITIONS EXISTING AT THAT TIME. BECAUSE THESE CONDITIONS MAY BE SUBJECT TO RAPID CHANGE DUE TO SHOALING EVENTS, A PRUDENT MARINER SHOULD NOT RELY EXCLUSIVELY ON THE INFORMATION PROVIDED HERE. REUSE OF THIS INFORMATION BY CLIENT OR OTHERS BEYOND THE SPECIFIC SCOPE OF WORK FOR WHICH IT WAS ACQUIRED SHALL BE AT THE SOLE RISK OF THE USER AND WITHOUT LIABILITY TO MCKIM & CREED.

| NSRS/NGS CONTROL DATA | | |
|---|---|---|
| BENCHMARK: TROY DAM 1 | PID# BBDR68 | NORTHING EASTING |
| ELEVATION: 25.32' NAVD 88 | | 1,428,037.76 709,760.15 |

| LOCAL CONTROL DATA | | |
|---|---|---|
| BENCHMARK: HR-12 | PID# | NORTHING EASTING |
| ELEVATION: 8.67' NAVD 88 | | 1,318821.55 684451.34 |
| STAMPED: HR-12 2016 | | |

| LOCAL CONTROL DATA | | |
|---|---|---|
| BENCHMARK: 01-1 | PID# | NORTHING EASTING |
| ELEVATION: 3.87' NAVD 88 | | 1,124,859.59 641003.46 |
| STAMPED: | | |

STATE OF NEW YORK
RAYMOND B. DOWER
No. 49350
LICENSED LAND SURVEYOR

US Army Corps of Engineers ®
New York District

| MARK | DESCRIPTION | DATE | APPR. |
|---|---|---|---|
| | | | |

| MARK | DESCRIPTION | DATE | APPR. |
|---|---|---|---|
| | | | |

DESIGNED BY: MBH
DRN BY: MBH
CKD BY: RBD
SUBMITTED BY: DLJ
PLOT SCALE: 1" = 100'
SIZE: ANSI F
DATE: JULY 31, 2018
SOLICITATION NO.:
CONTRACT NO.: W912DS-14-D-0004
FILE NUMBER:
ISSUE DATE: NOV 2018
FILE NAME: VH101-056890063_HUDSON_MB.DGN

U.S. ARMY CORPS OF ENGINEERS
NEW YORK DISTRICT
NEW YORK, NY

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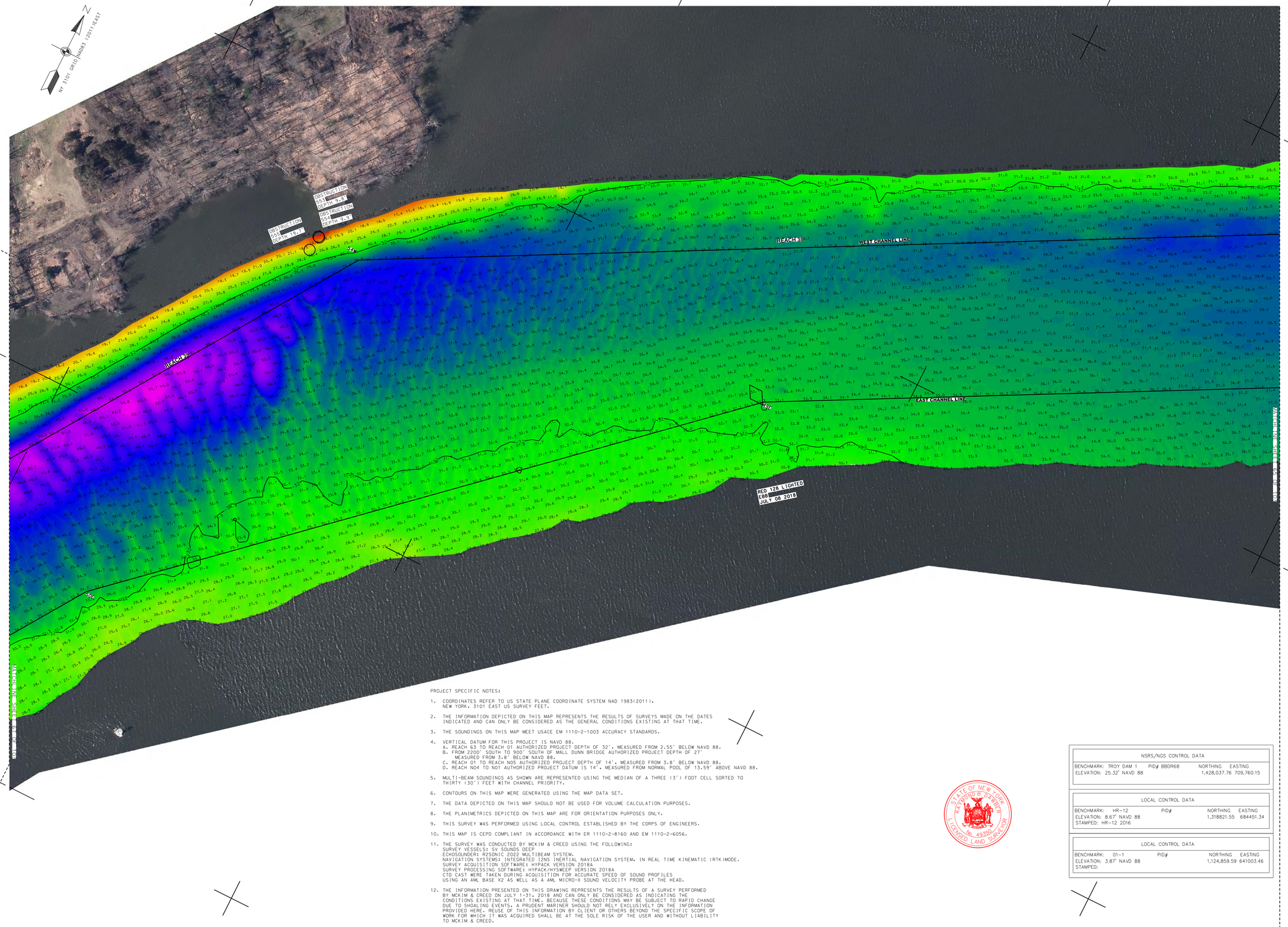
WILMINGTON, NORTH CAROLINA 28401
TELEPHONE: (910) 341-1348
FAX: (910) 251-8282

# HYDROGRAPHIC CONDITIONS SURVEY
## HUDSON RIVER FEDERAL NAVIGATION CHANNEL
## REACH 38

SHEET IDENTIFICATION
VH-165
SHEET 65 OF 103




PROJECT SPECIFIC NOTES:

1. COORDINATES REFER TO US STATE PLANE COORDINATE SYSTEM NAD 1983(2011). NEW YORK. 3101 EAST US SURVEY FEET.
2. THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS THE GENERAL CONDITIONS EXISTING AT THAT TIME.
3. THE SOUNDINGS ON THIS MAP MEET USACE EM 1110-2-1003 ACCURACY STANDARDS.
4. VERTICAL DATUM FOR THIS PROJECT IS NAVD 88.
   A. REACH 63 TO REACH 01 AUTHORIZED PROJECT DEPTH OF 32', MEASURED FROM 2.55' BELOW NAVD 88.
   B. FROM 2200' SOUTH TO 900' SOUTH OF MALL DUNN BRIDGE AUTHORIZED PROJECT DEPTH OF 27' MEASURED FROM 3.8' BELOW NAVD 88.
   C. REACH 01 TO REACH N05 AUTHORIZED PROJECT DEPTH OF 14', MEASURED FROM 3.8' BELOW NAVD 88.
   D. REACH N04 TO N01 AUTHORIZED PROJECT DATUM IS 14', MEASURED FROM NORMAL POOL OF 13.59' ABOVE NAVD 88.
5. MULTI-BEAM SOUNDINGS AS SHOWN ARE REPRESENTED USING THE MEDIAN OF A THREE (3') FOOT CELL SORTED TO THIRTY (30') FEET WITH CHANNEL PRIORITY.
6. CONTOURS ON THIS MAP WERE GENERATED USING THE MAP DATA SET.
7. THE DATA DEPICTED ON THIS MAP SHOULD NOT BE USED FOR VOLUME CALCULATION PURPOSES.
8. THE PLANIMETRICS DEPICTED ON THIS MAP ARE FOR ORIENTATION PURPOSES ONLY.
9. THIS SURVEY WAS PERFORMED USING LOCAL CONTROL ESTABLISHED BY THE CORPS OF ENGINEERS.
10. THIS MAP IS CEPD COMPLIANT IN ACCORDANCE WITH ER 1110-2-8160 AND EM 1110-2-6056.
11. THE SURVEY WAS CONDUCTED BY MCKIM & CREED USING THE FOLLOWING:
    SURVEY VESSELS: SV SOUNDS DEEP
    ECHOSOUNDER: R2SONIC 2022 MULTIBEAM SYSTEM.
    NAVIGATION SYSTEMS: INTEGRATED I2NS INERTIAL NAVIGATION SYSTEM. IN REAL TIME KINEMATIC (RTK)MODE.
    SURVEY ACQUISITION SOFTWARE: HYPACK VERSION 2018A
    SURVEY PROCESSING SOFTWARE: HYPACK/HYSWEEP VERSION 2018A
    CTD CAST WERE TAKEN DURING ACQUISITION FOR ACCURATE SPEED OF SOUND PROFILES USING AN AML BASE X2 AS WELL AS A AML MICRO-X SOUND VELOCITY PROBE AT THE HEAD.
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STATE OF NEW YORK
RICHARD B. FISHER
LICENSED LAND SURVEYOR
No. 49350

| NSRS/NGS CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: TROY DAM 1 | PID# BBDR68 | NORTHING | EASTING |
| ELEVATION: 25.32' NAVD 88 | | 1,428,037.76 | 709,760.15 |

| LOCAL CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: HR-12 | PID# | NORTHING | EASTING |
| ELEVATION: 8.67' NAVD 88 | | 1,318821.55 | 684451.34 |
| STAMPED: HR-12 2016 | | | |

| LOCAL CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: 01-1 | PID# | NORTHING | EASTING |
| ELEVATION: 3.87' NAVD 88 | | 1,124,859.59 | 641003.46 |
| STAMPED: | | | |

US Army Corps of Engineers ®
New York District

| MARK | DESCRIPTION | DATE | APPR. |
|---|---|---|---|
| | | | |

DESIGNED BY:
DRWN BY: MBH
CKD BY: RBD
SUBMITTED BY: DLJ
PLOT SCALE: 1" = 50'
SIZE: ANSI F
DATE: JULY 31, 2018
SOLICITATION NO.:
CONTRACT NO.: W912DS-14-D-0004
FILE NUMBER:
ISSUE DATE: NOVEMBER 2018
FILE NAME: VH101-058900053_HUDSON_MB.DGN

U.S. ARMY CORPS OF ENGINEERS
NEW YORK DISTRICT
NEW YORK, NY

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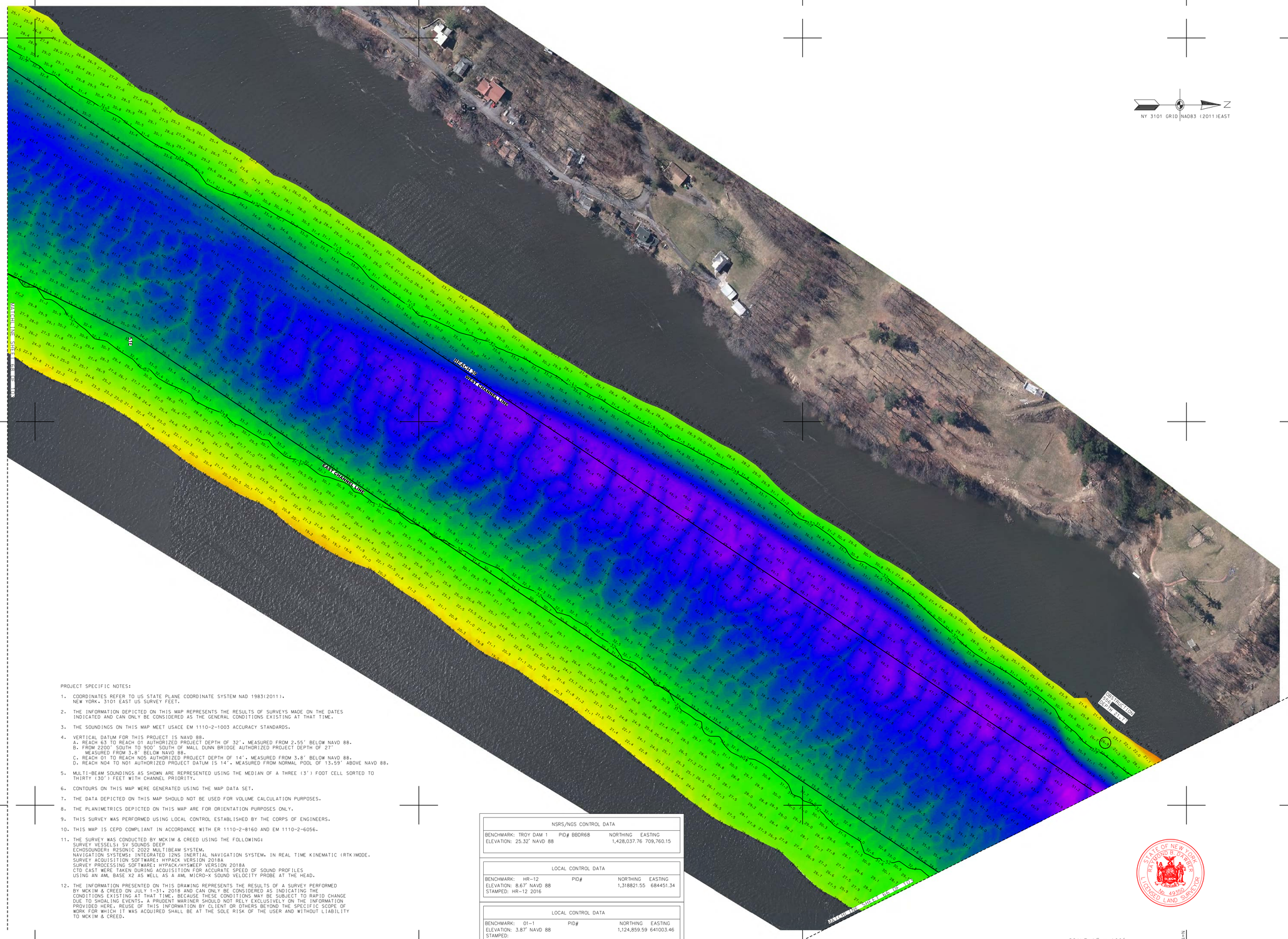
243 NORTH FRONT STREET
WILMINGTON, NORTH CAROLINA 28401
TELEPHONE: (910) 251-4246
FAX: (910) 251-4282

# HYDROGRAPHIC CONDITIONS SURVEY
## HUDSON RIVER FEDERAL NAVIGATION CHANNEL
## REACH 38-39

SHEET IDENTIFICATION
VH-166
SHEET 66 OF 103




PROJECT SPECIFIC NOTES:

1. COORDINATES REFER TO US STATE PLANE COORDINATE SYSTEM NAD 1983(2011). NEW YORK, 3101 EAST US SURVEY FEET.
2. THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS THE GENERAL CONDITIONS EXISTING AT THAT TIME.
3. THE SOUNDINGS ON THIS MAP MEET USACE EM 1110-2-1003 ACCURACY STANDARDS.
4. VERTICAL DATUM FOR THIS PROJECT IS NAVD 88.
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   B. FROM 2200' SOUTH TO 900' SOUTH OF MALL DUNN BRIDGE AUTHORIZED PROJECT DEPTH OF 27' MEASURED FROM 3.8' BELOW NAVD 88.
   C. REACH 01 TO REACH N05 AUTHORIZED PROJECT DEPTH OF 14', MEASURED FROM 3.8' BELOW NAVD 88.
   D. REACH N04 TO N01 AUTHORIZED PROJECT DATUM IS 14', MEASURED FROM NORMAL POOL OF 13.59' ABOVE NAVD 88.
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11. THE SURVEY WAS CONDUCTED BY MCKIM & CREED USING THE FOLLOWING:
    SURVEY VESSELS: SV SOUNDS DEEP
    ECHOSOUNDER: R2SONIC 2022 MULTIBEAM SYSTEM.
    NAVIGATION SYSTEMS: INTEGRATED I2NS INERTIAL NAVIGATION SYSTEM. IN REAL TIME KINEMATIC (RTK) MODE.
    SURVEY ACQUISITION SOFTWARE: HYPACK VERSION 2018A
    SURVEY PROCESSING SOFTWARE: HYPACK/HYSWEEP VERSION 2018A
    CTD CAST WERE TAKEN DURING ACQUISITION FOR ACCURATE SPEED OF SOUND PROFILES USING AN AML BASE X2 AS WELL AS A AML MICRO-X SOUND VELOCITY PROBE AT THE HEAD.
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| NSRS/NGS CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: TROY DAM 1 | PID# BBDR68 | NORTHING | EASTING |
| ELEVATION: 25.32' NAVD 88 | | 1,428,037.76 | 709,760.15 |

| LOCAL CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: HR-12 | PID# | NORTHING | EASTING |
| ELEVATION: 8.67' NAVD 88 | | 1,318821.55 | 684451.34 |
| STAMPED: HR-12 2016 | | | |

| LOCAL CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: 01-1 | PID# | NORTHING | EASTING |
| ELEVATION: 3.87' NAVD 88 | | 1,124,859.59 | 641003.46 |
| STAMPED: | | | |

STATE OF NEW YORK
RAYMOND B. DRAPER
No. 49350
LICENSED LAND SURVEYOR

US Army Corps of Engineers ®
New York District

| MARK | DESCRIPTION | DATE | APPR. |
|---|---|---|---|
| | | | |

| MARK | DESCRIPTION | DATE | APPR. |
|---|---|---|---|
| | | | |

DATE: JULY 31, 2018 - AUG 1, 2018
SOLICITATION NO.:
CONTRACT NO.: W912DS-14-D-0004
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FILE NAME: VH101-056890063_HUDSON_MB.DGN

DESIGNED BY: DRA
DWN BY: MBH
CKD BY: RBD
SUBMITTED BY: DLJ
PLOT SCALE: 1" = 100'
SIZE: ANSI F

U.S. ARMY CORPS OF ENGINEERS
NEW YORK DISTRICT
NEW YORK, NY

McKIM & CREED
243 NORTH FRONT STREET
WILMINGTON, NORTH CAROLINA 28401
TELEPHONE (910) 251-1048
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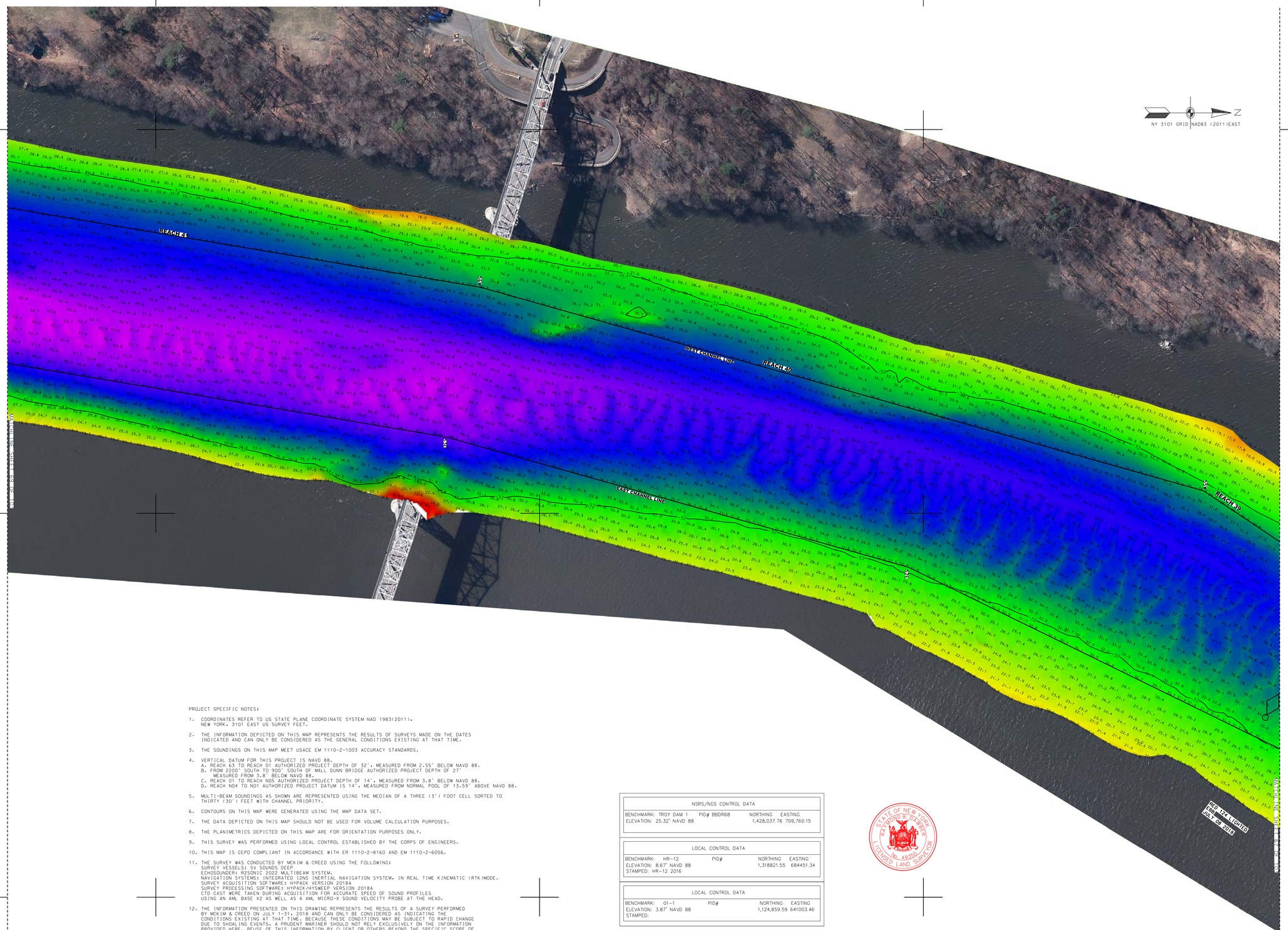
# HYDROGRAPHIC CONDITIONS SURVEY
## HUDSON RIVER FEDERAL NAVIGATION CHANNEL
## REACH 39

SHEET IDENTIFICATION
VH-167
SHEET 67 OF 103


REACH 63
REACH 01
REACH 02
REACH 03
REACH 04
REACH 05
REACH 06
EAST CHANNEL LINE
WEST CHANNEL LINE
END OF REACH 63 AUTH. DEPTH -27' NAVD 88
END OF REACH 01 AUTH. DEPTH -32' NAVD 88
END OF REACH 02 AUTH. DEPTH -32' NAVD 88
END OF REACH 03 AUTH. DEPTH -32' NAVD 88
END OF REACH 04 AUTH. DEPTH -32' NAVD 88
END OF REACH 05 AUTH. DEPTH -32' NAVD 88
END OF REACH 06 AUTH. DEPTH -32' NAVD 88
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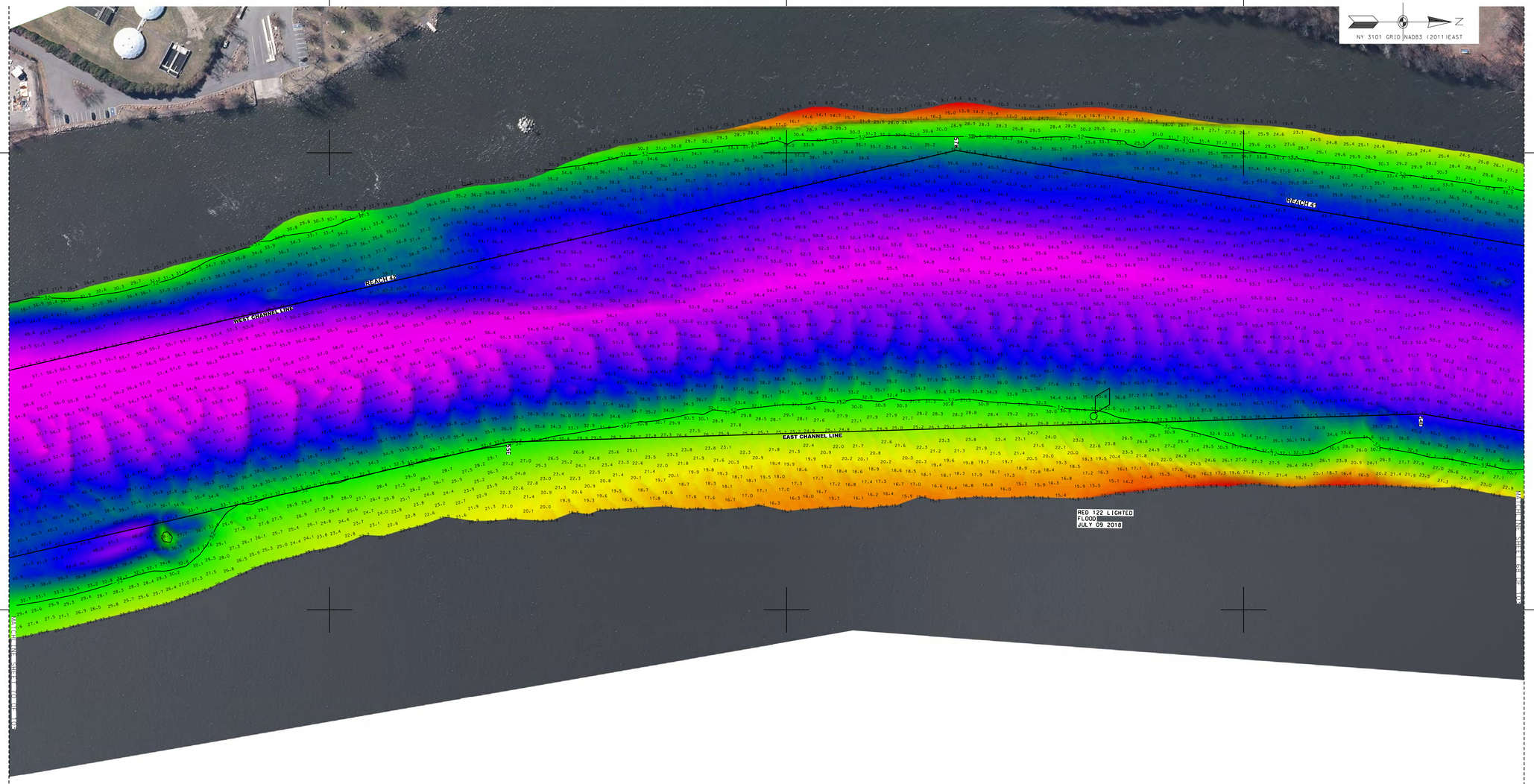


PROJECT SPECIFIC NOTES:

1. COORDINATES REFER TO US STATE PLANE COORDINATE SYSTEM NAD 1983(2011). NEW YORK. 3101 EAST US SURVEY FEET.
2. THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS THE GENERAL CONDITIONS EXISTING AT THAT TIME.
3. THE SOUNDINGS ON THIS MAP MEET USACE EM 1110-2-1003 ACCURACY STANDARDS.
4. VERTICAL DATUM FOR THIS PROJECT IS NAVD 88.
   A. REACH 63 TO REACH 01 AUTHORIZED PROJECT DEPTH OF 32'. MEASURED FROM 2.55' BELOW NAVD 88.
   B. FROM 2200' SOUTH TO 900' SOUTH OF MALL DUNN BRIDGE AUTHORIZED PROJECT DEPTH OF 27' MEASURED FROM 3.8' BELOW NAVD 88.
   C. REACH 01 TO REACH N05 AUTHORIZED PROJECT DEPTH OF 14'. MEASURED FROM 3.8' BELOW NAVD 88.
   D. REACH N04 TO N01 AUTHORIZED PROJECT DATUM IS 14'. MEASURED FROM NORMAL POOL OF 13.59' ABOVE NAVD 88.
5. MULTI-BEAM SOUNDINGS AS SHOWN ARE REPRESENTED USING THE MEDIAN OF A THREE (3') FOOT CELL SORTED TO THIRTY (30') FEET WITH CHANNEL PRIORITY.
6. CONTOURS ON THIS MAP WERE GENERATED USING THE MAP DATA SET.
7. THE DATA DEPICTED ON THIS MAP SHOULD NOT BE USED FOR VOLUME CALCULATION PURPOSES.
8. THE PLANIMETRICS DEPICTED ON THIS MAP ARE FOR ORIENTATION PURPOSES ONLY.
9. THIS SURVEY WAS PERFORMED USING LOCAL CONTROL ESTABLISHED BY THE CORPS OF ENGINEERS.
10. THIS MAP IS CEPD COMPLIANT IN ACCORDANCE WITH ER 1110-2-8160 AND EM 1110-2-6056.
11. THE SURVEY WAS CONDUCTED BY MCKIM & CREED USING THE FOLLOWING:
    SURVEY VESSELS: SV SOUNDS DEEP
    ECHOSOUNDER: R2SONIC 2022 MULTIBEAM SYSTEM.
    NAVIGATION SYSTEMS: INTEGRATED I2NS INERTIAL NAVIGATION SYSTEM. IN REAL TIME KINEMATIC (RTK) MODE.
    SURVEY ACQUISITION SOFTWARE: HYPACK VERSION 2018A
    SURVEY PROCESSING SOFTWARE: HYPACK/HYSWEEP VERSION 2018A
    CTD CAST WERE TAKEN DURING ACQUISITION FOR ACCURATE SPEED OF SOUND PROFILES USING AN AML BASE X2 AS WELL AS A AML MICRO-X SOUND VELOCITY PROBE AT THE HEAD.
12. THE INFORMATION PRESENTED ON THIS DRAWING REPRESENTS THE RESULTS OF A SURVEY PERFORMED BY MCKIM & CREED ON JULY 1-31, 2018 AND CAN ONLY BE CONSIDERED AS INDICATING THE CONDITIONS EXISTING AT THAT TIME. BECAUSE THESE CONDITIONS MAY BE SUBJECT TO RAPID CHANGE DUE TO SHOALING EVENTS. A PRUDENT MARINER SHOULD NOT RELY EXCLUSIVELY ON THE INFORMATION PROVIDED HERE. REUSE OF THIS INFORMATION BY CLIENT OR OTHERS BEYOND THE SPECIFIC SCOPE OF WORK FOR WHICH IT WAS ACQUIRED SHALL BE AT THE SOLE RISK OF THE USER AND WITHOUT LIABILITY TO MCKIM & CREED.

STATE OF NEW YORK
RAYMOND B. DOERER
No. 49350
LICENSED LAND SURVEYOR

| NSRS/NGS CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: TROY DAM 1 | PID# BBDR68 | NORTHING | EASTING |
| ELEVATION: 25.32' NAVD 88 | | 1,428,037.76 | 709,760.15 |

| LOCAL CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: HR-12 | PID# | NORTHING | EASTING |
| ELEVATION: 8.67' NAVD 88 | | 1,318821.55 | 684451.34 |
| STAMPED: HR-12 2016 | | | |

| LOCAL CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: 01-1 | PID# | NORTHING | EASTING |
| ELEVATION: 3.87' NAVD 88 | | 1,124,859.59 | 641003.46 |
| STAMPED: | | | |

SCALE 1" = 100'
0 100 200 300 400

US Army Corps of Engineers ®
New York District

| MARK | DESCRIPTION | DATE | APPR. | MARK | DESCRIPTION | DATE | APPR. |
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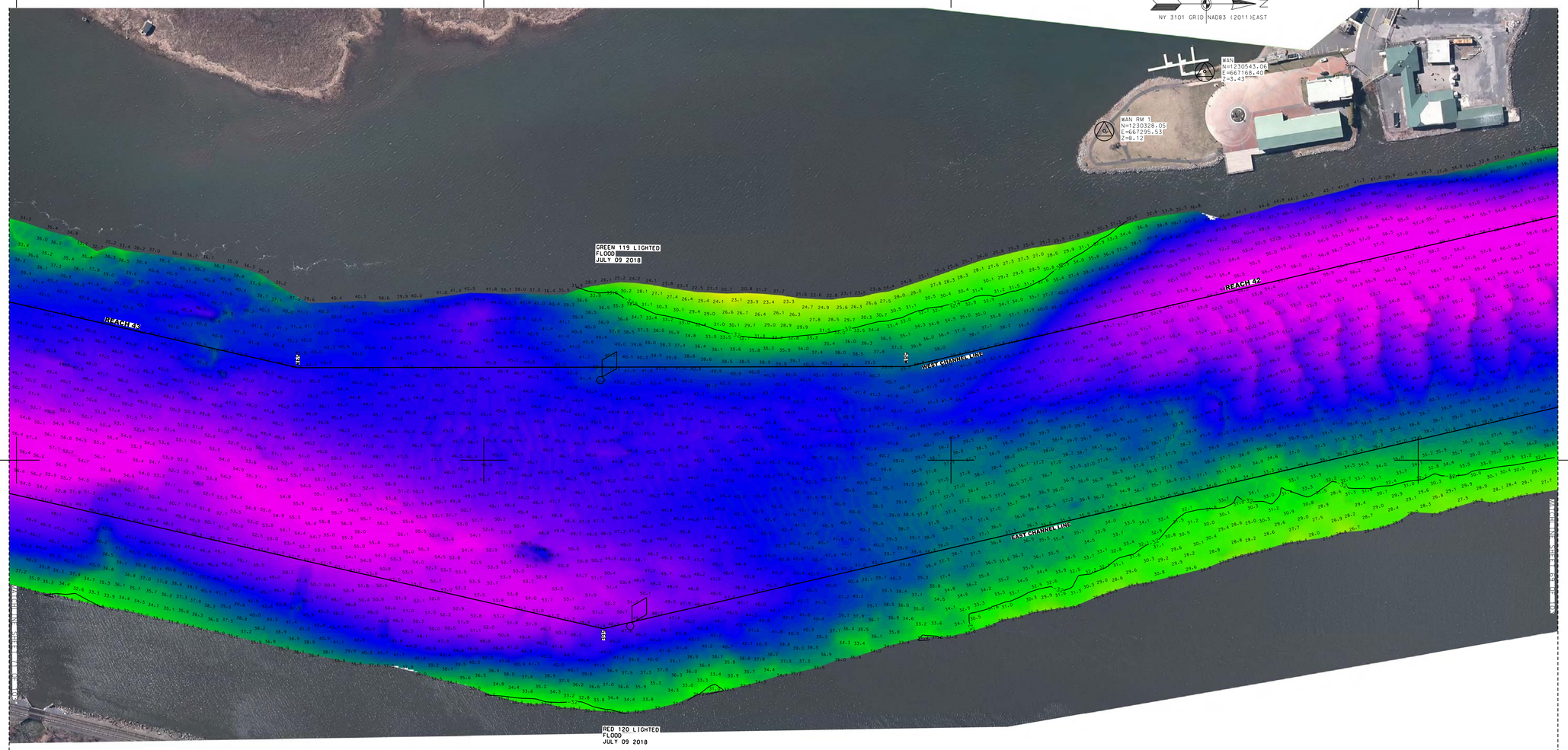
DESIGNED BY: DBG
DRAWN BY: MBH
SUBMITTED BY: DLJ
CHKD BY: RBD
PLOT SCALE: 1" = 100'
SIZE: ANSI F
DATE: AUG 31, 2018
SOLICITATION NO.:
CONTRACT NO.: W912DS-14-D-0004
ISSUE DATE: NOV 2018
FILE NUMBER:
FILE NAME: VH101-056880063_HUDSON_MB.DGN

U.S. ARMY CORPS OF ENGINEERS
NEW YORK DISTRICT
NEW YORK, NY

McKIM & CREED
243 NORTH FRONT STREET
WILMINGTON, NORTH CAROLINA 28401
TELEPHONE: (910) 251-8444
FAX: (910) 251-8282

# HYDROGRAPHIC CONDITIONS SURVEY
## HUDSON RIVER FEDERAL NAVIGATION CHANNEL
## REACH 41-42

SHEET IDENTIFICATION
VH-169
SHEET 69 OF 103




PROJECT SPECIFIC NOTES:

1. COORDINATES REFER TO US STATE PLANE COORDINATE SYSTEM NAD 1983(2011). NEW YORK. 3101 EAST US SURVEY FEET.

2. THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS THE GENERAL CONDITIONS EXISTING AT THAT TIME.

3. THE SOUNDINGS ON THIS MAP MEET USACE EM 1110-2-1003 ACCURACY STANDARDS.

4. VERTICAL DATUM FOR THIS PROJECT IS NAVD 88.
   A. REACH 63 TO REACH 01 AUTHORIZED PROJECT DEPTH OF 32'. MEASURED FROM 2.55' BELOW NAVD 88.
   B. FROM 2200' SOUTH TO 900' SOUTH OF MALL DUNN BRIDGE AUTHORIZED PROJECT DEPTH OF 27' MEASURED FROM 3.8' BELOW NAVD 88.
   C. REACH 01 TO REACH N05 AUTHORIZED PROJECT DEPTH OF 14'. MEASURED FROM 3.8' BELOW NAVD 88.
   D. REACH N04 TO N01 AUTHORIZED PROJECT DATUM IS 14'. MEASURED FROM NORMAL POOL OF 13.59' ABOVE NAVD 88.

5. MULTI-BEAM SOUNDINGS AS SHOWN ARE REPRESENTED USING THE MEDIAN OF A THREE (3') FOOT CELL SORTED TO THIRTY (30') FEET WITH CHANNEL PRIORITY.

6. CONTOURS ON THIS MAP WERE GENERATED USING THE MAP DATA SET.

7. THE DATA DEPICTED ON THIS MAP SHOULD NOT BE USED FOR VOLUME CALCULATION PURPOSES.

8. THE PLANIMETRICS DEPICTED ON THIS MAP ARE FOR ORIENTATION PURPOSES ONLY.

9. THIS SURVEY WAS PERFORMED USING LOCAL CONTROL ESTABLISHED BY THE CORPS OF ENGINEERS.

10. THIS MAP IS CEPD COMPLIANT IN ACCORDANCE WITH ER 1110-2-8160 AND EM 1110-2-6056.

11. THE SURVEY WAS CONDUCTED BY MCKIM & CREED USING THE FOLLOWING:
    SURVEY VESSELS: SV SOUNDS DEEP
    ECHOSOUNDER: R2SONIC 2022 MULTIBEAM SYSTEM.
    NAVIGATION SYSTEMS: INTEGRATED I2NS INERTIAL NAVIGATION SYSTEM. IN REAL TIME KINEMATIC (RTK)MODE.
    SURVEY ACQUISITION SOFTWARE: HYPACK VERSION 2018A
    SURVEY PROCESSING SOFTWARE: HYPACK/HYSWEEP VERSION 2018A
    CTD CAST WERE TAKEN DURING ACQUISITION FOR ACCURATE SPEED OF SOUND PROFILES USING AN AML BASE X2 AS WELL AS A AML MICRO-X SOUND VELOCITY PROBE AT THE HEAD.

12. THE INFORMATION PRESENTED ON THIS DRAWING REPRESENTS THE RESULTS OF A SURVEY PERFORMED BY MCKIM & CREED ON JULY 1-31, 2018 AND CAN ONLY BE CONSIDERED AS INDICATING THE CONDITIONS EXISTING AT THAT TIME. BECAUSE THESE CONDITIONS MAY BE SUBJECT TO RAPID CHANGE DUE TO SHOALING EVENTS. A PRUDENT MARINER SHOULD NOT RELY EXCLUSIVELY ON THE INFORMATION PROVIDED HERE. REUSE OF THIS INFORMATION BY CLIENT OR OTHERS BEYOND THE SPECIFIC SCOPE OF WORK FOR WHICH IT WAS ACQUIRED SHALL BE AT THE SOLE RISK OF THE USER AND WITHOUT LIABILITY TO MCKIM & CREED.

STATE OF NEW YORK
RICHARD B. DARNER
No. 49350
LICENSED LAND SURVEYOR

| NSRS/NGS CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: TROY DAM 1 | PID# BBDR68 | NORTHING | EASTING |
| ELEVATION: 25.32' NAVD 88 | | 1,428,037.76 | 709,760.15 |

| LOCAL CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: HR-12 | PID# | NORTHING | EASTING |
| ELEVATION: 8.67' NAVD 88 | | 1,318821.55 | 684451.34 |
| STAMPED: HR-12 2016 | | | |

| LOCAL CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: 01-1 | PID# | NORTHING | EASTING |
| ELEVATION: 3.87' NAVD 88 | | 1,124,859.59 | 641003.46 |
| STAMPED: | | | |

SCALE 1" = 100'
0 100 200 300 400

US Army Corps of Engineers ®
New York District

| MARK | DESCRIPTION | DATE | APPR. | MARK | DESCRIPTION | DATE | APPR. |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

DESIGNED BY: DLJ
DWN BY: MBH
CKD BY: RBD
SUBMITTED BY: DLJ
PLOT SCALE: 1" = 100'
PLOT DATE: NOV 2018
SIZE: ANSI F
DATE: JULY 31, 2018
SOLICITATION NO.:
CONTRACT NO.: W912DS-14-D-0004
FILE NUMBER:
ISSUE DATE:
FILE NAME: VH101-DS880903_HUDSON_MB.DGN

U.S. ARMY CORPS OF ENGINEERS
NEW YORK DISTRICT
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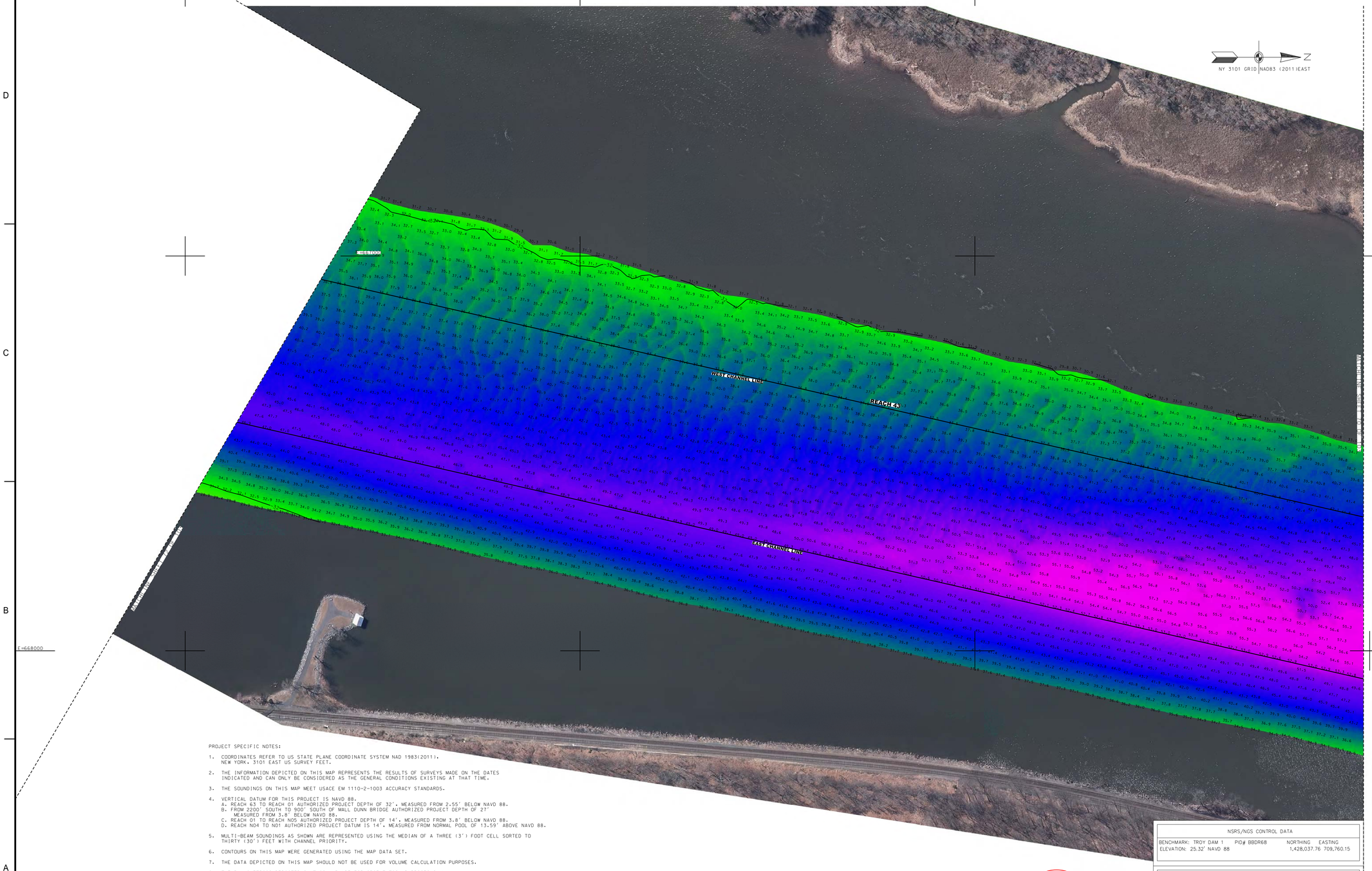
FAX: (910) 251-4262

# HYDROGRAPHIC CONDITIONS SURVEY
## HUDSON RIVER FEDERAL NAVIGATION CHANNEL
## REACH 42-43

SHEET IDENTIFICATION
VH-170
SHEET 70 OF 103




PROJECT SPECIFIC NOTES:

1. COORDINATES REFER TO US STATE PLANE COORDINATE SYSTEM NAD 1983(2011). NEW YORK, 3101 EAST US SURVEY FEET.
2. THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS THE GENERAL CONDITIONS EXISTING AT THAT TIME.
3. THE SOUNDINGS ON THIS MAP MEET USACE EM 1110-2-1003 ACCURACY STANDARDS.
4. VERTICAL DATUM FOR THIS PROJECT IS NAVD 88.
   A. REACH 63 TO REACH 01 AUTHORIZED PROJECT DEPTH OF 32', MEASURED FROM 2.55' BELOW NAVD 88.
   B. FROM 2200' SOUTH TO 900' SOUTH OF MALL DUNN BRIDGE AUTHORIZED PROJECT DEPTH OF 27' MEASURED FROM 3.8' BELOW NAVD 88.
   C. REACH 01 TO REACH NO5 AUTHORIZED PROJECT DEPTH OF 14', MEASURED FROM 3.8' BELOW NAVD 88.
   D. REACH NO4 TO NO1 AUTHORIZED PROJECT DATUM IS 14', MEASURED FROM NORMAL POOL OF 13.59' ABOVE NAVD 88.
5. MULTI-BEAM SOUNDINGS AS SHOWN ARE REPRESENTED USING THE MEDIAN OF A THREE (3') FOOT CELL SORTED TO THIRTY (30') FEET WITH CHANNEL PRIORITY.
6. CONTOURS ON THIS MAP WERE GENERATED USING THE MAP DATA SET.
7. THE DATA DEPICTED ON THIS MAP SHOULD NOT BE USED FOR VOLUME CALCULATION PURPOSES.
8. THE PLANIMETRICS DEPICTED ON THIS MAP ARE FOR ORIENTATION PURPOSES ONLY.
9. THIS SURVEY WAS PERFORMED USING LOCAL CONTROL ESTABLISHED BY THE CORPS OF ENGINEERS.
10. THIS MAP IS CEPD COMPLIANT IN ACCORDANCE WITH ER 1110-2-8160 AND EM 1110-2-6056.
11. THE SURVEY WAS CONDUCTED BY MCKIM & CREED USING THE FOLLOWING:
    SURVEY VESSELS: SV SOUNDS DEEP
    ECHOSOUNDER: R2SONIC 2022 MULTIBEAM SYSTEM.
    NAVIGATION SYSTEMS: INTEGRATED I2NS INERTIAL NAVIGATION SYSTEM. IN REAL TIME KINEMATIC (RTK)MODE.
    SURVEY ACQUISITION SOFTWARE: HYPACK VERSION 2018A
    SURVEY PROCESSING SOFTWARE: HYPACK/HYSWEEP VERSION 2018A
    CTD CAST WERE TAKEN DURING ACQUISITION FOR ACCURATE SPEED OF SOUND PROFILES USING AN AML BASE X2 AS WELL AS A AML MICRO-X SOUND VELOCITY PROBE AT THE HEAD.
12. THE INFORMATION PRESENTED ON THIS DRAWING REPRESENTS THE RESULTS OF A SURVEY PERFORMED BY MCKIM & CREED ON JULY 1-31, 2018 AND CAN ONLY BE CONSIDERED AS INDICATING THE CONDITIONS EXISTING AT THAT TIME. BECAUSE THESE CONDITIONS MAY BE SUBJECT TO RAPID CHANGE DUE TO SHOALING EVENTS, A PRUDENT MARINER SHOULD NOT RELY EXCLUSIVELY ON THE INFORMATION PROVIDED HERE. REUSE OF THIS INFORMATION BY CLIENT OR OTHERS BEYOND THE SPECIFIC SCOPE OF WORK FOR WHICH IT WAS ACQUIRED SHALL BE AT THE SOLE RISK OF THE USER AND WITHOUT LIABILITY TO MCKIM & CREED.

| NSRS/NGS CONTROL DATA | | |
|---|---|---|
| BENCHMARK: TROY DAM 1 | PID# BBDR68 | NORTHING EASTING |
| ELEVATION: 25.32' NAVD 88 | | 1,428,037.76 709,760.15 |

| LOCAL CONTROL DATA | | |
|---|---|---|
| BENCHMARK: HR-12 | PID# | NORTHING EASTING |
| ELEVATION: 8.67' NAVD 88 | | 1,318821.55 684451.34 |
| STAMPED: HR-12 2016 | | |

| LOCAL CONTROL DATA | | |
|---|---|---|
| BENCHMARK: 01-1 | PID# | NORTHING EASTING |
| ELEVATION: 3.87' NAVD 88 | | 1,124,859.59 641003.46 |
| STAMPED: | | |

STATE OF NEW YORK
RAYMOND B. DOWNEY
LICENSED LAND SURVEYOR
No. 49,256

US Army Corps of Engineers ®
New York District

| MARK | DESCRIPTION | DATE | APPR. |
|---|---|---|---|
| MARK | DESCRIPTION | DATE | APPR. |

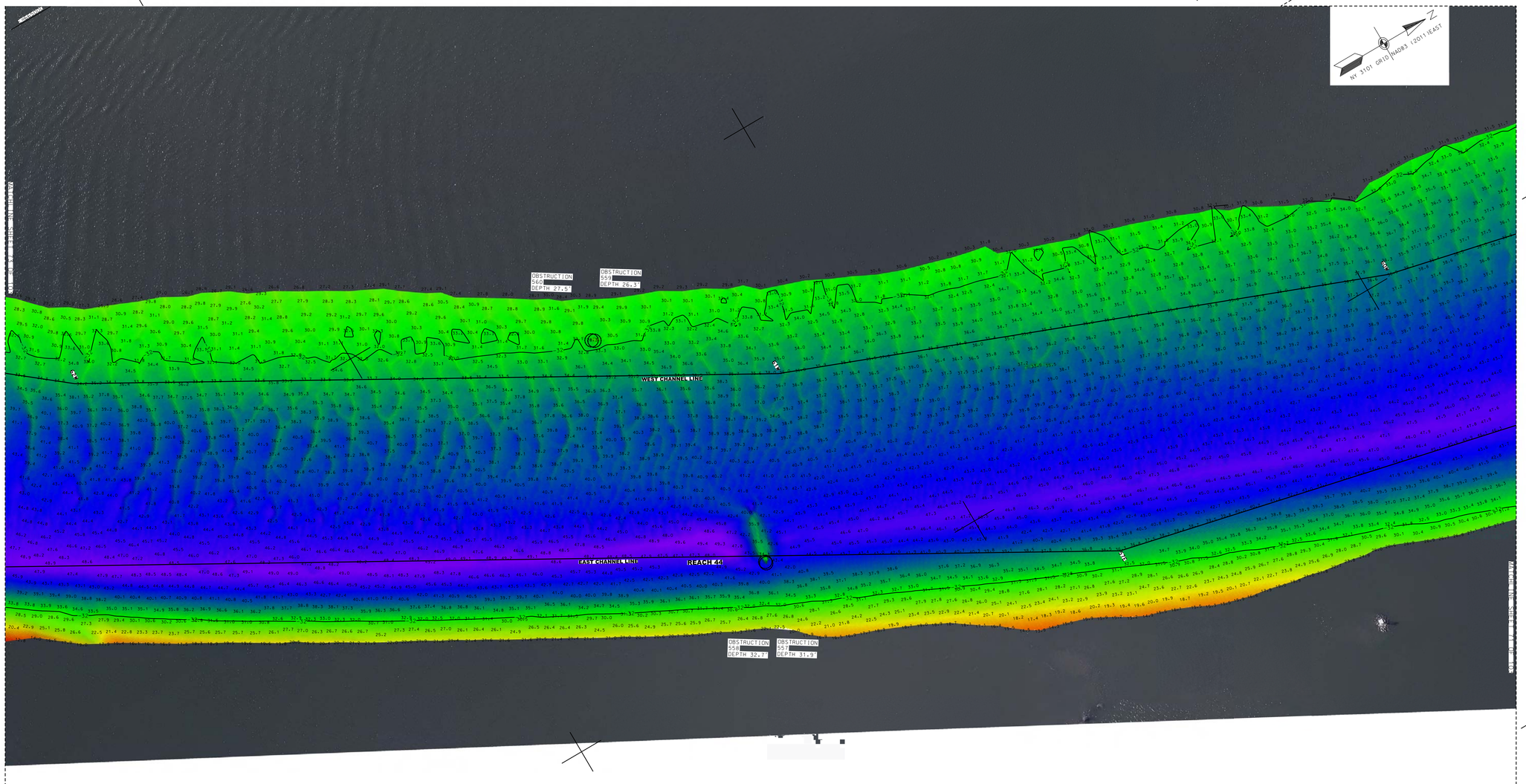
DESIGNED BY: RBD
DWN BY: MBH
SUBMITTED BY: DLJ
PLOT SCALE: 1" = 100'
SIZE: ANSI F
DATE: JULY 31, 2018
SOLICITATION NO.:
CONTRACT NO.: W912DS-14-D-0004
TASK ORDER:
ISSUE DATE: NOV 2018
FILE NUMBER:
FILE NAME: V:\410-058890063_HUDSON_MB.DGN
CKD BY: RBD

U.S. ARMY CORPS OF ENGINEERS
NEW YORK DISTRICT
NEW YORK, NY

McKIM & CREED
243 NORTH FRONT STREET
WILMINGTON, NORTH CAROLINA 28401
TELEPHONE: (910) 251-8444
FAX: (910) 251-8282

# HYDROGRAPHIC CONDITIONS SURVEY
## HUDSON RIVER FEDERAL NAVIGATION CHANNEL
## REACH 43

SHEET IDENTIFICATION
VH-171
SHEET 71 OF 103




PROJECT SPECIFIC NOTES:

1. COORDINATES REFER TO US STATE PLANE COORDINATE SYSTEM NAD 1983(2011). NEW YORK. 3101 EAST US SURVEY FEET.

2. THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS THE GENERAL CONDITIONS EXISTING AT THAT TIME.

3. THE SOUNDINGS ON THIS MAP MEET USACE EM 1110-2-1003 ACCURACY STANDARDS.

4. VERTICAL DATUM FOR THIS PROJECT IS NAVD 88.
   A. REACH 63 TO REACH 01 AUTHORIZED PROJECT DEPTH OF 32'. MEASURED FROM 2.55' BELOW NAVD 88.
   B. FROM 2200' SOUTH TO 900' SOUTH OF MALL DUNN BRIDGE AUTHORIZED PROJECT DEPTH OF 27' MEASURED FROM 3.8' BELOW NAVD 88.
   C. REACH 01 TO REACH N05 AUTHORIZED PROJECT DEPTH OF 14'. MEASURED FROM 3.8' BELOW NAVD 88.
   D. REACH N04 TO N01 AUTHORIZED PROJECT DATUM IS 14'. MEASURED FROM NORMAL POOL OF 13.59' ABOVE NAVD 88.

5. MULTI-BEAM SOUNDINGS AS SHOWN ARE REPRESENTED USING THE MEDIAN OF A THREE (3') FOOT CELL SORTED TO THIRTY (30') FEET WITH CHANNEL PRIORITY.

6. CONTOURS ON THIS MAP WERE GENERATED USING THE MAP DATA SET.

7. THE DATA DEPICTED ON THIS MAP SHOULD NOT BE USED FOR VOLUME CALCULATION PURPOSES.

8. THE PLANIMETRICS DEPICTED ON THIS MAP ARE FOR ORIENTATION PURPOSES ONLY.

9. THIS SURVEY WAS PERFORMED USING LOCAL CONTROL ESTABLISHED BY THE CORPS OF ENGINEERS.

10. THIS MAP IS CEPD COMPLIANT IN ACCORDANCE WITH ER 1110-2-8160 AND EM 1110-2-6056.

11. THE SURVEY WAS CONDUCTED BY MCKIM & CREED USING THE FOLLOWING:
    SURVEY VESSELS: SV SOUNDS DEEP
    ECHOSOUNDER: R2SONIC 2022 MULTIBEAM SYSTEM.
    NAVIGATION SYSTEMS: INTEGRATED I2NS INERTIAL NAVIGATION SYSTEM. IN REAL TIME KINEMATIC (RTK)MODE.
    SURVEY ACQUISITION SOFTWARE: HYPACK VERSION 2018A
    SURVEY PROCESSING SOFTWARE: HYPACK/HYSWEEP VERSION 2018A
    CTD CAST WERE TAKEN DURING ACQUISITION FOR ACCURATE SPEED OF SOUND PROFILES USING AN AML BASE X2 AS WELL AS A AML MICRO-X SOUND VELOCITY PROBE AT THE HEAD.

12. THE INFORMATION PRESENTED ON THIS DRAWING REPRESENTS THE RESULTS OF A SURVEY PERFORMED BY MCKIM & CREED ON JULY 1-31, 2018 AND CAN ONLY BE CONSIDERED AS INDICATING THE CONDITIONS EXISTING AT THAT TIME. BECAUSE THESE CONDITIONS MAY BE SUBJECT TO RAPID CHANGE DUE TO SHOALING EVENTS, A PRUDENT MARINER SHOULD NOT RELY EXCLUSIVELY ON THE INFORMATION PROVIDED HERE. REUSE OF THIS INFORMATION BY CLIENT OR OTHERS BEYOND THE SPECIFIC SCOPE OF WORK FOR WHICH IT WAS ACQUIRED SHALL BE AT THE SOLE RISK OF THE USER AND WITHOUT LIABILITY TO MCKIM & CREED.

| NSRS/NGS CONTROL DATA | | |
|---|---|---|
| BENCHMARK: TROY DAM 1 | PID# BBDR68 | NORTHING EASTING |
| ELEVATION: 25.32' NAVD 88 | | 1,428,037.76 709,760.15 |

| LOCAL CONTROL DATA | | |
|---|---|---|
| BENCHMARK: HR-12 | PID# | NORTHING EASTING |
| ELEVATION: 8.67' NAVD 88 | | 1,318821.55 684451.34 |
| STAMPED: HR-12 2016 | | |

| LOCAL CONTROL DATA | | |
|---|---|---|
| BENCHMARK: 01-1 | PID# | NORTHING EASTING |
| ELEVATION: 3.87' NAVD 88 | | 1,124,859.59 641003.46 |
| STAMPED: | | |

STATE OF NEW YORK PATRICIO B. TRABER LICENSED No. 49350 LAND SURVEYOR

SCALE 1" = 100'
0 100 200 300 400

US Army Corps of Engineers ®
New York District

| MARK | DESCRIPTION | DATE | APPR. |
|---|---|---|---|
| MARK | DESCRIPTION | DATE | APPR. |

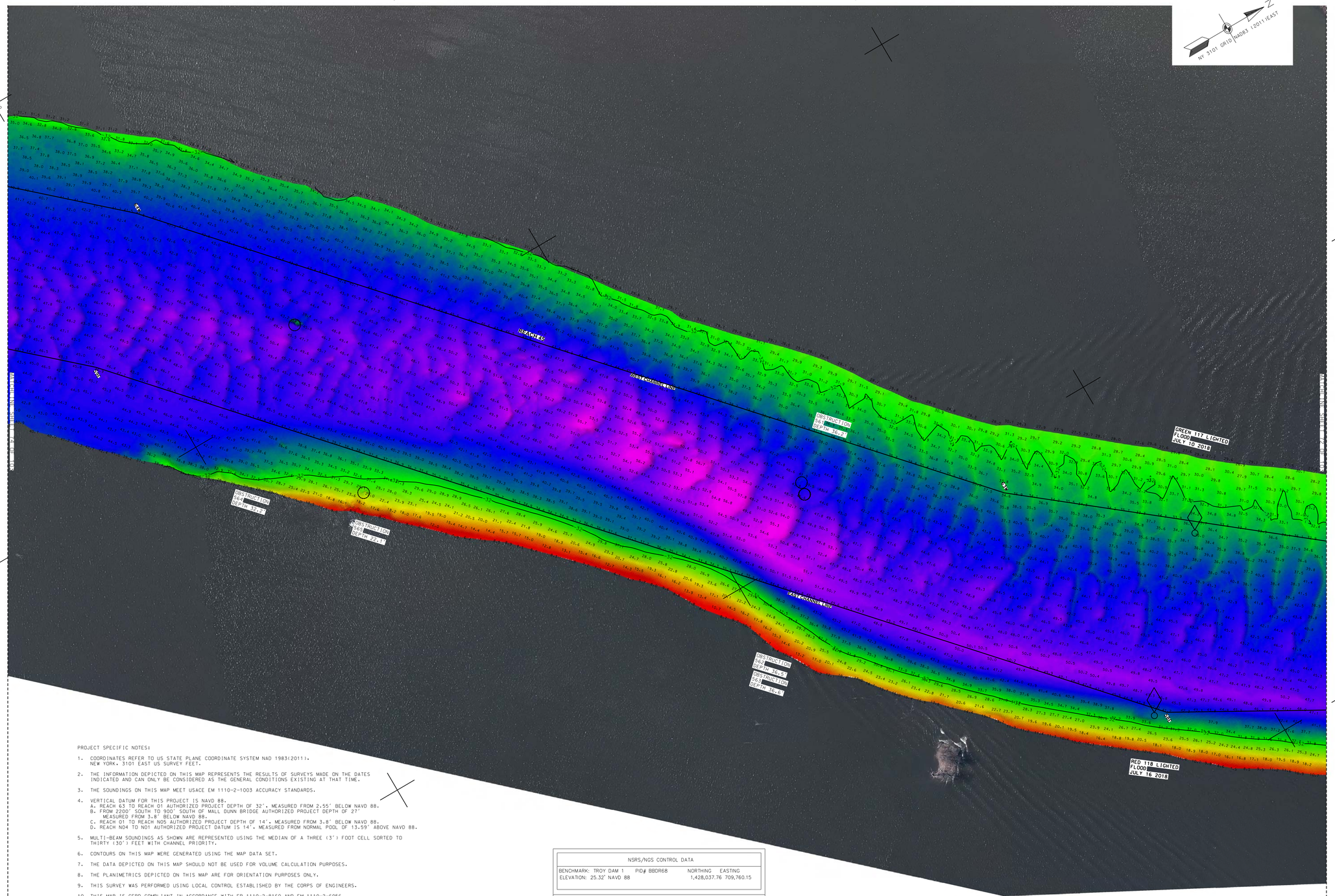
DESIGNED BY: DBA
DWN BY: MBH
CKD BY: RBD
SUBMITTED BY: DLJ
PLOT SCALE: 1:100'
PLOT DATE: 4/4/2019
SIZE: ANSI F
FILE NAME: VH101-056890063_HUDSON_MB.DGN
DATE: JULY 31, 2018
SOLICITATION NO.:
CONTRACT NO.: W912DS-14-D-0004
FILE NUMBER:

U.S. ARMY CORPS OF ENGINEERS
NEW YORK DISTRICT
NEW YORK, NY

McKIM & CREED
243 NORTH FRONT STREET
WILMINGTON, NORTH CAROLINA 28401
TELEPHONE: (910) 251-1848
FAX: (910) 251-8282

# HYDROGRAPHIC CONDITIONS SURVEY
## HUDSON RIVER FEDERAL NAVIGATION CHANNEL
## REACH 44

SHEET IDENTIFICATION
VH-172
SHEET 72 OF 103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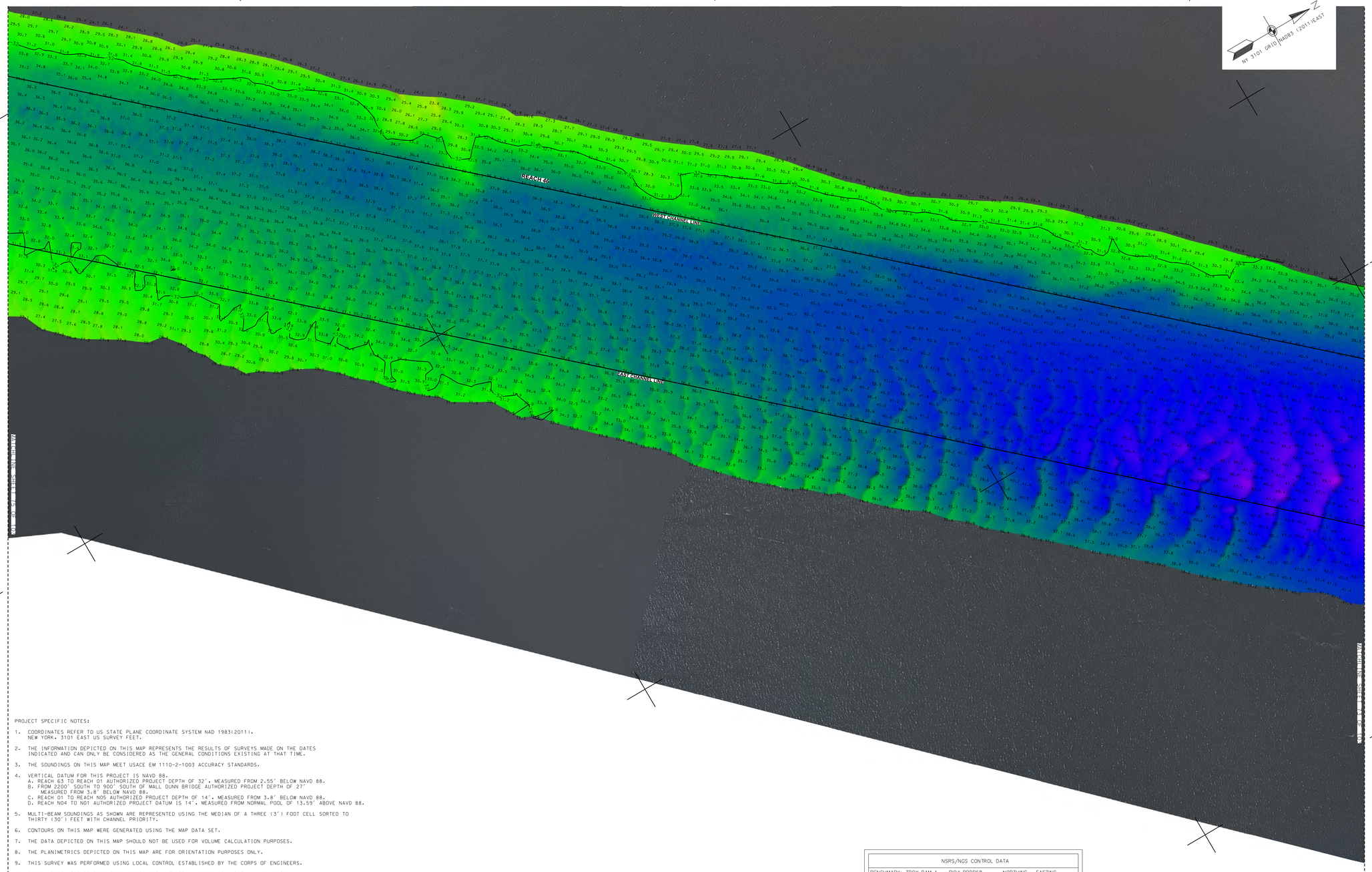


PROJECT SPECIFIC NOTES:

1. COORDINATES REFER TO US STATE PLANE COORDINATE SYSTEM NAD 1983(2011). NEW YORK. 3101 EAST US SURVEY FEET.
2. THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS THE GENERAL CONDITIONS EXISTING AT THAT TIME.
3. THE SOUNDINGS ON THIS MAP MEET USACE EM 1110-2-1003 ACCURACY STANDARDS.
4. VERTICAL DATUM FOR THIS PROJECT IS NAVD 88.
   A. REACH 63 TO REACH 01 AUTHORIZED PROJECT DEPTH OF 32'. MEASURED FROM 2.55' BELOW NAVD 88.
   B. FROM 2200' SOUTH TO 900' SOUTH OF MALL: DUNN BRIDGE AUTHORIZED PROJECT DEPTH OF 27' MEASURED FROM 3.8' BELOW NAVD 88.
   C. REACH 01 TO REACH N05 AUTHORIZED PROJECT DEPTH OF 14'. MEASURED FROM 3.8' BELOW NAVD 88.
   D. REACH N04 TO N01 AUTHORIZED PROJECT DATUM IS 14'. MEASURED FROM NORMAL POOL OF 13.59' ABOVE NAVD 88.
5. MULTI-BEAM SOUNDINGS AS SHOWN ARE REPRESENTED USING THE MEDIAN OF A THREE (3') FOOT CELL SORTED TO THIRTY (30') FEET WITH CHANNEL PRIORITY.
6. CONTOURS ON THIS MAP WERE GENERATED USING THE MAP DATA SET.
7. THE DATA DEPICTED ON THIS MAP SHOULD NOT BE USED FOR VOLUME CALCULATION PURPOSES.
8. THE PLANIMETRICS DEPICTED ON THIS MAP ARE FOR ORIENTATION PURPOSES ONLY.
9. THIS SURVEY WAS PERFORMED USING LOCAL CONTROL ESTABLISHED BY THE CORPS OF ENGINEERS.
10. THIS MAP IS CEPD COMPLIANT IN ACCORDANCE WITH ER 1110-2-8160 AND EM 1110-2-6056.
11. THE SURVEY WAS CONDUCTED BY MCKIM & CREED USING THE FOLLOWING:
    SURVEY VESSELS: SV SOUNDS DEEP
    ECHOSOUNDER: R2SONIC 2022 MULTIBEAM SYSTEM.
    NAVIGATION SYSTEMS: INTEGRATED I2NS INERTIAL NAVIGATION SYSTEM. IN REAL TIME KINEMATIC (RTK)MODE.
    SURVEY ACQUISITION SOFTWARE: HYPACK VERSION 2018A
    SURVEY PROCESSING SOFTWARE: HYPACK/HYSWEEP VERSION 2018A
    CTD CAST WERE TAKEN DURING ACQUISITION FOR ACCURATE SPEED OF SOUND PROFILES USING AN AML BASE X2 AS WELL AS A AML MICRO-X SOUND VELOCITY PROBE AT THE HEAD.
12. THE INFORMATION PRESENTED ON THIS DRAWING REPRESENTS THE RESULTS OF A SURVEY PERFORMED BY MCKIM & CREED ON JULY 1-31, 2018 AND CAN ONLY BE CONSIDERED AS INDICATING THE CONDITIONS EXISTING AT THAT TIME. BECAUSE THESE CONDITIONS MAY BE SUBJECT TO RAPID CHANGE DUE TO SHOALING EVENTS, A PRUDENT MARINER SHOULD NOT RELY EXCLUSIVELY ON THE INFORMATION PROVIDED HERE. REUSE OF THIS INFORMATION BY CLIENT OR OTHERS BEYOND THE SPECIFIC SCOPE OF WORK FOR WHICH IT WAS ACQUIRED SHALL BE AT THE SOLE RISK OF THE USER AND WITHOUT LIABILITY TO MCKIM & CREED.

| NSRS/NGS CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: TROY DAM 1 | PID# BBDR68 | NORTHING | EASTING |
| ELEVATION: 25.32' NAVD 88 | | 1,428,037.76 | 709,760.15 |

| LOCAL CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: HR-12 | PID# | NORTHING | EASTING |
| ELEVATION: 8.67' NAVD 88 | | 1,318821.55 | 684451.34 |
| STAMPED: HR-12 2016 | | | |

| LOCAL CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: 01-1 | PID# | NORTHING | EASTING |
| ELEVATION: 3.87' NAVD 88 | | 1,124,859.59 | 641003.46 |
| STAMPED: | | | |

STATE OF NEW YORK
RAYMOND B. OWEN
LICENSED LAND SURVEYOR
049320

SCALE 1" = 100'
0 100 200 300 400

US Army Corps of Engineers ®
New York District

| MARK | DESCRIPTION | DATE | APPR. |
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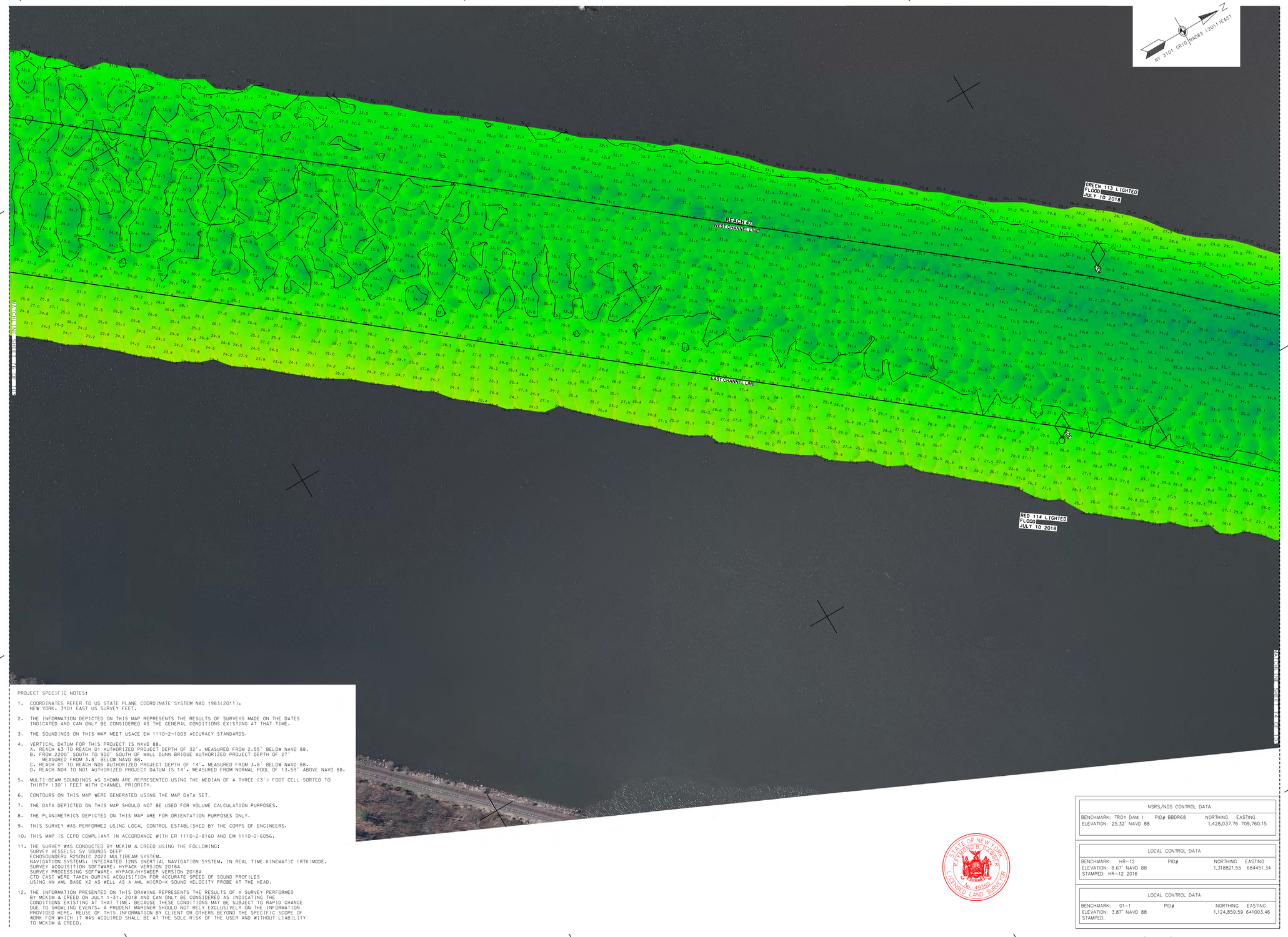
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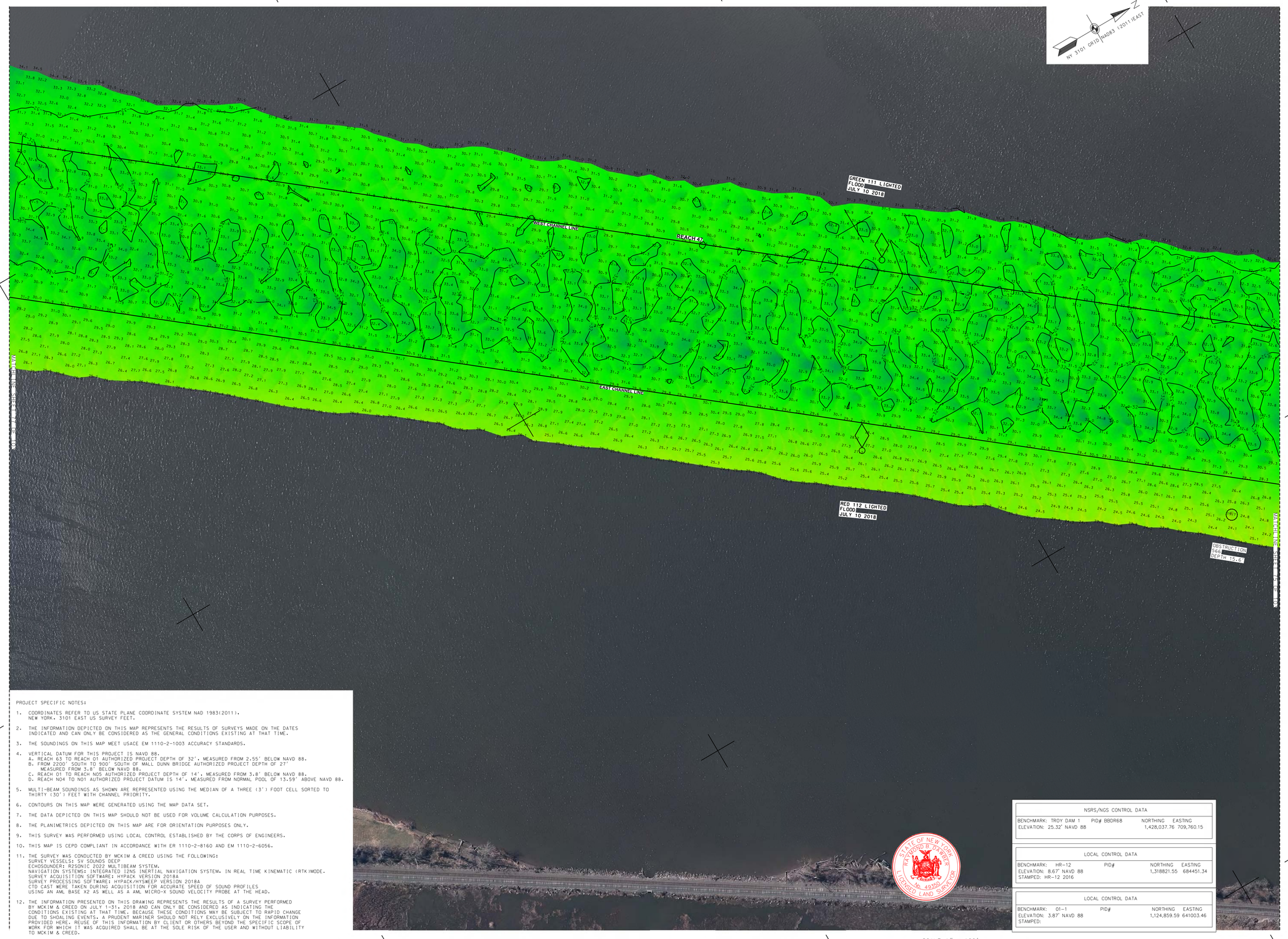



PROJECT SPECIFIC NOTES:

1. COORDINATES REFER TO US STATE PLANE COORDINATE SYSTEM NAD 1983(2011). NEW YORK. 3101 EAST US SURVEY FEET.
2. THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS THE GENERAL CONDITIONS EXISTING AT THAT TIME.
3. THE SOUNDINGS ON THIS MAP MEET USACE EM 1110-2-1003 ACCURACY STANDARDS.
4. VERTICAL DATUM FOR THIS PROJECT IS NAVD 88.
   A. REACH 63 TO REACH 01 AUTHORIZED PROJECT DEPTH OF 32'. MEASURED FROM 2-55' BELOW NAVD 88.
   B. FROM 2200' SOUTH TO 900' SOUTH OF MALL DUNN BRIDGE AUTHORIZED PROJECT DEPTH OF 27' MEASURED FROM 3.8' BELOW NAVD 88.
   C. REACH 01 TO REACH N05 AUTHORIZED PROJECT DEPTH OF 14'. MEASURED FROM 3.8' BELOW NAVD 88.
   D. REACH N04 TO N01 AUTHORIZED PROJECT DATUM IS 14'. MEASURED FROM NORMAL POOL OF 13.59' ABOVE NAVD 88.
5. MULTI-BEAM SOUNDINGS AS SHOWN ARE REPRESENTED USING THE MEDIAN OF A THREE (3') FOOT CELL SORTED TO THIRTY (30') FEET WITH CHANNEL PRIORITY.
6. CONTOURS ON THIS MAP WERE GENERATED USING THE MAP DATA SET.
7. THE DATA DEPICTED ON THIS MAP SHOULD NOT BE USED FOR VOLUME CALCULATION PURPOSES.
8. THE PLANIMETRICS DEPICTED ON THIS MAP ARE FOR ORIENTATION PURPOSES ONLY.
9. THIS SURVEY WAS PERFORMED USING LOCAL CONTROL ESTABLISHED BY THE CORPS OF ENGINEERS.
10. THIS MAP IS CEPD COMPLIANT IN ACCORDANCE WITH ER 1110-2-8160 AND EM 1110-2-6056.
11. THE SURVEY WAS CONDUCTED BY MCKIM & CREED USING THE FOLLOWING:
    SURVEY VESSELS: SV SOUNDS DEEP
    ECHOSOUNDER: R2SONIC 2022 MULTIBEAM SYSTEM.
    NAVIGATION SYSTEMS: INTEGRATED IXNS INERTIAL NAVIGATION SYSTEM. IN REAL TIME KINEMATIC (RTK) MODE.
    SURVEY ACQUISITION SOFTWARE: HYPACK VERSION 2018A
    SURVEY PROCESSING SOFTWARE: HYPACK/HYSWEEP VERSION 2018A
    CTD CAST WERE TAKEN DURING ACQUISITION FOR ACCURATE SPEED OF SOUND PROFILES USING AN AML BASE X2 AS WELL AS A AML MICRO-X SOUND VELOCITY PROBE AT THE HEAD.
12. THE INFORMATION PRESENTED ON THIS DRAWING REPRESENTS THE RESULTS OF A SURVEY PERFORMED BY MCKIM & CREED ON JULY 1-31, 2018 AND CAN ONLY BE CONSIDERED AS INDICATING THE CONDITIONS EXISTING AT THAT TIME. BECAUSE THESE CONDITIONS MAY BE SUBJECT TO RAPID CHANGE DUE TO SHOALING EVENTS, A PRUDENT MARINER SHOULD NOT RELY EXCLUSIVELY ON THE INFORMATION PROVIDED HERE. REUSE OF THIS INFORMATION BY CLIENT OR OTHERS BEYOND THE SPECIFIC SCOPE OF WORK FOR WHICH IT WAS ACQUIRED SHALL BE AT THE SOLE RISK OF THE USER AND WITHOUT LIABILITY TO MCKIM & CREED.

NSRS/NOS CONTROL DATA

| | | | |
|---|---|---|---|
| BENCHMARK: TROY DAM 1 | PID# BBDR68 | NORTHING | EASTING |
| ELEVATION: 25.32' NAVD 88 | | 1,428,037.76 | 709,760.15 |

LOCAL CONTROL DATA

| | | | |
|---|---|---|---|
| BENCHMARK: HR-12 | PID# | NORTHING | EASTING |
| ELEVATION: 8.67' NAVD 88 | | 1,318821.55 | 684451.34 |
| STAMPED: HR-12 2016 | | | |

LOCAL CONTROL DATA

| | | | |
|---|---|---|---|
| BENCHMARK: 01-1 | PID# | NORTHING | EASTING |
| ELEVATION: 3.87' NAVD 88 | | 1,124,859.59 | 641003.46 |
| STAMPED: | | | |

STATE OF NEW YORK
RAYMOND F. DAMER
No. 49350
LICENSED LAND SURVEYOR

US Army Corps of Engineers ®
New York District

| MARK | DESCRIPTION | DATE | APPR. | MARK | DESCRIPTION | DATE | APPR. |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

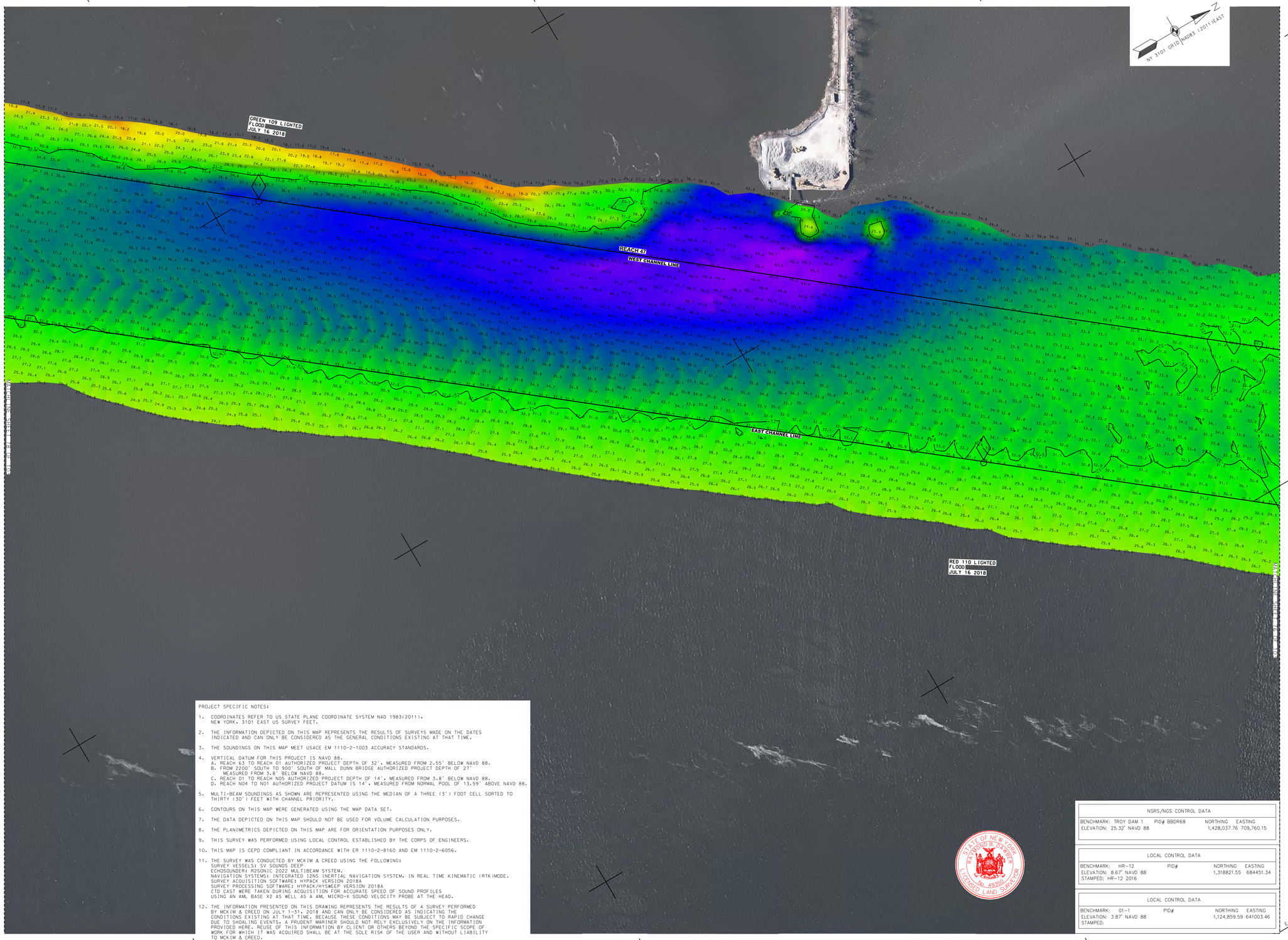
U.S. ARMY CORPS OF ENGINEERS
NEW YORK DISTRICT
NEW YORK, NY

McKIM & CREED
241 NORTH FRONT STREET
WILMINGTON, NORTH CAROLINA 28401
TELEPHONE: (910) 251-0046
FAX: (910) 251-4282

DESIGNED BY: DSB
DWN BY: MBH
CKD BY: RED
SUBMITTED BY: DLJ
PLOT SCALE: 1=1
SIZE: ANSI F
DATE: JULY 1 - 31, 2018
ISSUE DATE: NOV 2018
FILE NAME: VH101-056890053_HUDSON_MB.DGN
SOLICITATION NO.:
CONTRACT NO.: W912DS-14-D-0004
FILE NUMBER:

# HYDROGRAPHIC CONDITIONS SURVEY
## HUDSON RIVER FEDERAL NAVIGATION CHANNEL
## REACH 47

SHEET IDENTIFICATION
VH-176
SHEET 76 OF 103




PROJECT SPECIFIC NOTES:

1. COORDINATES REFER TO US STATE PLANE COORDINATE SYSTEM NAD 1983(2011). NEW YORK, 3101 EAST US SURVEY FEET.
2. THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS THE GENERAL CONDITIONS EXISTING AT THAT TIME.
3. THE SOUNDINGS ON THIS MAP MEET USACE EM 1110-2-1003 ACCURACY STANDARDS.
4. VERTICAL DATUM FOR THIS PROJECT IS NAVD 88.
   A. REACH 63 TO REACH 01 AUTHORIZED PROJECT DEPTH OF 32'. MEASURED FROM 2.55' BELOW NAVD 88.
   B. FROM 2200' SOUTH TO 900' SOUTH OF MALL DUNN BRIDGE AUTHORIZED PROJECT DEPTH OF 27' MEASURED FROM 3.8' BELOW NAVD 88.
   C. REACH 01 TO REACH N05 AUTHORIZED PROJECT DEPTH OF 14'. MEASURED FROM 3.8' BELOW NAVD 88.
   D. REACH N04 TO N01 AUTHORIZED PROJECT DATUM IS 14'. MEASURED FROM NORMAL POOL OF 13.59' ABOVE NAVD 88.
5. MULTI-BEAM SOUNDINGS AS SHOWN ARE REPRESENTED USING THE MEDIAN OF A THREE (3') FOOT CELL SORTED TO THIRTY (30') FEET WITH CHANNEL PRIORITY.
6. CONTOURS ON THIS MAP WERE GENERATED USING THE MAP DATA SET.
7. THE DATA DEPICTED ON THIS MAP SHOULD NOT BE USED FOR VOLUME CALCULATION PURPOSES.
8. THE PLANIMETRICS DEPICTED ON THIS MAP ARE FOR ORIENTATION PURPOSES ONLY.
9. THIS SURVEY WAS PERFORMED USING LOCAL CONTROL ESTABLISHED BY THE CORPS OF ENGINEERS.
10. THIS MAP IS CEPD COMPLIANT IN ACCORDANCE WITH ER 1110-2-8160 AND EM 1110-2-6056.
11. THE SURVEY WAS CONDUCTED BY MCKIM & CREED USING THE FOLLOWING:
    SURVEY VESSELS: SV SOUNDS DEEP
    ECHOSOUNDER: R2SONIC 2022 MULTIBEAM SYSTEM.
    NAVIGATION SYSTEMS: INTEGRATED I2NS INERTIAL NAVIGATION SYSTEM. IN REAL TIME KINEMATIC (RTK)MODE.
    SURVEY ACQUISITION SOFTWARE: HYPACK VERSION 2018A
    SURVEY PROCESSING SOFTWARE: HYPACK/HYSWEEP VERSION 2018A
    CTD CAST WERE TAKEN DURING ACQUISITION FOR ACCURATE SPEED OF SOUND PROFILES
    USING AN AML BASE X2 AS WELL AS A AML MICRO-X SOUND VELOCITY PROBE AT THE HEAD.
12. THE INFORMATION PRESENTED ON THIS DRAWING REPRESENTS THE RESULTS OF A SURVEY PERFORMED BY MCKIM & CREED ON JULY 1-31, 2018 AND CAN ONLY BE CONSIDERED AS INDICATING THE CONDITIONS EXISTING AT THAT TIME. BECAUSE THESE CONDITIONS MAY BE SUBJECT TO RAPID CHANGE DUE TO SHOALING EVENTS, A PRUDENT MARINER SHOULD NOT RELY EXCLUSIVELY ON THE INFORMATION PROVIDED HERE. REUSE OF THIS INFORMATION BY CLIENT OR OTHERS BEYOND THE SPECIFIC SCOPE OF WORK FOR WHICH IT WAS ACQUIRED SHALL BE AT THE SOLE RISK OF THE USER AND WITHOUT LIABILITY TO MCKIM & CREED.

| NSRS/NGS CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: TROY DAM 1 | PID# BBDR68 | NORTHING | EASTING |
| ELEVATION: 25.32' NAVD 88 | | 1,428,037.76 | 709,760.15 |

| LOCAL CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: HR-12 | PID# | NORTHING | EASTING |
| ELEVATION: 8.67' NAVD 88 | | 1,318821.55 | 684451.34 |
| STAMPED: HR-12 2016 | | | |

| LOCAL CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: 01-1 | PID# | NORTHING | EASTING |
| ELEVATION: 3.87' NAVD 88 | | 1,124,859.59 | 641003.46 |
| STAMPED: | | | |

STATE OF NEW YORK
RAYMOND E. OSTRIKER
No. 49350
LICENSED LAND SURVEYOR

US Army Corps of Engineers
New York District

| MARK | DESCRIPTION | DATE | APPR. |
|---|---|---|---|
| | | | |

| MARK | DESCRIPTION | DATE | APPR. |
|---|---|---|---|
| | | | |

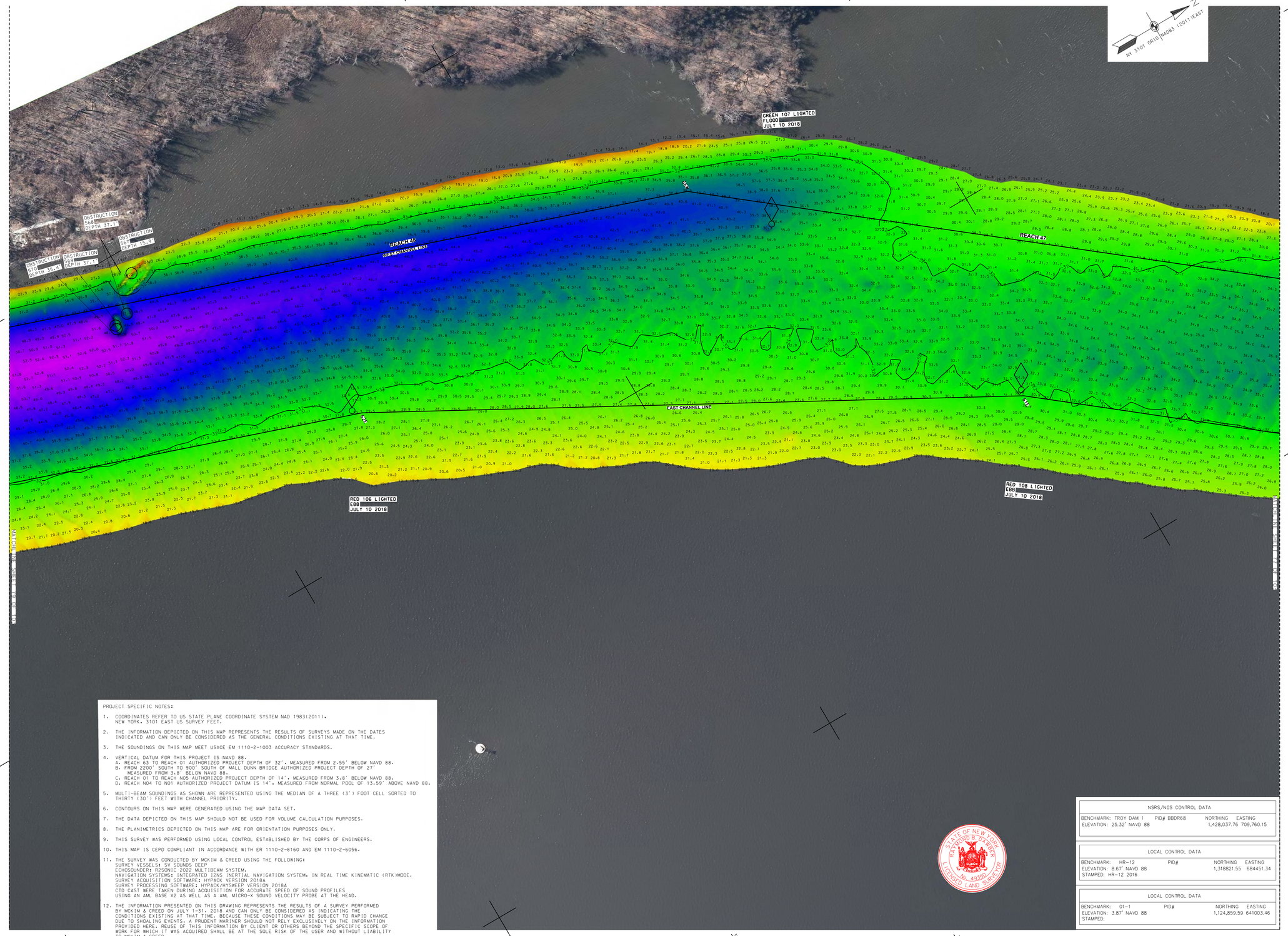
U.S. ARMY CORPS OF ENGINEERS
NEW YORK DISTRICT
NEW YORK, NY

McKIM & CREED
243 NORTH FRONT STREET
WILMINGTON, NORTH CAROLINA 28401
TELEPHONE: (910) 251-8848
FAX: (910) 251-4262

DESIGNED BY: DGW
DWN BY: MBH
CKD BY: RED
SUBMITTED BY: DLJ
PLOT SCALE: 1 = 100'
PLOT DATE: 11/9/2018
DATE: JULY 1 - 31, 2018
SOLICITATION NO.:
CONTRACT NO.: W912DS-14-D-0004
ISSUE DATE: NOV 2018
FILE NUMBER:
FILE NAME: VH101-DS880083_HUDSON_MB.DGN
SIZE: ANSI F

# HYDROGRAPHIC CONDITIONS SURVEY
## HUDSON RIVER FEDERAL NAVIGATION CHANNEL
## REACH 47

SHEET IDENTIFICATION
VH-177
SHEET 77 OF 103




PROJECT SPECIFIC NOTES:

1. COORDINATES REFER TO US STATE PLANE COORDINATE SYSTEM NAD 1983(2011). NEW YORK. 3101 EAST US SURVEY FEET.
2. THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS THE GENERAL CONDITIONS EXISTING AT THAT TIME.
3. THE SOUNDINGS ON THIS MAP MEET USACE EM 1110-2-1003 ACCURACY STANDARDS.
4. VERTICAL DATUM FOR THIS PROJECT IS NAVD 88.
   A. REACH 63 TO REACH 01 AUTHORIZED PROJECT DEPTH OF 32'. MEASURED FROM 2.55' BELOW NAVD 88.
   B. FROM 2200' SOUTH TO 900' SOUTH OF MALL DUNN BRIDGE AUTHORIZED PROJECT DEPTH OF 27' MEASURED FROM 3.8' BELOW NAVD 88.
   C. REACH 01 TO REACH N05 AUTHORIZED PROJECT DEPTH OF 14'. MEASURED FROM 3.8' BELOW NAVD 88.
   D. REACH N04 TO N01 AUTHORIZED PROJECT DATUM IS 14'. MEASURED FROM NORMAL POOL OF 13.59' ABOVE NAVD 88.
5. MULTI-BEAM SOUNDINGS AS SHOWN ARE REPRESENTED USING THE MEDIAN OF A THREE (3') FOOT CELL SORTED TO THIRTY (30') FEET WITH CHANNEL PRIORITY.
6. CONTOURS ON THIS MAP WERE GENERATED USING THE MAP DATA SET.
7. THE DATA DEPICTED ON THIS MAP SHOULD NOT BE USED FOR VOLUME CALCULATION PURPOSES.
8. THE PLANIMETRICS DEPICTED ON THIS MAP ARE FOR ORIENTATION PURPOSES ONLY.
9. THIS SURVEY WAS PERFORMED USING LOCAL CONTROL ESTABLISHED BY THE CORPS OF ENGINEERS.
10. THIS MAP IS CEPD COMPLIANT IN ACCORDANCE WITH ER 1110-2-8160 AND EM 1110-2-6056.
11. THE SURVEY WAS CONDUCTED BY MCKIM & CREED USING THE FOLLOWING:
    SURVEY VESSELS: SV SOUNDS DEEP
    ECHOSOUNDER: R2SONIC 2022 MULTIBEAM SYSTEM.
    NAVIGATION SYSTEMS: INTEGRATED I2NS INERTIAL NAVIGATION SYSTEM. IN REAL TIME KINEMATIC (RTK) MODE.
    SURVEY ACQUISITION SOFTWARE: HYPACK VERSION 2018A
    SURVEY PROCESSING SOFTWARE: HYPACK/HYSWEEP VERSION 2018A
    CTD CAST WERE TAKEN DURING ACQUISITION FOR ACCURATE SPEED OF SOUND PROFILES USING AN AML BASE X2 AS WELL AS A AML MICRO-X SOUND VELOCITY PROBE AT THE HEAD.
12. THE INFORMATION PRESENTED ON THIS DRAWING REPRESENTS THE RESULTS OF A SURVEY PERFORMED BY MCKIM & CREED ON JULY 1-31, 2018 AND CAN ONLY BE CONSIDERED AS INDICATING THE CONDITIONS EXISTING AT THAT TIME. BECAUSE THESE CONDITIONS MAY BE SUBJECT TO RAPID CHANGE DUE TO SHOALING EVENTS, A PRUDENT MARINER SHOULD NOT RELY EXCLUSIVELY ON THE INFORMATION PROVIDED HERE. REUSE OF THIS INFORMATION BY CLIENT OR OTHERS BEYOND THE SPECIFIC SCOPE OF WORK FOR WHICH IT WAS ACQUIRED SHALL BE AT THE SOLE RISK OF THE USER AND WITHOUT LIABILITY TO MCKIM & CREED.

| NSRS/NGS CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: TROY DAM 1 | PID# BBDR68 | NORTHING | EASTING |
| ELEVATION: 25.32' NAVD 88 | | 1,428,037.76 | 709,760.15 |

| LOCAL CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: HR-12 | PID# | NORTHING | EASTING |
| ELEVATION: 8.67' NAVD 88 | | 1,318821.55 | 684451.34 |
| STAMPED: HR-12 2016 | | | |

| LOCAL CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: 01-1 | PID# | NORTHING | EASTING |
| ELEVATION: 3.87' NAVD 88 | | 1,124,859.59 | 641003.46 |
| STAMPED: | | | |

STATE OF NEW YORK
MATTHEW B. CREED
LICENSED LAND SURVEYOR
No. 49350

US Army Corps of Engineers ®
New York District

| MARK | DESCRIPTION | DATE | APPR. |
|---|---|---|---|
| | | | |

| MARK | DESCRIPTION | DATE | APPR. |
|---|---|---|---|
| | | | |

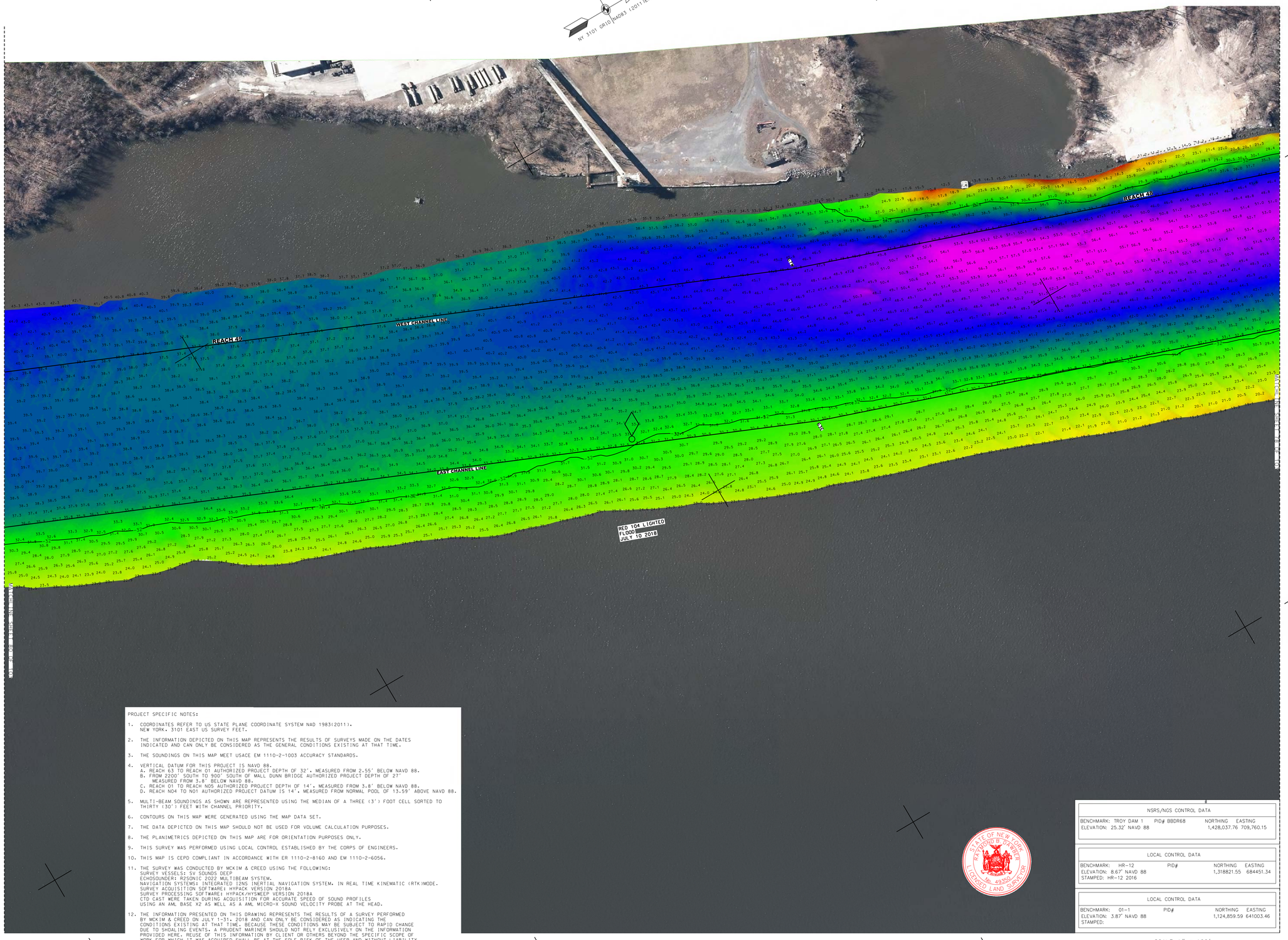
U.S. ARMY CORPS OF ENGINEERS
NEW YORK DISTRICT
NEW YORK, NY

McKIM & CREED
243 NORTH FRONT STREET
WILMINGTON, NORTH CAROLINA 28401
TELEPHONE: (910) 251-0486
FAX: (910) 251-4282

DESIGNED BY: DSG
DWN BY: MBH
CKD BY: RBD
SUBMITTED BY: DLJ
PLOT SCALE: 1" = 100'
SIZE: ANSI F
ISSUE DATE: NOVEMBER 2018
FILE NUMBER: W912DS-14-D-0004
FILE NAME: VH101-058980053_HUDSON_MB.DGN
DATE: JANUARY 31, 2018
SOLICITATION NO.:
CONTRACT NO.:

# HYDROGRAPHIC CONDITIONS SURVEY
## HUDSON RIVER FEDERAL NAVIGATION CHANNEL
## REACH 47-48

SHEET IDENTIFICATION
VH-178
SHEET 78 OF 103




US Army Corps of Engineers ®
New York District

| MARK | DESCRIPTION | DATE | APPR. |
|---|---|---|---|
| MARK | DESCRIPTION | DATE | APPR. |

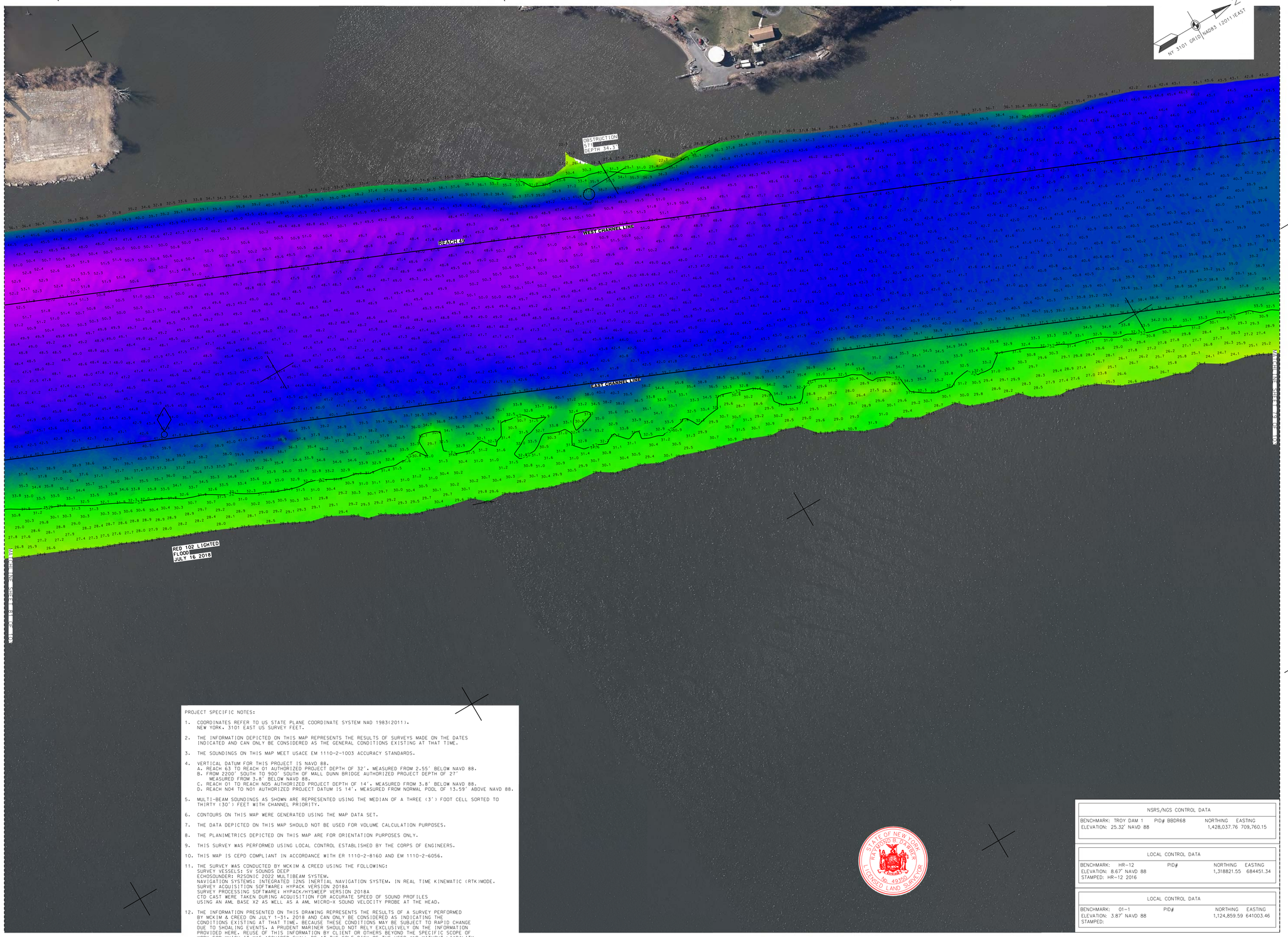
U.S. ARMY CORPS OF ENGINEERS
NEW YORK DISTRICT
NEW YORK, NY

McKIM & CREED
243 NORTH FRONT STREET
WILMINGTON, NORTH CAROLINA 28401
TELEPHONE: (910) 251-1646
FAX: (910) 251-4262

DESIGNED BY: MBH
DRWN BY: MBH
CKD BY: REID
SUBMITTED BY: DLJ
PLOT SCALE: 1" = 100'
PLOT DATE: NOV 16
SIZE: ANSI F
DATE: JUL 31, 2018
SOLICITATION NO.:
CONTRACT NO.: W912DS-14-D-0004
ISSUE DATE: NOV 2018
FILE NUMBER:
FILE NAME: VH101-DS880903_HUDSON_MB.DGN

# HYDROGRAPHIC CONDITIONS SURVEY
## HUDSON RIVER FEDERAL NAVIGATION CHANNEL
## REACH 48-49

SHEET IDENTIFICATION
VH-179
SHEET 79 OF 103




PROJECT SPECIFIC NOTES:

1. COORDINATES REFER TO US STATE PLANE COORDINATE SYSTEM NAD 1983(2011). NEW YORK, 3101 EAST US SURVEY FEET.
2. THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS THE GENERAL CONDITIONS EXISTING AT THAT TIME.
3. THE SOUNDINGS ON THIS MAP MEET USACE EM 1110-2-1003 ACCURACY STANDARDS.
4. VERTICAL DATUM FOR THIS PROJECT IS NAVD 88.
   A. REACH 63 TO REACH 01 AUTHORIZED PROJECT DEPTH OF 32'. MEASURED FROM 2.55' BELOW NAVD 88.
   B. FROM 2200' SOUTH TO 900' SOUTH OF MALL DUNN BRIDGE AUTHORIZED PROJECT DEPTH OF 27' MEASURED FROM 3.8' BELOW NAVD 88.
   C. REACH 01 TO REACH N05 AUTHORIZED PROJECT DEPTH OF 14'. MEASURED FROM 3.8' BELOW NAVD 88.
   D. REACH N04 TO N01 AUTHORIZED PROJECT DATUM IS 14'. MEASURED FROM NORMAL POOL OF 13.59' ABOVE NAVD 88.
5. MULTI-BEAM SOUNDINGS AS SHOWN ARE REPRESENTED USING THE MEDIAN OF A THREE (3') FOOT CELL SORTED TO THIRTY (30') FEET WITH CHANNEL PRIORITY.
6. CONTOURS ON THIS MAP WERE GENERATED USING THE MAP DATA SET.
7. THE DATA DEPICTED ON THIS MAP SHOULD NOT BE USED FOR VOLUME CALCULATION PURPOSES.
8. THE PLANIMETRICS DEPICTED ON THIS MAP ARE FOR ORIENTATION PURPOSES ONLY.
9. THIS SURVEY WAS PERFORMED USING LOCAL CONTROL ESTABLISHED BY THE CORPS OF ENGINEERS.
10. THIS MAP IS CEPD COMPLIANT IN ACCORDANCE WITH ER 1110-2-8160 AND EM 1110-2-6056.
11. THE SURVEY WAS CONDUCTED BY MCKIM & CREED USING THE FOLLOWING:
    SURVEY VESSELS: SV SOUNDS DEEP
    ECHOSOUNDER: R2SONIC 2022 MULTIBEAM SYSTEM.
    NAVIGATION SYSTEMS: INTEGRATED I2NS INERTIAL NAVIGATION SYSTEM, IN REAL TIME KINEMATIC (RTK)MODE.
    SURVEY ACQUISITION SOFTWARE: HYPACK VERSION 2018A
    SURVEY PROCESSING SOFTWARE: HYPACK/HYSWEEP VERSION 2018A
    CTD CAST WERE TAKEN DURING ACQUISITION FOR ACCURATE SPEED OF SOUND PROFILES
    USING AN AML BASE X2 AS WELL AS A AML MICRO-X SOUND VELOCITY PROBE AT THE HEAD.
12. THE INFORMATION PRESENTED ON THIS DRAWING REPRESENTS THE RESULTS OF A SURVEY PERFORMED BY MCKIM & CREED ON JULY 1-31, 2018 AND CAN ONLY BE CONSIDERED AS INDICATING THE CONDITIONS EXISTING AT THAT TIME. BECAUSE THESE CONDITIONS MAY BE SUBJECT TO RAPID CHANGE DUE TO SHOALING EVENTS, A PRUDENT MARINER SHOULD NOT RELY EXCLUSIVELY ON THE INFORMATION PROVIDED HERE. REUSE OF THIS INFORMATION BY CLIENT OR OTHERS BEYOND THE SPECIFIC SCOPE OF WORK FOR WHICH IT WAS ACQUIRED SHALL BE AT THE SOLE RISK OF THE USER AND WITHOUT LIABILITY TO MCKIM & CREED.

| NSRS/NGS CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: TROY DAM 1 | PID# BBDR68 | NORTHING | EASTING |
| ELEVATION: 25.32' NAVD 88 | | 1,428,037.76 | 709,760.15 |

| LOCAL CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: HR-12 | PID# | NORTHING | EASTING |
| ELEVATION: 8.67' NAVD 88 | | 1,318821.55 | 684451.34 |
| STAMPED: HR-12 2016 | | | |

| LOCAL CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: 01-1 | PID# | NORTHING | EASTING |
| ELEVATION: 3.87' NAVD 88 | | 1,124,859.59 | 641003.46 |
| STAMPED: | | | |

STATE OF NEW YORK
RAYMOND B. DAWES
LICENSED LAND SURVEYOR
No. 49259

SCALE 1" = 100'
0 100 200 300 400

US Army Corps of Engineers ®
New York District

| MARK | DESCRIPTION | DATE | APPR. | MARK | DESCRIPTION | DATE | APPR. |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

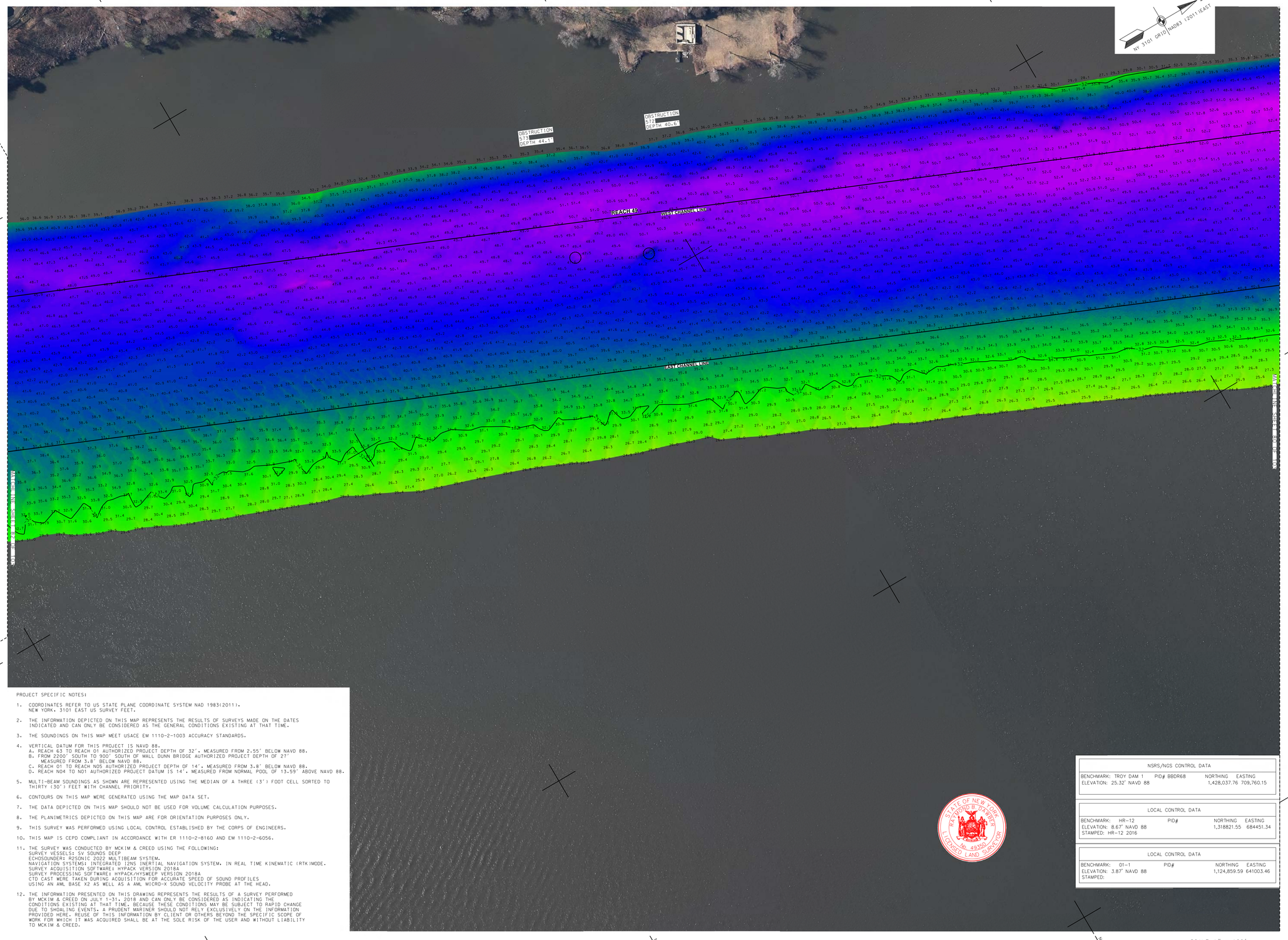
U.S. ARMY CORPS OF ENGINEERS
NEW YORK DISTRICT
NEW YORK, NY

McKIM & CREED
243 NORTH FRONT STREET
WILMINGTON, NORTH CAROLINA 28401
TELEPHONE: (910) 341-0646
FAX: (910) 251-8282

DESIGNED BY: MJC
DWN BY: MBH
CKD BY: RBD
SUBMITTED BY: DLJ
PLOT SCALE: 1" = 80'
SIZE: ANSI F
DATE: JULY 1-31, 2018
SOLICITATION NO.:
CONTRACT NO.: W912DS-14-D-0004
ISSUE DATE: NOV 2018
FILE NUMBER:
FILE NAME: VH101-058890053_HUDSON_MB.DGN

# HYDROGRAPHIC CONDITIONS SURVEY
## HUDSON RIVER FEDERAL NAVIGATION CHANNEL
## REACH 49

SHEET IDENTIFICATION
VH-180
SHEET 80 OF 103




PROJECT SPECIFIC NOTES:

1. COORDINATES REFER TO US STATE PLANE COORDINATE SYSTEM NAD 1983(2011). NEW YORK. 3101 EAST US SURVEY FEET.

2. THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS THE GENERAL CONDITIONS EXISTING AT THAT TIME.

3. THE SOUNDINGS ON THIS MAP MEET USACE EM 1110-2-1003 ACCURACY STANDARDS.

4. VERTICAL DATUM FOR THIS PROJECT IS NAVD 88.
   A. REACH 63 TO REACH 01 AUTHORIZED PROJECT DEPTH OF 32'. MEASURED FROM 2.55' BELOW NAVD 88.
   B. FROM 2200' SOUTH TO 900' SOUTH OF MALL DUNN BRIDGE AUTHORIZED PROJECT DEPTH OF 27' MEASURED FROM 3.8' BELOW NAVD 88.
   C. REACH 01 TO REACH N05 AUTHORIZED PROJECT DEPTH OF 14'. MEASURED FROM 3.8' BELOW NAVD 88.
   D. REACH N04 TO N01 AUTHORIZED PROJECT DATUM IS 14'. MEASURED FROM NORMAL POOL OF 13.59' ABOVE NAVD 88.

5. MULTI-BEAM SOUNDINGS AS SHOWN ARE REPRESENTED USING THE MEDIAN OF A THREE (3') FOOT CELL SORTED TO THIRTY (30') FEET WITH CHANNEL PRIORITY.

6. CONTOURS ON THIS MAP WERE GENERATED USING THE MAP DATA SET.

7. THE DATA DEPICTED ON THIS MAP SHOULD NOT BE USED FOR VOLUME CALCULATION PURPOSES.

8. THE PLANIMETRICS DEPICTED ON THIS MAP ARE FOR ORIENTATION PURPOSES ONLY.

9. THIS SURVEY WAS PERFORMED USING LOCAL CONTROL ESTABLISHED BY THE CORPS OF ENGINEERS.

10. THIS MAP IS CEPD COMPLIANT IN ACCORDANCE WITH ER 1110-2-8160 AND EM 1110-2-6056.

11. THE SURVEY WAS CONDUCTED BY MCKIM & CREED USING THE FOLLOWING:
    SURVEY VESSELS: SV SOUNDS DEEP
    ECHOSOUNDER: R2SONIC 2022 MULTIBEAM SYSTEM.
    NAVIGATION SYSTEMS: INTEGRATED I2NS INERTIAL NAVIGATION SYSTEM, IN REAL TIME KINEMATIC (RTK)MODE.
    SURVEY ACQUISITION SOFTWARE: HYPACK VERSION 2018A
    SURVEY PROCESSING SOFTWARE: HYPACK/HYSWEEP VERSION 2018A
    CTD CAST WERE TAKEN DURING ACQUISITION FOR ACCURATE SPEED OF SOUND PROFILES USING AN AML BASE X2 AS WELL AS A AML MICRO-X SOUND VELOCITY PROBE AT THE HEAD.

12. THE INFORMATION PRESENTED ON THIS DRAWING REPRESENTS THE RESULTS OF A SURVEY PERFORMED BY MCKIM & CREED ON JULY 1-31, 2018 AND CAN ONLY BE CONSIDERED AS INDICATING THE CONDITIONS EXISTING AT THAT TIME. BECAUSE THESE CONDITIONS MAY BE SUBJECT TO RAPID CHANGE DUE TO SHOALING EVENTS, A PRUDENT MARINER SHOULD NOT RELY EXCLUSIVELY ON THE INFORMATION PROVIDED HERE. REUSE OF THIS INFORMATION BY CLIENT OR OTHERS BEYOND THE SPECIFIC SCOPE OF WORK FOR WHICH IT WAS ACQUIRED SHALL BE AT THE SOLE RISK OF THE USER AND WITHOUT LIABILITY TO MCKIM & CREED.

| NSRS/NGS CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: TROY DAM 1 | PID# BBDR68 | NORTHING | EASTING |
| ELEVATION: 25.32' NAVD 88 | | 1,428,037.76 | 709,760.15 |

| LOCAL CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: HR-12 | PID# | NORTHING | EASTING |
| ELEVATION: 8.67' NAVD 88 | | 1,318821.55 | 684451.34 |
| STAMPED: HR-12 2016 | | | |

| LOCAL CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: 01-1 | PID# | NORTHING | EASTING |
| ELEVATION: 3.87' NAVD 88 | | 1,124,859.59 | 641003.46 |
| STAMPED: | | | |

STATE OF NEW YORK
RAYMOND B. D'AREZZO
No. 49350
LICENSED LAND SURVEYOR

US Army Corps of Engineers ®
New York District

| MARK | DESCRIPTION | DATE | APPR. |
|---|---|---|---|
| | | | |

| MARK | DESCRIPTION | DATE | APPR. |
|---|---|---|---|
| | | | |

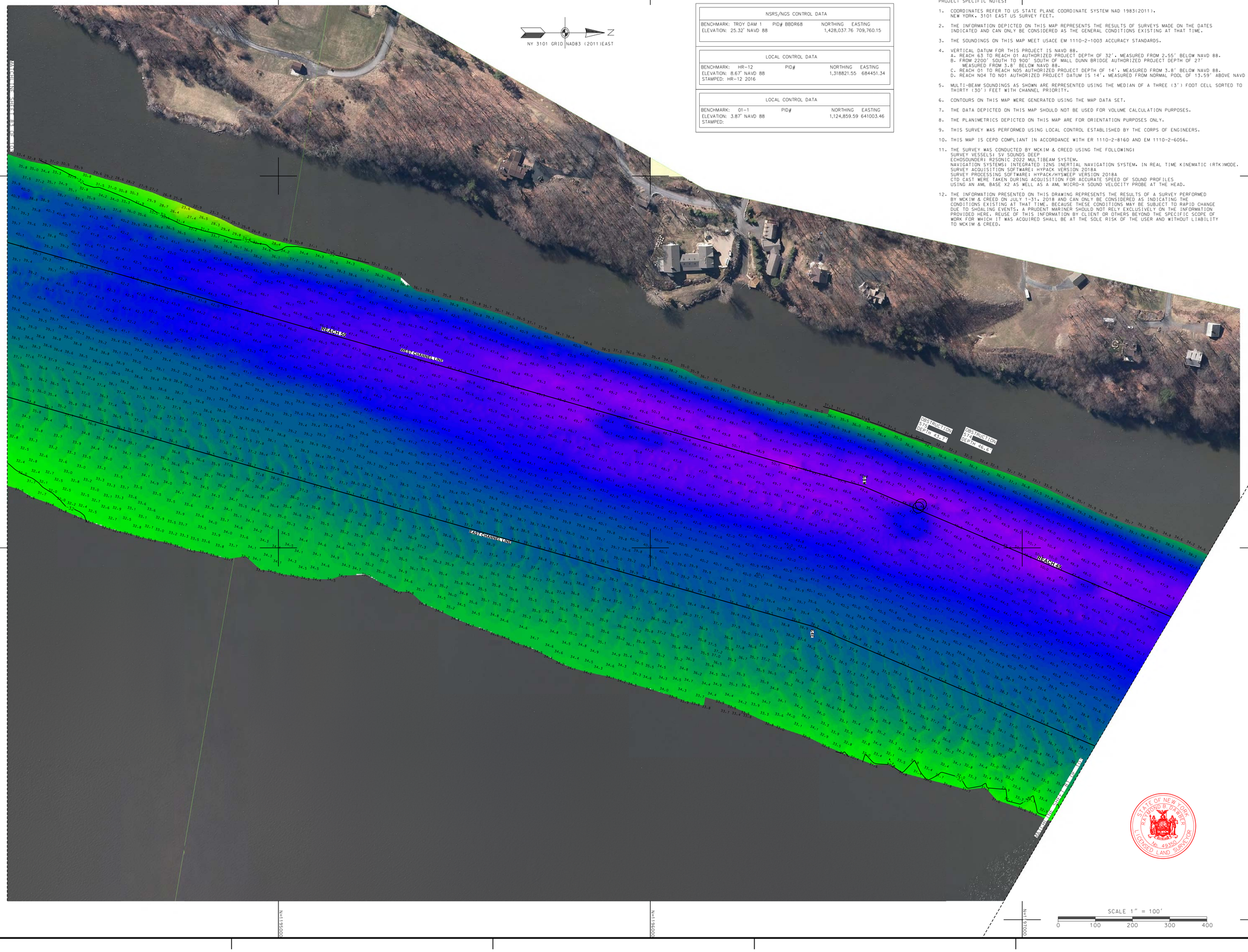
DESIGNED BY: MBH
DWN BY: MBH
CKD BY: RBD
SUBMITTED BY: DLJ
PLOT SCALE: 1:600
SIZE: ANSI F
ISSUE DATE: NOVEMBER 2018
FILE NUMBER:
FILE NAME: V:\101-058890053_HUDSON_MB\LOGN
DATE: JULY 31 - AUG 21, 2018
SOLICITATION NO.:
CONTRACT NO.: W912DS-14-D-0004

U.S. ARMY CORPS OF ENGINEERS
NEW YORK DISTRICT
NEW YORK, NY

McKIM & CREED
243 NORTH FRONT STREET
WILMINGTON, NORTH CAROLINA 28401
TELEPHONE: (910) 341-0646
FAX: (910) 251-6326

# HYDROGRAPHIC CONDITIONS SURVEY
## HUDSON RIVER FEDERAL NAVIGATION CHANNEL
## REACH 49

SHEET IDENTIFICATION
VH-181
SHEET 81 OF 103




| NSRS/NGS CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: TROY DAM 1 | PID# BBDR68 | NORTHING | EASTING |
| ELEVATION: 25.32' NAVD 88 | | 1,428,037.76 | 709,760.15 |

| LOCAL CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: HR-12 | PID# | NORTHING | EASTING |
| ELEVATION: 8.67' NAVD 88 | | 1,318821.55 | 684451.34 |
| STAMPED: HR-12 2016 | | | |

| LOCAL CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: 01-1 | PID# | NORTHING | EASTING |
| ELEVATION: 3.87' NAVD 88 | | 1,124,859.59 | 641003.46 |
| STAMPED: | | | |

PROJECT SPECIFIC NOTES:

1. COORDINATES REFER TO US STATE PLANE COORDINATE SYSTEM NAD 1983(2011). NEW YORK. 3101 EAST US SURVEY FEET.
2. THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS THE GENERAL CONDITIONS EXISTING AT THAT TIME.
3. THE SOUNDINGS ON THIS MAP MEET USACE EM 1110-2-1003 ACCURACY STANDARDS.
4. VERTICAL DATUM FOR THIS PROJECT IS NAVD 88.
   A. REACH 53 TO REACH 01 AUTHORIZED PROJECT DEPTH OF 32'. MEASURED FROM 2.55' BELOW NAVD 88.
   B. FROM 2200' SOUTH TO 900' SOUTH OF MALL DUNN BRIDGE AUTHORIZED PROJECT DEPTH OF 27' MEASURED FROM 3.8' BELOW NAVD 88.
   C. REACH 01 TO REACH N05 AUTHORIZED PROJECT DEPTH OF 14'. MEASURED FROM 3.8' BELOW NAVD 88.
   D. REACH N04 TO N01 AUTHORIZED PROJECT DATUM IS 14'. MEASURED FROM NORMAL POOL OF 13.59' ABOVE NAVD 88.
5. MULTI-BEAM SOUNDINGS AS SHOWN ARE REPRESENTED USING THE MEDIAN OF A THREE (3') FOOT CELL SORTED TO THIRTY (30') FEET WITH CHANNEL PRIORITY.
6. CONTOURS ON THIS MAP WERE GENERATED USING THE MAP DATA SET.
7. THE DATA DEPICTED ON THIS MAP SHOULD NOT BE USED FOR VOLUME CALCULATION PURPOSES.
8. THE PLANIMETRICS DEPICTED ON THIS MAP ARE FOR ORIENTATION PURPOSES ONLY.
9. THIS SURVEY WAS PERFORMED USING LOCAL CONTROL ESTABLISHED BY THE CORPS OF ENGINEERS.
10. THIS MAP IS CEPD COMPLIANT IN ACCORDANCE WITH ER 1110-2-8160 AND EM 1110-2-6056.
11. THE SURVEY WAS CONDUCTED BY MCKIM & CREED USING THE FOLLOWING:
    SURVEY VESSELS: SV SOUNDS DEEP
    ECHOSOUNDER: R2SONIC 2022 MULTIBEAM SYSTEM.
    NAVIGATION SYSTEMS: INTEGRATED IINS INERTIAL NAVIGATION SYSTEM. IN REAL TIME KINEMATIC (RTK)MODE.
    SURVEY ACQUISITION SOFTWARE: HYPACK VERSION 2018A
    SURVEY PROCESSING SOFTWARE: HYPACK/HYSWEEP VERSION 2018A
    CTD CAST WERE TAKEN DURING ACQUISITION FOR ACCURATE SPEED OF SOUND PROFILES USING AN AML BASE X2 AS WELL AS A AML MICRO-X SOUND VELOCITY PROBE AT THE HEAD.
12. THE INFORMATION PRESENTED ON THIS DRAWING REPRESENTS THE RESULTS OF A SURVEY PERFORMED BY MCKIM & CREED ON JULY 1-31, 2018 AND CAN ONLY BE CONSIDERED AS INDICATING THE CONDITIONS EXISTING AT THAT TIME. BECAUSE THESE CONDITIONS MAY BE SUBJECT TO RAPID CHANGE DUE TO SHOALING EVENTS, A PRUDENT MARINER SHOULD NOT RELY EXCLUSIVELY ON THE INFORMATION PROVIDED HERE. REUSE OF THIS INFORMATION BY CLIENT OR OTHERS BEYOND THE SPECIFIC SCOPE OF WORK FOR WHICH IT WAS ACQUIRED SHALL BE AT THE SOLE RISK OF THE USER AND WITHOUT LIABILITY TO MCKIM & CREED.

STATE OF NEW YORK
RAYMOND D. SWEET
LICENSED LAND SURVEYOR
No. 49350

US Army Corps of Engineers ®
New York District

| MARK | DESCRIPTION | DATE | APPR. |
|---|---|---|---|
| MARK | DESCRIPTION | DATE | APPR. |

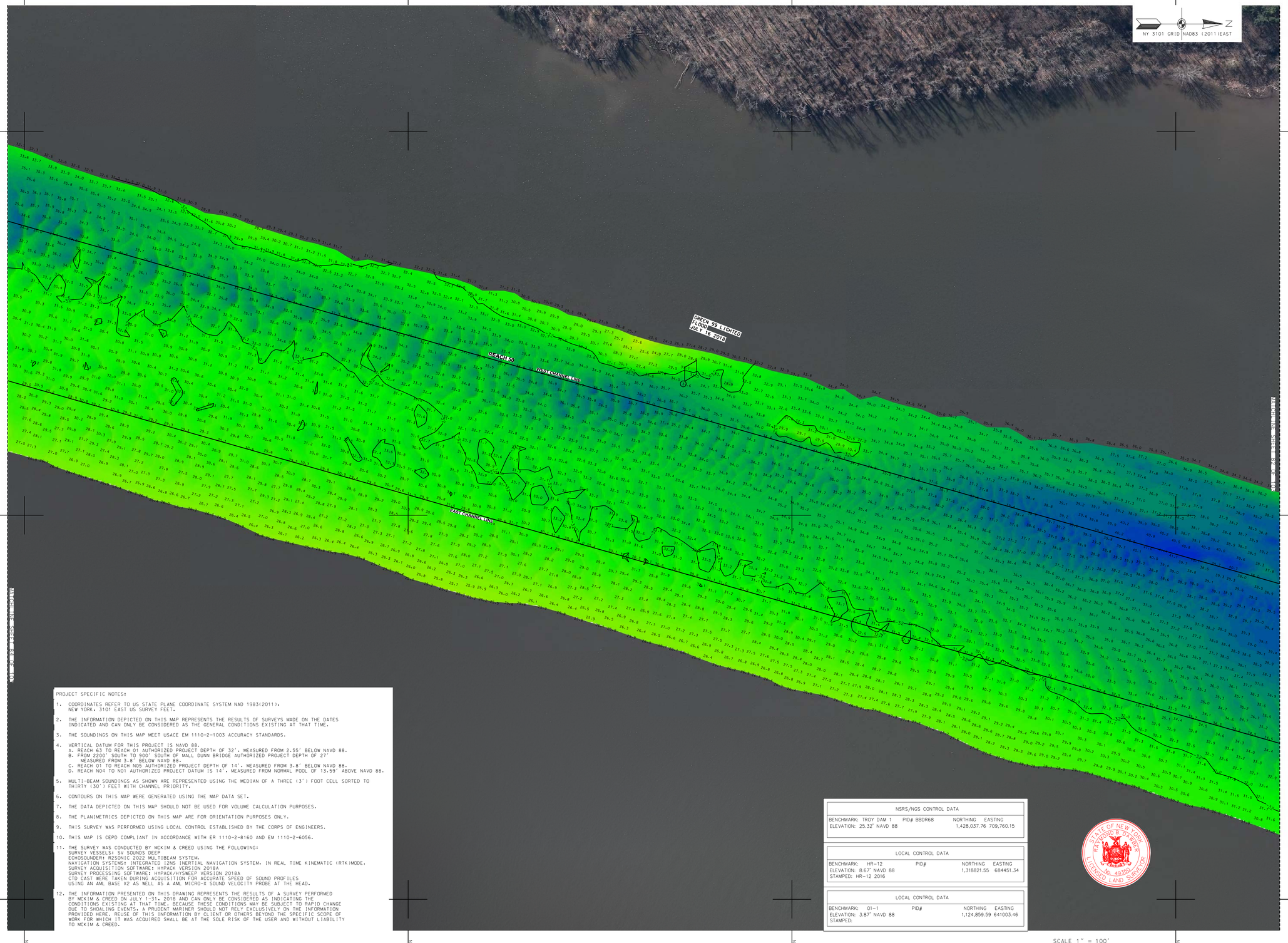
DESIGNED BY: DBA
DWN BY: MBH
CKD BY: RBD
SUBMITTED BY: DLJ
PLOT SCALE: 1" = 100'
SIZE: ANSI F
DATE: MAY 31, 2018
SOLICITATION NO.:
CONTRACT NO.: W912DS-14-D-0004
FILE NUMBER:
ISSUE DATE: 2018
FILE NAME: VH101-056890063_HUDSON_MB.DGN

U.S. ARMY CORPS OF ENGINEERS
NEW YORK DISTRICT
NEW YORK, NY

McKIM & CREED
243 NORTH FRONT STREET
WILMINGTON, NORTH CAROLINA 28401
TELEPHONE: (910) 251-8444
FAX: (910) 251-8282

# HYDROGRAPHIC CONDITIONS SURVEY
## HUDSON RIVER FEDERAL NAVIGATION CHANNEL
## REACH 49-50

SHEET IDENTIFICATION
VH-182
SHEET 82 OF 103




PROJECT SPECIFIC NOTES:

1. COORDINATES REFER TO US STATE PLANE COORDINATE SYSTEM NAD 1983(2011). NEW YORK, 3101 EAST US SURVEY FEET.
2. THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS THE GENERAL CONDITIONS EXISTING AT THAT TIME.
3. THE SOUNDINGS ON THIS MAP MEET USACE EM 1110-2-1003 ACCURACY STANDARDS.
4. VERTICAL DATUM FOR THIS PROJECT IS NAVD 88.
   A. REACH 63 TO REACH 01 AUTHORIZED PROJECT DEPTH OF 32', MEASURED FROM 2.55' BELOW NAVD 88.
   B. FROM 2200' SOUTH TO 900' SOUTH OF MALL DUNN BRIDGE AUTHORIZED PROJECT DEPTH OF 27' MEASURED FROM 3.8' BELOW NAVD 88.
   C. REACH 01 TO REACH N05 AUTHORIZED PROJECT DEPTH OF 14', MEASURED FROM 3.8' BELOW NAVD 88.
   D. REACH N04 TO N01 AUTHORIZED PROJECT DATUM IS 14', MEASURED FROM NORMAL POOL OF 13.59' ABOVE NAVD 88.
5. MULTI-BEAM SOUNDINGS AS SHOWN ARE REPRESENTED USING THE MEDIAN OF A THREE (3') FOOT CELL SORTED TO THIRTY (30') FEET WITH CHANNEL PRIORITY.
6. CONTOURS ON THIS MAP WERE GENERATED USING THE MAP DATA SET.
7. THE DATA DEPICTED ON THIS MAP SHOULD NOT BE USED FOR VOLUME CALCULATION PURPOSES.
8. THE PLANIMETRICS DEPICTED ON THIS MAP ARE FOR ORIENTATION PURPOSES ONLY.
9. THIS SURVEY WAS PERFORMED USING LOCAL CONTROL ESTABLISHED BY THE CORPS OF ENGINEERS.
10. THIS MAP IS CEPD COMPLIANT IN ACCORDANCE WITH ER 1110-2-8160 AND EM 1110-2-6056.
11. THE SURVEY WAS CONDUCTED BY MCKIM & CREED USING THE FOLLOWING:
    SURVEY VESSELS: SV SOUNDS DEEP
    ECHOSOUNDER: R2SONIC 2022 MULTIBEAM SYSTEM.
    NAVIGATION SYSTEMS: INTEGRATED I2NS INERTIAL NAVIGATION SYSTEM. IN REAL TIME KINEMATIC (RTK) MODE.
    SURVEY ACQUISITION SOFTWARE: HYPACK VERSION 2018A
    SURVEY PROCESSING SOFTWARE: HYPACK/HYSWEEP VERSION 2018A
    CTD CAST WERE TAKEN DURING ACQUISITION FOR ACCURATE SPEED OF SOUND PROFILES USING AN AML BASE X2 AS WELL AS A AML MICRO-X SOUND VELOCITY PROBE AT THE HEAD.
12. THE INFORMATION PRESENTED ON THIS DRAWING REPRESENTS THE RESULTS OF A SURVEY PERFORMED BY MCKIM & CREED ON JULY 1-31, 2018 AND CAN ONLY BE CONSIDERED AS INDICATING THE CONDITIONS EXISTING AT THAT TIME. BECAUSE THESE CONDITIONS MAY BE SUBJECT TO RAPID CHANGE DUE TO SHOALING EVENTS, A PRUDENT MARINER SHOULD NOT RELY EXCLUSIVELY ON THE INFORMATION PROVIDED HERE. REUSE OF THIS INFORMATION BY CLIENT OR OTHERS BEYOND THE SPECIFIC SCOPE OF WORK FOR WHICH IT WAS ACQUIRED SHALL BE AT THE SOLE RISK OF THE USER AND WITHOUT LIABILITY TO MCKIM & CREED.

| NSRS/NOS CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: TROY DAM 1 | PID# BBDR68 | NORTHING | EASTING |
| ELEVATION: 25.32' NAVD 88 | | 1,428,037.76 | 709,760.15 |

| LOCAL CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: HR-12 | PID# | NORTHING | EASTING |
| ELEVATION: 8.67' NAVD 88 | | 1,318821.55 | 684451.34 |
| STAMPED: HR-12 2016 | | | |

| LOCAL CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: 01-1 | PID# | NORTHING | EASTING |
| ELEVATION: 3.87' NAVD 88 | | 1,124,859.59 | 641003.46 |
| STAMPED: | | | |

STATE OF NEW YORK
RICHARD E. PARKER
No. 49350
LICENSED LAND SURVEYOR

US Army Corps of Engineers ®
New York District

| MARK | DESCRIPTION | DATE | APPR. |
|---|---|---|---|
| | | | |

| MARK | DESCRIPTION | DATE | APPR. |
|---|---|---|---|
| | | | |

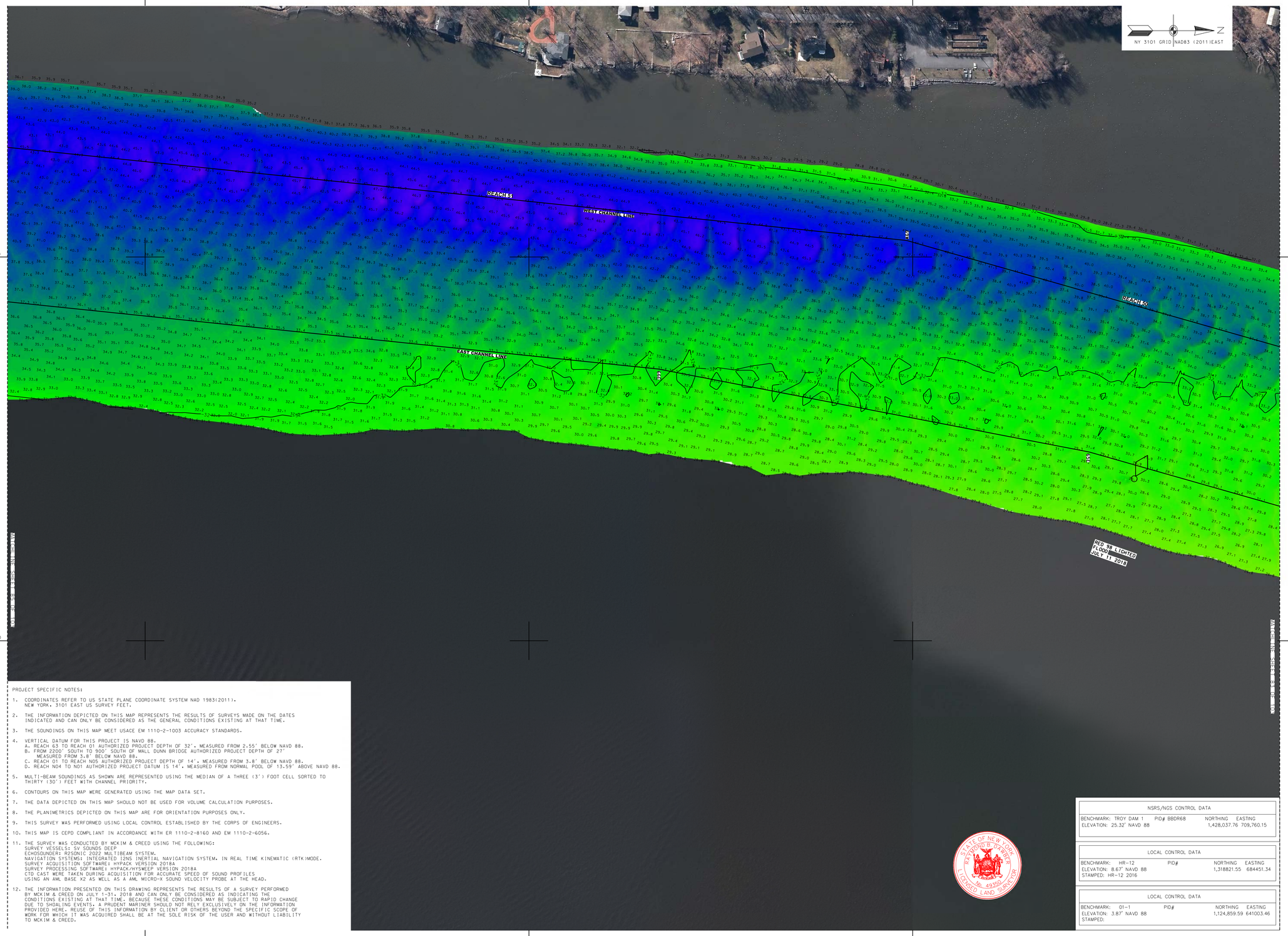
U.S. ARMY CORPS OF ENGINEERS
NEW YORK DISTRICT
NEW YORK, NY

McKIM & CREED
243 NORTH FRONT STREET
WILMINGTON, NORTH CAROLINA 28401
TELEPHONE: (910) 251-8444
FAX: (910) 251-8282

| | |
|---|---|
| DESIGNED BY: DSA | DATE: JULY 31, 2018 |
| DWN BY: MBH | CKD BY: RBD |
| SUBMITTED BY: DLJ | SOLICITATION NO.: |
| PLOT SCALE: 1" = 100' | CONTRACT NO.: W912203-14-D-0004 |
| SIZE: ANSI F | ISSUE DATE: AUG 2018 |
| FILE NAME: V:\101-058890063_HUDSON_MB.DGN | FILE NUMBER: |

# HYDROGRAPHIC CONDITIONS SURVEY
## HUDSON RIVER FEDERAL NAVIGATION CHANNEL
## REACH 50

SHEET IDENTIFICATION
VH-183
SHEET 83 OF 103




PROJECT SPECIFIC NOTES:

1. COORDINATES REFER TO US STATE PLANE COORDINATE SYSTEM NAD 1983(2011). NEW YORK. 3101 EAST US SURVEY FEET.
2. THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS THE GENERAL CONDITIONS EXISTING AT THAT TIME.
3. THE SOUNDINGS ON THIS MAP MEET USACE EM 1110-2-1003 ACCURACY STANDARDS.
4. VERTICAL DATUM FOR THIS PROJECT IS NAVD 88.
   A. REACH 63 TO REACH 01 AUTHORIZED PROJECT DEPTH OF 32', MEASURED FROM 2.55' BELOW NAVD 88.
   B. FROM 2200' SOUTH TO 900' SOUTH OF MALL DUNN BRIDGE AUTHORIZED PROJECT DEPTH OF 27' MEASURED FROM 3.8' BELOW NAVD 88.
   C. REACH 01 TO REACH N05 AUTHORIZED PROJECT DEPTH OF 14', MEASURED FROM 3.8' BELOW NAVD 88.
   D. REACH N04 TO N01 AUTHORIZED PROJECT DATUM IS 14', MEASURED FROM NORMAL POOL OF 13.59' ABOVE NAVD 88.
5. MULTI-BEAM SOUNDINGS AS SHOWN ARE REPRESENTED USING THE MEDIAN OF A THREE (3') FOOT CELL SORTED TO THIRTY (30') FEET WITH CHANNEL PRIORITY.
6. CONTOURS ON THIS MAP WERE GENERATED USING THE MAP DATA SET.
7. THE DATA DEPICTED ON THIS MAP SHOULD NOT BE USED FOR VOLUME CALCULATION PURPOSES.
8. THE PLANIMETRICS DEPICTED ON THIS MAP ARE FOR ORIENTATION PURPOSES ONLY.
9. THIS SURVEY WAS PERFORMED USING LOCAL CONTROL ESTABLISHED BY THE CORPS OF ENGINEERS.
10. THIS MAP IS CEPD COMPLIANT IN ACCORDANCE WITH ER 1110-2-8160 AND EM 1110-2-6056.
11. THE SURVEY WAS CONDUCTED BY MCKIM & CREED USING THE FOLLOWING:
    SURVEY VESSELS: SV SOUNDS DEEP
    ECHOSOUNDER: R2SONIC 2022 MULTIBEAM SYSTEM.
    NAVIGATION SYSTEMS: INTEGRATED I2NS INERTIAL NAVIGATION SYSTEM, IN REAL TIME KINEMATIC (RTK) MODE.
    SURVEY ACQUISITION SOFTWARE: HYPACK VERSION 2018A
    SURVEY PROCESSING SOFTWARE: HYPACK/HYSWEEP VERSION 2018A
    CTD CAST WERE TAKEN DURING ACQUISITION FOR ACCURATE SPEED OF SOUND PROFILES USING AN AML BASE X2 AS WELL AS A AML MICRO-X SOUND VELOCITY PROBE AT THE HEAD.
12. THE INFORMATION PRESENTED ON THIS DRAWING REPRESENTS THE RESULTS OF A SURVEY PERFORMED BY MCKIM & CREED ON JULY 1-31, 2018 AND CAN ONLY BE CONSIDERED AS INDICATING THE CONDITIONS EXISTING AT THAT TIME. BECAUSE THESE CONDITIONS MAY BE SUBJECT TO RAPID CHANGE DUE TO SHOALING EVENTS, A PRUDENT MARINER SHOULD NOT RELY EXCLUSIVELY ON THE INFORMATION PROVIDED HERE. REUSE OF THIS INFORMATION BY CLIENT OR OTHERS BEYOND THE SPECIFIC SCOPE OF WORK FOR WHICH IT WAS ACQUIRED SHALL BE AT THE SOLE RISK OF THE USER AND WITHOUT LIABILITY TO MCKIM & CREED.

| NSRS/NGS CONTROL DATA | | |
|---|---|---|
| BENCHMARK: TROY DAM 1 PID# BBDR68 | NORTHING | EASTING |
| ELEVATION: 25.32' NAVD 88 | 1,428,037.76 | 709,760.15 |

| LOCAL CONTROL DATA | | |
|---|---|---|
| BENCHMARK: HR-12 PID# | NORTHING | EASTING |
| ELEVATION: 8.67' NAVD 88 | 1,318821.55 | 684451.34 |
| STAMPED: HR-12 2016 | | |

| LOCAL CONTROL DATA | | |
|---|---|---|
| BENCHMARK: 01-1 PID# | NORTHING | EASTING |
| ELEVATION: 3.87' NAVD 88 | 1,124,859.59 | 641003.46 |
| STAMPED: | | |

STATE OF NEW YORK
RAYMOND F. DAHER
LICENSED LAND SURVEYOR
No. 49350

SCALE 1" = 100'
0 100 200 300 400

US Army Corps of Engineers ®
New York District

| MARK | DESCRIPTION | DATE | APPR. | MARK | DESCRIPTION | DATE | APPR. |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

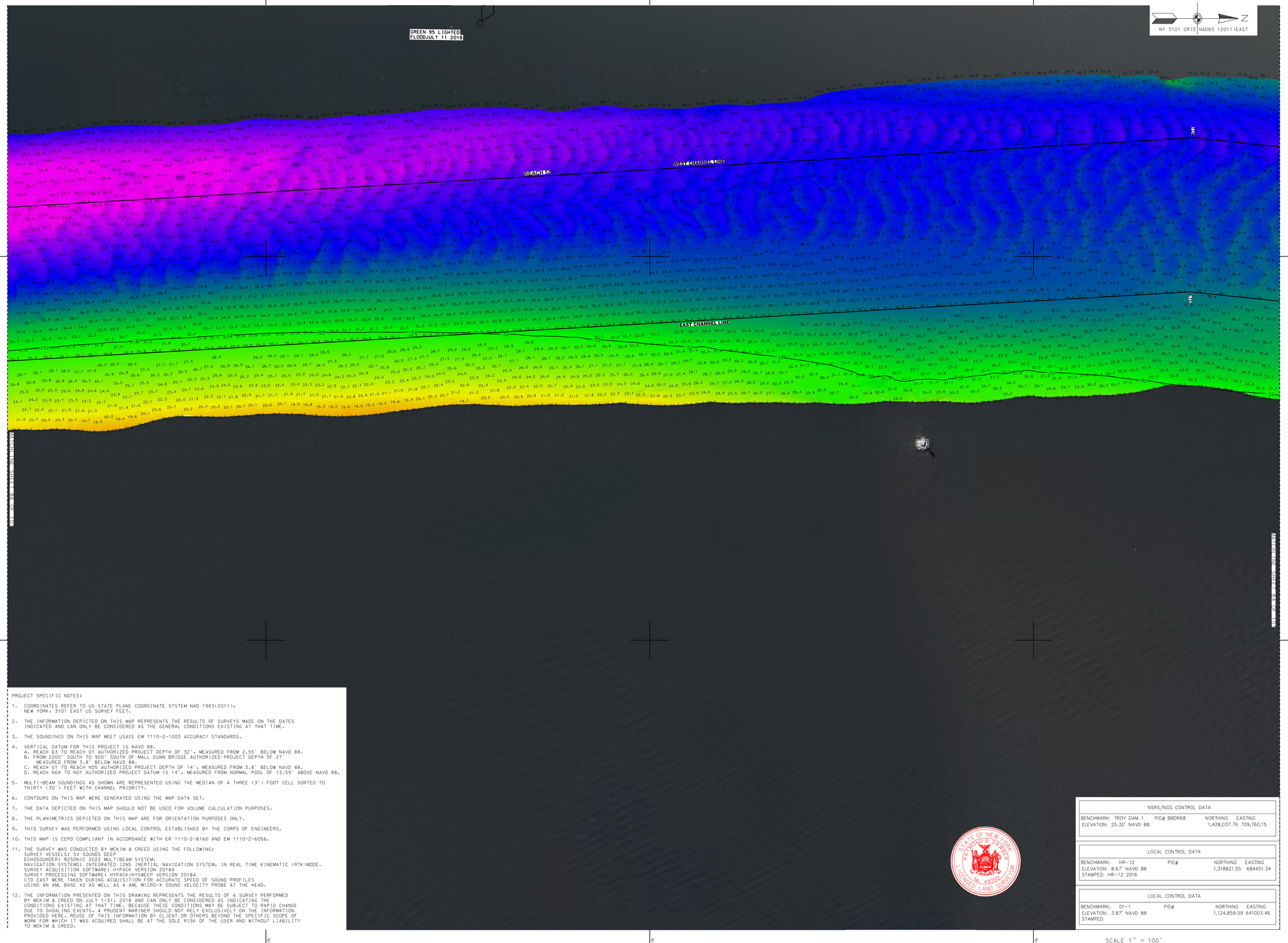
DESIGNED BY: DAJ
DWN BY: MBH
CKD BY: RBD
SUBMITTED BY: DAJ
PLOT SCALE: 1" = 100'
SIZE: ANSI F
DATE: JULY 31, 2018
SOLICITATION NO.:
CONTRACT NO.: W912DS-14-D-0004
TASK/DO NO.:
FILE NUMBER:
ISSUE DATE:
FILE NAME: VH101-056880053_HUDSON_MB.DGN

U.S. ARMY CORPS OF ENGINEERS
NEW YORK DISTRICT
NEW YORK, NY

McKIM & CREED
243 NORTH FRONT STREET
WILMINGTON, NORTH CAROLINA 28401
TELEPHONE: (910) 251-8246
FAX: (910) 251-8282

# HYDROGRAPHIC CONDITIONS SURVEY
## HUDSON RIVER FEDERAL NAVIGATION CHANNEL
## REACH 50-51

SHEET IDENTIFICATION
VH-184
SHEET 84 OF 103




PROJECT SPECIFIC NOTES:

1. COORDINATES REFER TO US STATE PLANE COORDINATE SYSTEM NAD 1983(2011). NEW YORK. 3101 EAST US SURVEY FEET.
2. THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS THE GENERAL CONDITIONS EXISTING AT THAT TIME.
3. THE SOUNDINGS ON THIS MAP MEET USACE EM 1110-2-1003 ACCURACY STANDARDS.
4. VERTICAL DATUM FOR THIS PROJECT IS NAVD 88.
   A. REACH 63 TO REACH 01 AUTHORIZED PROJECT DEPTH OF 32'. MEASURED FROM 2.55' BELOW NAVD 88.
   B. FROM 2200' SOUTH TO 900' SOUTH OF MALL DUNN BRIDGE AUTHORIZED PROJECT DEPTH OF 27' MEASURED FROM 3.8' BELOW NAVD 88.
   C. REACH 01 TO REACH N05 AUTHORIZED PROJECT DEPTH OF 14'. MEASURED FROM 3.8' BELOW NAVD 88.
   D. REACH N04 TO N01 AUTHORIZED PROJECT DATUM IS 14'. MEASURED FROM NORMAL POOL OF 13.59' ABOVE NAVD 88.
5. MULTI-BEAM SOUNDINGS AS SHOWN ARE REPRESENTED USING THE MEDIAN OF A THREE (3') FOOT CELL SORTED TO THIRTY (30') FEET WITH CHANNEL PRIORITY.
6. CONTOURS ON THIS MAP WERE GENERATED USING THE MAP DATA SET.
7. THE DATA DEPICTED ON THIS MAP SHOULD NOT BE USED FOR VOLUME CALCULATION PURPOSES.
8. THE PLANIMETRICS DEPICTED ON THIS MAP ARE FOR ORIENTATION PURPOSES ONLY.
9. THIS SURVEY WAS PERFORMED USING LOCAL CONTROL ESTABLISHED BY THE CORPS OF ENGINEERS.
10. THIS MAP IS CEPD COMPLIANT IN ACCORDANCE WITH ER 1110-2-8160 AND EM 1110-2-6056.
11. THE SURVEY WAS CONDUCTED BY MCKIM & CREED USING THE FOLLOWING:
    SURVEY VESSELS: SV SOUNDS DEEP
    ECHOSOUNDER: R2SONIC 2022 MULTIBEAM SYSTEM.
    NAVIGATION SYSTEMS: INTEGRATED I2NS INERTIAL NAVIGATION SYSTEM. IN REAL TIME KINEMATIC (RTK) MODE.
    SURVEY ACQUISITION SOFTWARE: HYPACK VERSION 2018A
    SURVEY PROCESSING SOFTWARE: HYPACK/HYSWEEP VERSION 2018A
    CTD CAST WERE TAKEN DURING ACQUISITION FOR ACCURATE SPEED OF SOUND PROFILES
    USING AN AML BASE X2 AS WELL AS A AML MICRO-X SOUND VELOCITY PROBE AT THE HEAD.
12. THE INFORMATION PRESENTED ON THIS DRAWING REPRESENTS THE RESULTS OF A SURVEY PERFORMED BY MCKIM & CREED ON JULY 1-31, 2018 AND CAN ONLY BE CONSIDERED AS INDICATING THE CONDITIONS EXISTING AT THAT TIME. BECAUSE THESE CONDITIONS MAY BE SUBJECT TO RAPID CHANGE DUE TO SHOALING EVENTS, A PRUDENT MARINER SHOULD NOT RELY EXCLUSIVELY ON THE INFORMATION PROVIDED HERE. REUSE OF THIS INFORMATION BY CLIENT OR OTHERS BEYOND THE SPECIFIC SCOPE OF WORK FOR WHICH IT WAS ACQUIRED SHALL BE AT THE SOLE RISK OF THE USER AND WITHOUT LIABILITY TO MCKIM & CREED.

| NSRS/NGS CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: TROY DAM 1 | PID# BBDR68 | NORTHING | EASTING |
| ELEVATION: 25.32' NAVD 88 | | 1,428,037.76 | 709,760.15 |

| LOCAL CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: HR-12 | PID# | NORTHING | EASTING |
| ELEVATION: 8.67' NAVD 88 | | 1,318821.55 | 684451.34 |
| STAMPED: HR-12 2016 | | | |

| LOCAL CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: 01-1 | PID# | NORTHING | EASTING |
| ELEVATION: 3.87' NAVD 88 | | 1,124,859.59 | 641003.46 |
| STAMPED: | | | |

STATE OF NEW YORK
RAYMOND E. PARKER
No. 49350
LICENSED LAND SURVEYOR

SCALE 1" = 100'
0 100 200 300 400

US Army Corps of Engineers ®
New York District

| MARK | DESCRIPTION | DATE | APPR. |
|---|---|---|---|
| | | | |

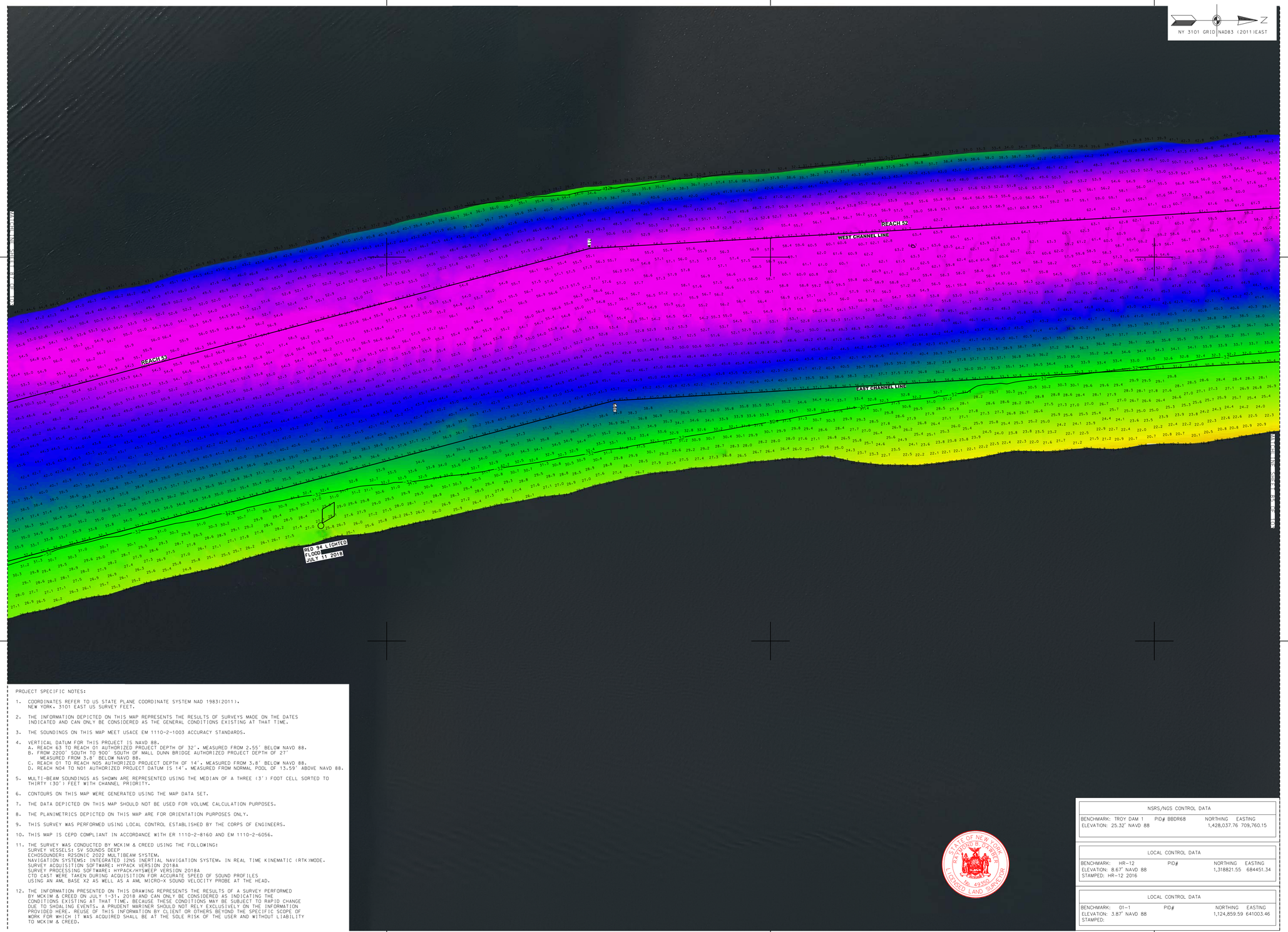
DESIGNED BY: DBA
DWN BY: MBH
CHKD BY: RBD
SUBMITTED BY: DLJ
DATE: JULY 31, 2018
SOLICITATION NO.:
CONTRACT NO.: W912DS-14-D-0004
PLOT SCALE: 1" = 100'
ISSUE DATE: NOV 2018
FILE NUMBER:
SIZE: ANSI F
FILE NAME: VH101-058890063_HUDSON_MB.DGN

U.S. ARMY CORPS OF ENGINEERS
NEW YORK DISTRICT
NEW YORK, NY

McKIM & CREED
243 NORTH FRONT STREET
WILMINGTON, NORTH CAROLINA 28401
TELEPHONE: (910) 251-8448
FAX: (910) 251-8282

# HYDROGRAPHIC CONDITIONS SURVEY
## HUDSON RIVER FEDERAL NAVIGATION CHANNEL
## REACH 52

SHEET IDENTIFICATION
VH-185
SHEET 85 OF 103




PROJECT SPECIFIC NOTES:

1. COORDINATES REFER TO US STATE PLANE COORDINATE SYSTEM NAD 1983(2011). NEW YORK, 3101 EAST US SURVEY FEET.
2. THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS THE GENERAL CONDITIONS EXISTING AT THAT TIME.
3. THE SOUNDINGS ON THIS MAP MEET USACE EM 1110-2-1003 ACCURACY STANDARDS.
4. VERTICAL DATUM FOR THIS PROJECT IS NAVD 88.
   A. REACH 63 TO REACH 01 AUTHORIZED PROJECT DEPTH OF 32'. MEASURED FROM 2.55' BELOW NAVD 88.
   B. FROM 2200' SOUTH TO 900' SOUTH OF MALL DUNN BRIDGE AUTHORIZED PROJECT DEPTH OF 27' MEASURED FROM 3.8' BELOW NAVD 88.
   C. REACH 01 TO REACH N05 AUTHORIZED PROJECT DEPTH OF 14'. MEASURED FROM 3.8' BELOW NAVD 88.
   D. REACH N04 TO N01 AUTHORIZED PROJECT DATUM IS 14'. MEASURED FROM NORMAL POOL OF 13.59' ABOVE NAVD 88.
5. MULTI-BEAM SOUNDINGS AS SHOWN ARE REPRESENTED USING THE MEDIAN OF A THREE (3') FOOT CELL SORTED TO THIRTY (30') FEET WITH CHANNEL PRIORITY.
6. CONTOURS ON THIS MAP WERE GENERATED USING THE MAP DATA SET.
7. THE DATA DEPICTED ON THIS MAP SHOULD NOT BE USED FOR VOLUME CALCULATION PURPOSES.
8. THE PLANIMETRICS DEPICTED ON THIS MAP ARE FOR ORIENTATION PURPOSES ONLY.
9. THIS SURVEY WAS PERFORMED USING LOCAL CONTROL ESTABLISHED BY THE CORPS OF ENGINEERS.
10. THIS MAP IS CEPD COMPLIANT IN ACCORDANCE WITH ER 1110-2-8160 AND EM 1110-2-6056.
11. THE SURVEY WAS CONDUCTED BY MCKIM & CREED USING THE FOLLOWING:
    SURVEY VESSELS: SV SOUNDS DEEP
    ECHOSOUNDER: R2SONIC 2022 MULTIBEAM SYSTEM.
    NAVIGATION SYSTEMS: INTEGRATED I2NS INERTIAL NAVIGATION SYSTEM. IN REAL TIME KINEMATIC (RTK)MODE.
    SURVEY ACQUISITION SOFTWARE: HYPACK VERSION 2018A
    SURVEY PROCESSING SOFTWARE: HYPACK/HYSWEEP VERSION 2018A
    CTD CAST WERE TAKEN DURING ACQUISITION FOR ACCURATE SPEED OF SOUND PROFILES USING AN AML BASE X2 AS WELL AS A AML MICRO-X SOUND VELOCITY PROBE AT THE HEAD.
12. THE INFORMATION PRESENTED ON THIS DRAWING REPRESENTS THE RESULTS OF A SURVEY PERFORMED BY MCKIM & CREED ON JULY 1-31, 2018 AND CAN ONLY BE CONSIDERED AS INDICATING THE CONDITIONS EXISTING AT THAT TIME. BECAUSE THESE CONDITIONS MAY BE SUBJECT TO RAPID CHANGE DUE TO SHOALING EVENTS, A PRUDENT MARINER SHOULD NOT RELY EXCLUSIVELY ON THE INFORMATION PROVIDED HERE. REUSE OF THIS INFORMATION BY CLIENT OR OTHERS BEYOND THE SPECIFIC SCOPE OF WORK FOR WHICH IT WAS ACQUIRED SHALL BE AT THE SOLE RISK OF THE USER AND WITHOUT LIABILITY TO MCKIM & CREED.

| NSRS/NGS CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: TROY DAM 1 | PID# BBDR68 | NORTHING | EASTING |
| ELEVATION: 25.32' NAVD 88 | | 1,428,037.76 | 709,760.15 |

| LOCAL CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: HR-12 | PID# | NORTHING | EASTING |
| ELEVATION: 8.67' NAVD 88 | | 1,318821.55 | 684451.34 |
| STAMPED: HR-12 2016 | | | |

| LOCAL CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: 01-1 | PID# | NORTHING | EASTING |
| ELEVATION: 3.87' NAVD 88 | | 1,124,859.59 | 641003.46 |
| STAMPED: | | | |

STATE OF NEW YORK
RAYMOND B. O'KEEFE
LICENSED LAND SURVEYOR
No. 49386

US Army Corps of Engineers ®
New York District

| DESCRIPTION | DATE | APPR. |
|---|---|---|
| | | |

| DESCRIPTION | DATE | APPR. | MARK |
|---|---|---|---|
| | | | |

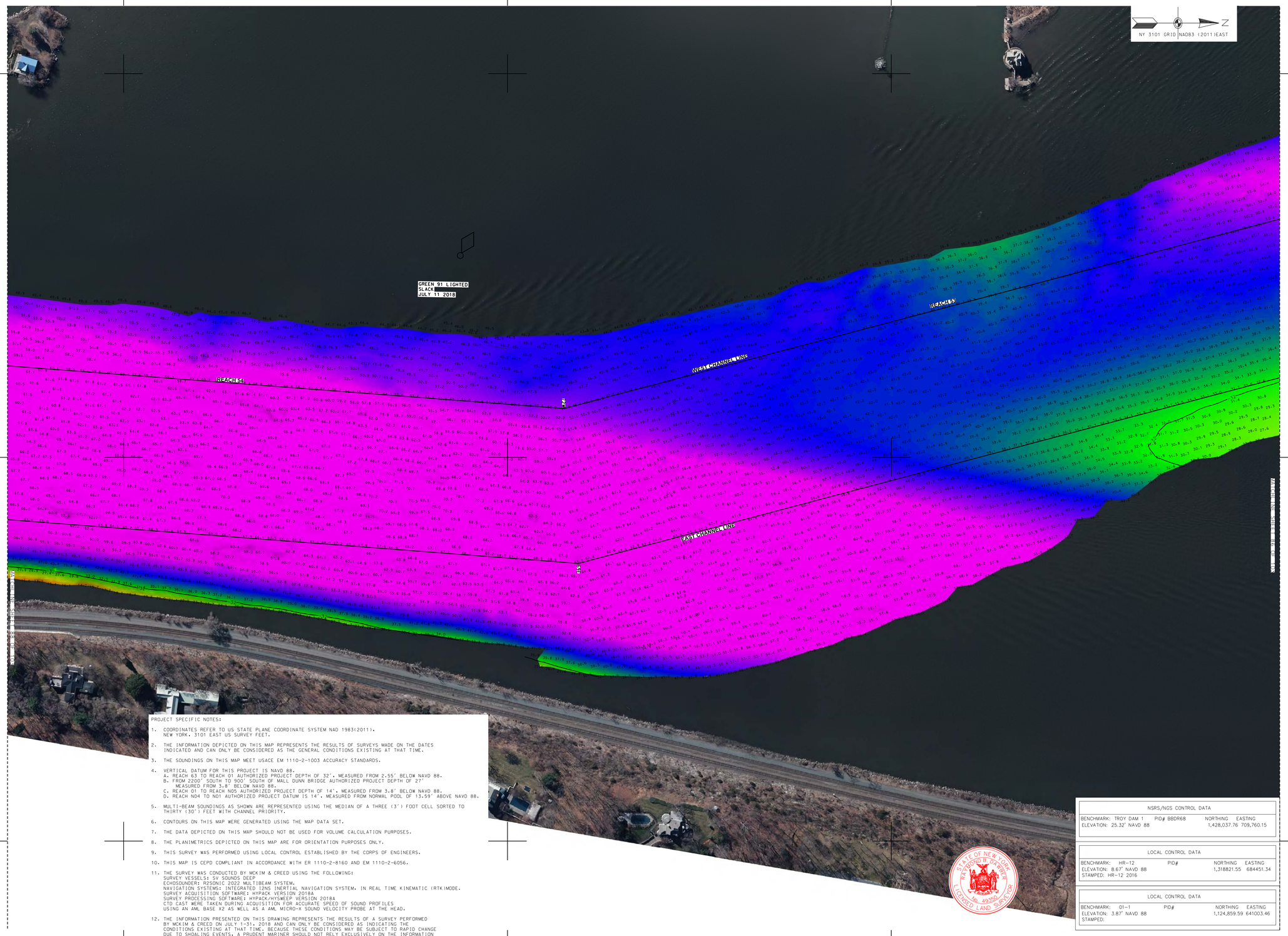
DESIGNED BY: DLJ
DWN BY: MBH
CKD BY: RBD
SUBMITTED BY: DLJ
DATE: JULY 31, 2018
SOLICITATION NO.:
CONTRACT NO.: W912DS-14-D-0004
FILE NUMBER:
PLOT SCALE: 1 = 100'
PLOT DATE: 8/6/2018
SIZE: ANSI F
ISSUE DATE: NOV 2018
FILE NAME: V:\101\c058890053_HUDSON_MB.DGN

U.S. ARMY CORPS OF ENGINEERS
NEW YORK DISTRICT
NEW YORK, NY

McKIM & CREED
245 NORTH FRONT STREET
WILMINGTON, NORTH CAROLINA 28401
TELEPHONE: (910) 251-8444
FAX: (910) 251-8282

# HYDROGRAPHIC CONDITIONS SURVEY
## HUDSON RIVER FEDERAL NAVIGATION CHANNEL
## REACH 52-53

SHEET IDENTIFICATION
VH-186
SHEET 86 OF 103




PROJECT SPECIFIC NOTES:

1. COORDINATES REFER TO US STATE PLANE COORDINATE SYSTEM NAD 1983(2011). NEW YORK. 3101 EAST US SURVEY FEET.
2. THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS THE GENERAL CONDITIONS EXISTING AT THAT TIME.
3. THE SOUNDINGS ON THIS MAP MEET USACE EM 1110-2-1003 ACCURACY STANDARDS.
4. VERTICAL DATUM FOR THIS PROJECT IS NAVD 88.
   A. REACH 63 TO REACH 01 AUTHORIZED PROJECT DEPTH OF 32'. MEASURED FROM 2.55' BELOW NAVD 88.
   B. FROM 2200' SOUTH TO 900' SOUTH OF MALL DUNN BRIDGE AUTHORIZED PROJECT DEPTH OF 27' MEASURED FROM 3.8' BELOW NAVD 88.
   C. REACH 01 TO REACH N05 AUTHORIZED PROJECT DEPTH OF 14'. MEASURED FROM 3.8' BELOW NAVD 88.
   D. REACH N04 TO N01 AUTHORIZED PROJECT DATUM IS 14'. MEASURED FROM NORMAL POOL OF 13.59' ABOVE NAVD 88.
5. MULTI-BEAM SOUNDINGS AS SHOWN ARE REPRESENTED USING THE MEDIAN OF A THREE (3') FOOT CELL SORTED TO THIRTY (30') FEET WITH CHANNEL PRIORITY.
6. CONTOURS ON THIS MAP WERE GENERATED USING THE MAP DATA SET.
7. THE DATA DEPICTED ON THIS MAP SHOULD NOT BE USED FOR VOLUME CALCULATION PURPOSES.
8. THE PLANIMETRICS DEPICTED ON THIS MAP ARE FOR ORIENTATION PURPOSES ONLY.
9. THIS SURVEY WAS PERFORMED USING LOCAL CONTROL ESTABLISHED BY THE CORPS OF ENGINEERS.
10. THIS MAP IS CEPD COMPLIANT IN ACCORDANCE WITH ER 1110-2-8160 AND EM 1110-2-6056.
11. THE SURVEY WAS CONDUCTED BY MCKIM & CREED USING THE FOLLOWING:
    SURVEY VESSELS: SV SOUNDS DEEP
    ECHOSOUNDER: R2SONIC 2022 MULTIBEAM SYSTEM.
    NAVIGATION SYSTEMS: INTEGRATED I2NS INERTIAL NAVIGATION SYSTEM. IN REAL TIME KINEMATIC (RTK)MODE.
    SURVEY ACQUISITION SOFTWARE: HYPACK VERSION 2018A
    SURVEY PROCESSING SOFTWARE: HYPACK/HYSWEEP VERSION 2018A
    CTD CAST WERE TAKEN DURING ACQUISITION FOR ACCURATE SPEED OF SOUND PROFILES USING AN AML BASE X2 AS WELL AS A AML MICRO-X SOUND VELOCITY PROBE AT THE HEAD.
12. THE INFORMATION PRESENTED ON THIS DRAWING REPRESENTS THE RESULTS OF A SURVEY PERFORMED BY MCKIM & CREED ON JULY 1-31, 2018 AND CAN ONLY BE CONSIDERED AS INDICATING THE CONDITIONS EXISTING AT THAT TIME. BECAUSE THESE CONDITIONS MAY BE SUBJECT TO RAPID CHANGE DUE TO SHOALING EVENTS, A PRUDENT MARINER SHOULD NOT RELY EXCLUSIVELY ON THE INFORMATION PROVIDED HERE. REUSE OF THIS INFORMATION BY CLIENT OR OTHERS BEYOND THE SPECIFIC SCOPE OF WORK FOR WHICH IT WAS ACQUIRED SHALL BE AT THE SOLE RISK OF THE USER AND WITHOUT LIABILITY TO MCKIM & CREED.

| NSRS/NGS CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: TROY DAM 1 | PID# BBDR68 | NORTHING | EASTING |
| ELEVATION: 25.32' NAVD 88 | | 1,428,037.76 | 709,760.15 |

| LOCAL CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: HR-12 | PID# | NORTHING | EASTING |
| ELEVATION: 8.67' NAVD 88 | | 1,318821.55 | 684451.34 |
| STAMPED: HR-12 2016 | | | |

| LOCAL CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: 01-1 | PID# | NORTHING | EASTING |
| ELEVATION: 3.87' NAVD 88 | | 1,124,859.59 | 641003.46 |
| STAMPED: | | | |

STATE OF NEW YORK
RAYMOND B. TANNER
No. 49350
LICENSED LAND SURVEYOR

SCALE 1" = 100'
0 100 200 300 400

US Army Corps of Engineers
New York District

| MARK | DESCRIPTION | DATE | APPR. |
|---|---|---|---|
| | | | |

| MARK | DESCRIPTION | DATE | APPR. |
|---|---|---|---|
| | | | |

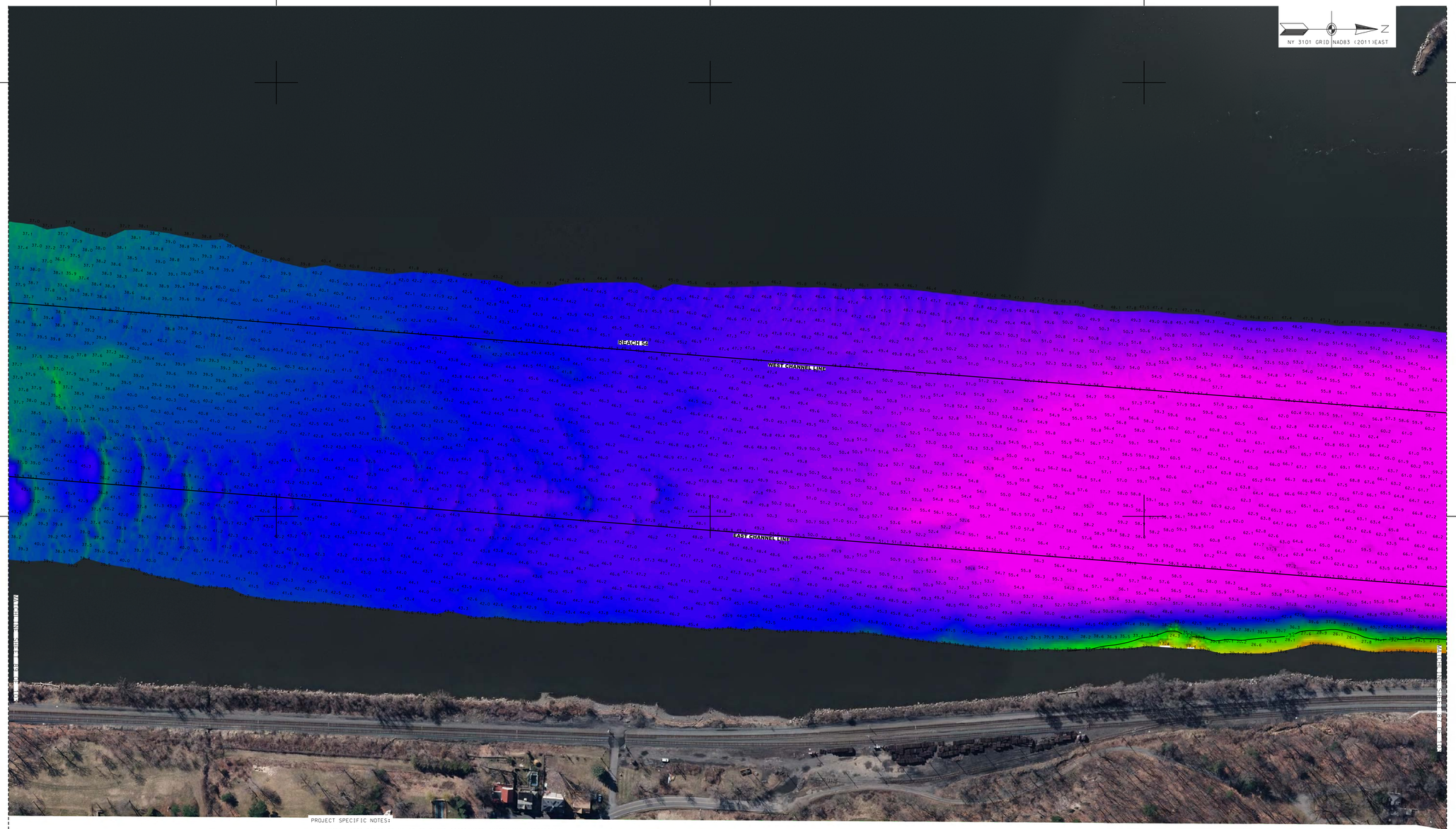
U.S. ARMY CORPS OF ENGINEERS
NEW YORK DISTRICT
NEW YORK, NY

McKIM & CREED
243 NORTH FRONT STREET
WILMINGTON, NORTH CAROLINA 28401
TELEPHONE: (910) 341-0646
FAX: (910) 251-8282

DESIGNED BY: MBH
DRWN BY: MBH
CKD BY: RBD
SUBMITTED BY: DLJ
PLOT SCALE: 1:600
SIZE: ANSI F
DATE: JULY 31, 2018
SOLICITATION NO.:
CONTRACT NO.: W912DS-14-D-0004
ISSUE DATE: NOVEMBER 2018
FILE NUMBER:
FILE NAME: VH101-058890053_HUDSON_MBLOGN

# HYDROGRAPHIC CONDITIONS SURVEY
## HUDSON RIVER FEDERAL NAVIGATION CHANNEL
## REACH 53-54

SHEET IDENTIFICATION
VH-187
SHEET 87 OF 103




PROJECT SPECIFIC NOTES:

1. COORDINATES REFER TO US STATE PLANE COORDINATE SYSTEM NAD 1983(2011). NEW YORK. 3101 EAST US SURVEY FEET.
2. THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS THE GENERAL CONDITIONS EXISTING AT THAT TIME.
3. THE SOUNDINGS ON THIS MAP MEET USACE EM 1110-2-1003 ACCURACY STANDARDS.
4. VERTICAL DATUM FOR THIS PROJECT IS NAVD 88.
   A. REACH 63 TO REACH 01 AUTHORIZED PROJECT DEPTH OF 32'. MEASURED FROM 2.55' BELOW NAVD 88.
   B. FROM 2200' SOUTH TO 900' SOUTH OF MALL DUNN BRIDGE AUTHORIZED PROJECT DEPTH OF 27' MEASURED FROM 3.8' BELOW NAVD 88.
   C. REACH 01 TO REACH N05 AUTHORIZED PROJECT DEPTH OF 14'. MEASURED FROM 3.8' BELOW NAVD 88.
   D. REACH N04 TO N01 AUTHORIZED PROJECT DATUM IS 14'. MEASURED FROM NORMAL POOL OF 13.59' ABOVE NAVD 88.
5. MULTI-BEAM SOUNDINGS AS SHOWN ARE REPRESENTED USING THE MEDIAN OF A THREE (3') FOOT CELL SORTED TO THIRTY (30') FEET WITH CHANNEL PRIORITY.
6. CONTOURS ON THIS MAP WERE GENERATED USING THE MAP DATA SET.
7. THE DATA DEPICTED ON THIS MAP SHOULD NOT BE USED FOR VOLUME CALCULATION PURPOSES.
8. THE PLANIMETRICS DEPICTED ON THIS MAP ARE FOR ORIENTATION PURPOSES ONLY.
9. THIS SURVEY WAS PERFORMED USING LOCAL CONTROL ESTABLISHED BY THE CORPS OF ENGINEERS.
10. THIS MAP IS CEPD COMPLIANT IN ACCORDANCE WITH ER 1110-2-8160 AND EM 1110-2-6056.
11. THE SURVEY WAS CONDUCTED BY MCKIM & CREED USING THE FOLLOWING:
    SURVEY VESSELS: SV SOUNDS DEEP
    ECHOSOUNDER: R2SONIC 2022 MULTIBEAM SYSTEM.
    NAVIGATION SYSTEMS: INTEGRATED I2NS INERTIAL NAVIGATION SYSTEM. IN REAL TIME KINEMATIC (RTK)MODE.
    SURVEY ACQUISITION SOFTWARE: HYPACK VERSION 2018A
    SURVEY PROCESSING SOFTWARE: HYPACK/HYSWEEP VERSION 2018A
    CTD CAST WERE TAKEN DURING ACQUISITION FOR ACCURATE SPEED OF SOUND PROFILES USING AN AML BASE X2 AS WELL AS A AML MICRO-X SOUND VELOCITY PROBE AT THE HEAD.
12. THE INFORMATION PRESENTED ON THIS DRAWING REPRESENTS THE RESULTS OF A SURVEY PERFORMED BY MCKIM & CREED ON JULY 1-31, 2018 AND CAN ONLY BE CONSIDERED AS INDICATING THE CONDITIONS EXISTING AT THAT TIME. BECAUSE THESE CONDITIONS MAY BE SUBJECT TO RAPID CHANGE DUE TO SHOALING EVENTS, A PRUDENT MARINER SHOULD NOT RELY EXCLUSIVELY ON THE INFORMATION PROVIDED HERE. REUSE OF THIS INFORMATION BY CLIENT OR OTHERS BEYOND THE SPECIFIC SCOPE OF WORK FOR WHICH IT WAS ACQUIRED SHALL BE AT THE SOLE RISK OF THE USER AND WITHOUT LIABILITY TO MCKIM & CREED.

STATE OF NEW YORK
RAYMOND B. O'BRIEN
No. 49350
LICENSED LAND SURVEYOR

| NSRS/NGS CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: TROY DAM 1 | PID# BBDR68 | NORTHING | EASTING |
| ELEVATION: 25.32' NAVD 88 | | 1,428,037.76 | 709,760.15 |

| LOCAL CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: HR-12 | PID# | NORTHING | EASTING |
| ELEVATION: 8.67' NAVD 88 | | 1,318821.55 | 684451.34 |
| STAMPED: HR-12 2016 | | | |

| LOCAL CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: 01-1 | PID# | NORTHING | EASTING |
| ELEVATION: 3.87' NAVD 88 | | 1,124,859.59 | 641003.46 |
| STAMPED: | | | |

SCALE 1" = 100'
0 100 200 300 400

US Army Corps of Engineers ®
New York District

| MARK | DESCRIPTION | DATE | APPR. |
|---|---|---|---|
| | | | |

| MARK | DESCRIPTION | DATE | APPR. |
|---|---|---|---|
| | | | |

DESIGNED BY: DLJ
DWN BY: MBH
CKD BY: RBD
SUBMITTED BY: DLJ
PLOT SCALE: 1" = 100'
SIZE: ANSI F
DATE: JULY 31, 2018
SOLICITATION NO.:
CONTRACT NO.: W912DS-14-D-0004 TO 0026
FILE NUMBER:
ISSUE DATE: NOVEMBER 2018
FILE NAME: VH101-058890063_HUDSON_MB.DGN

U.S. ARMY CORPS OF ENGINEERS
NEW YORK DISTRICT
NEW YORK, NY

McKIM & CREED
243 NORTH FRONT STREET
WILMINGTON, NORTH CAROLINA 28401
TELEPHONE: (910) 251-8444
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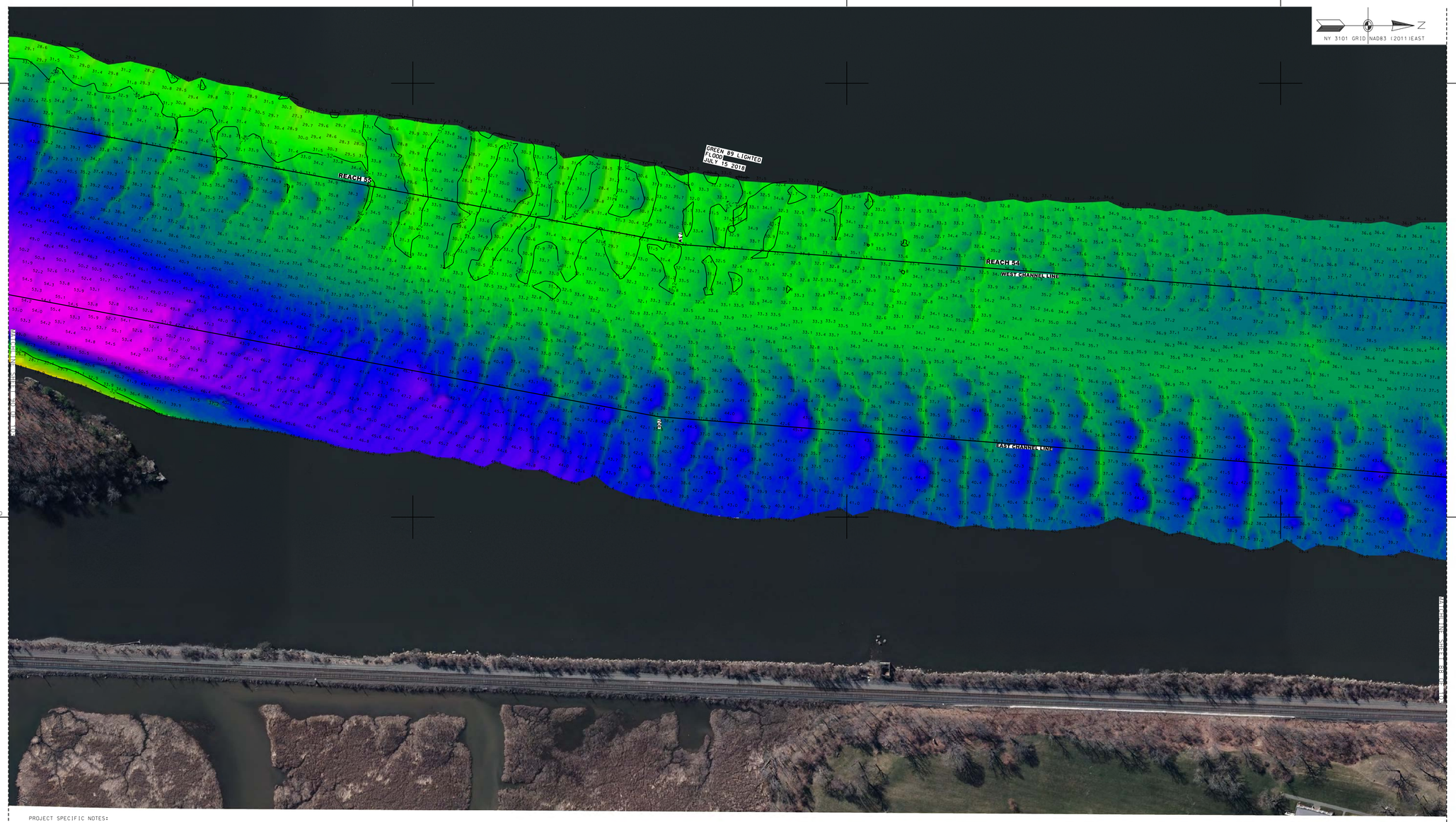
# HYDROGRAPHIC CONDITIONS SURVEY
## HUDSON RIVER FEDERAL NAVIGATION CHANNEL
## REACH 54

SHEET IDENTIFICATION
VH-188
SHEET 88 OF 103




PROJECT SPECIFIC NOTES:

1. COORDINATES REFER TO US STATE PLANE COORDINATE SYSTEM NAD 1983(2011). NEW YORK. 3101 EAST US SURVEY FEET.
2. THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS THE GENERAL CONDITIONS EXISTING AT THAT TIME.
3. THE SOUNDINGS ON THIS MAP MEET USACE EM 1110-2-1003 ACCURACY STANDARDS.
4. VERTICAL DATUM FOR THIS PROJECT IS NAVD 88.
   A. REACH 63 TO REACH 01 AUTHORIZED PROJECT DEPTH OF 32'. MEASURED FROM 2.55' BELOW NAVD 88.
   B. FROM 2200' SOUTH TO 900' SOUTH OF MALL DUNN BRIDGE AUTHORIZED PROJECT DEPTH OF 27' MEASURED FROM 3.8' BELOW NAVD 88.
   C. REACH 01 TO REACH NO5 AUTHORIZED PROJECT DEPTH OF 14'. MEASURED FROM 3.8' BELOW NAVD 88.
   D. REACH NO4 TO NO1 AUTHORIZED PROJECT DATUM IS 14'. MEASURED FROM NORMAL POOL OF 13.59' ABOVE NAVD 88.
5. MULTI-BEAM SOUNDINGS AS SHOWN ARE REPRESENTED USING THE MEDIAN OF A THREE (3') FOOT CELL SORTED TO THIRTY (30') FEET WITH CHANNEL PRIORITY.
6. CONTOURS ON THIS MAP WERE GENERATED USING THE MAP DATA SET.
7. THE DATA DEPICTED ON THIS MAP SHOULD NOT BE USED FOR VOLUME CALCULATION PURPOSES.
8. THE PLANIMETRICS DEPICTED ON THIS MAP ARE FOR ORIENTATION PURPOSES ONLY.
9. THIS SURVEY WAS PERFORMED USING LOCAL CONTROL ESTABLISHED BY THE CORPS OF ENGINEERS.
10. THIS MAP IS CEPD COMPLIANT IN ACCORDANCE WITH ER 1110-2-8160 AND EM 1110-2-6056.
11. THE SURVEY WAS CONDUCTED BY MCKIM & CREED USING THE FOLLOWING:
    SURVEY VESSELS: SV SOUNDS DEEP
    ECHOSOUNDER: R2SONIC 2022 MULTIBEAM SYSTEM.
    NAVIGATION SYSTEMS: INTEGRATED 12NS INERTIAL NAVIGATION SYSTEM. IN REAL TIME KINEMATIC (RTK)MODE.
    SURVEY ACQUISITION SOFTWARE: HYPACK VERSION 2018A
    SURVEY PROCESSING SOFTWARE: HYPACK/HYSWEEP VERSION 2018A
    CTD CAST WERE TAKEN DURING ACQUISITION FOR ACCURATE SPEED OF SOUND PROFILES USING AN AML BASE X2 AS WELL AS A AML MICRO-X SOUND VELOCITY PROBE AT THE HEAD.
12. THE INFORMATION PRESENTED ON THIS DRAWING REPRESENTS THE RESULTS OF A SURVEY PERFORMED BY MCKIM & CREED ON JULY 1-31. 2018 AND CAN ONLY BE CONSIDERED AS INDICATING THE CONDITIONS EXISTING AT THAT TIME. BECAUSE THESE CONDITIONS MAY BE SUBJECT TO RAPID CHANGE DUE TO SHOALING EVENTS, A PRUDENT MARINER SHOULD NOT RELY EXCLUSIVELY ON THE INFORMATION PROVIDED HERE. REUSE OF THIS INFORMATION BY CLIENT OR OTHERS BEYOND THE SPECIFIC SCOPE OF WORK FOR WHICH IT WAS ACQUIRED SHALL BE AT THE SOLE RISK OF THE USER AND WITHOUT LIABILITY TO MCKIM & CREED.

STATE OF NEW YORK
RAYMOND B. DRYMER
049501
LICENSED LAND SURVEYOR

NSRS/NGS CONTROL DATA

| BENCHMARK: | TROY DAM 1 | PID# BBDR68 | NORTHING | EASTING |
|---|---|---|---|---|
| ELEVATION: | 25.32' NAVD 88 | | 1,428,037.76 | 709,760.15 |

LOCAL CONTROL DATA

| BENCHMARK: | HR-12 | PID# | NORTHING | EASTING |
|---|---|---|---|---|
| ELEVATION: | 8.67' NAVD 88 | | 1,318821.55 | 684451.34 |
| STAMPED: | HR-12 2016 | | | |

LOCAL CONTROL DATA

| BENCHMARK: | 01-1 | PID# | NORTHING | EASTING |
|---|---|---|---|---|
| ELEVATION: | 3.87' NAVD 88 | | 1,124,859.59 | 641003.46 |
| STAMPED: | | | | |

SCALE 1" = 100'
0 100 200 300 400

US Army Corps of Engineers ®
New York District

| MARK | DESCRIPTION | DATE | APPR. |
|---|---|---|---|
| MARK | DESCRIPTION | DATE | APPR. |

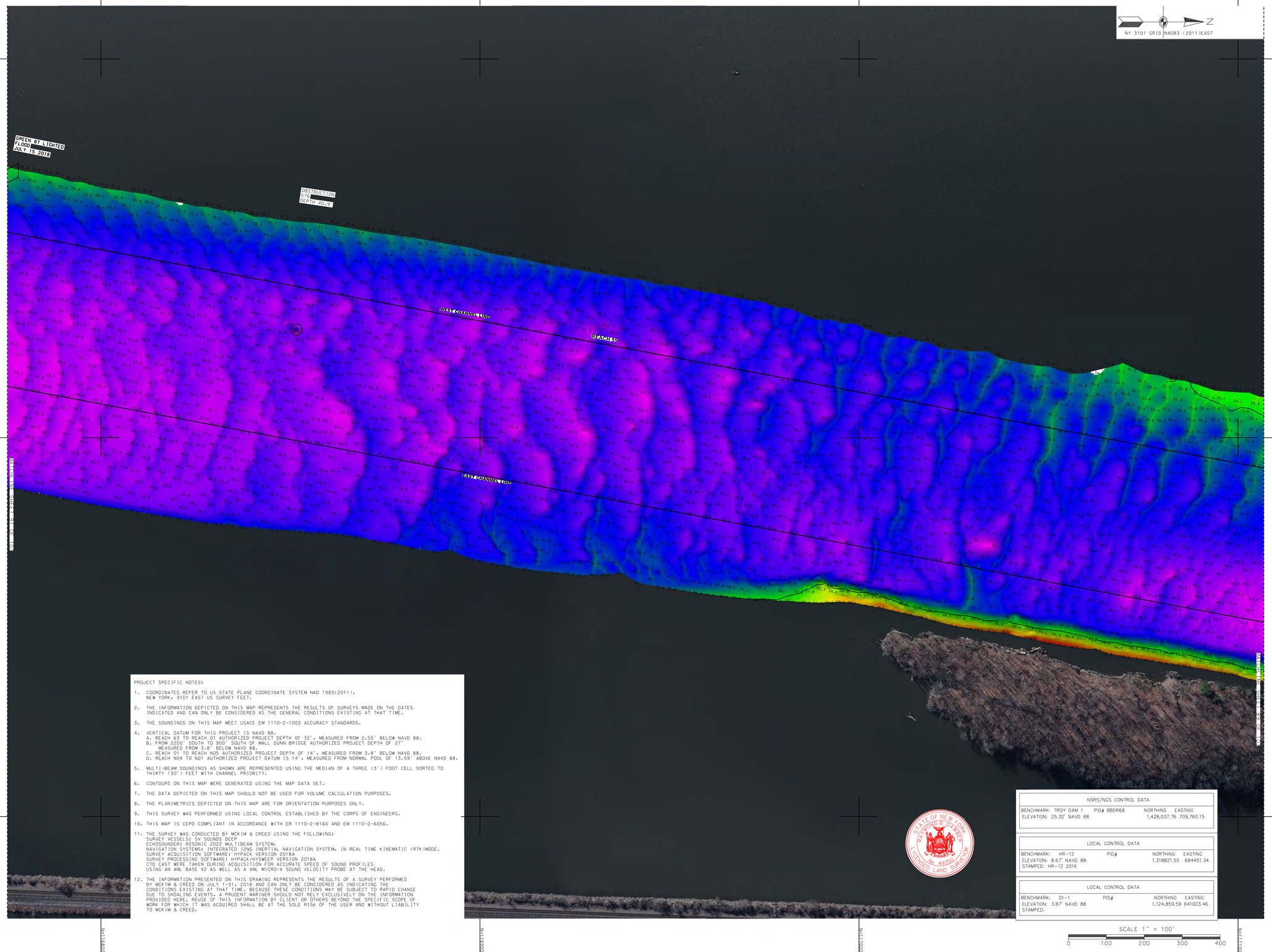
U.S. ARMY CORPS OF ENGINEERS
NEW YORK DISTRICT
NEW YORK, NY

McKIM & CREED
243 NORTH FRONT STREET
WILMINGTON, NORTH CAROLINA 28401
TELEPHONE: (910) 251-0348
FAX: (910) 251-8282

DESIGNED BY: DSM
DWN BY: MBH
CKD BY: RBD
SUBMITTED BY: DLJ
DATE: JULY 31, 2018
SOLICITATION NO.:
CONTRACT NO.: W912DS-14-D-0004
PLOT SCALE: 1:100
PLOT DATE: NOV 2018
ISSUE DATE:
FILE NUMBER:
SIZE: ANSI F
FILE NAME: VH101-058890053_HUDSON_MB.DGN

# HYDROGRAPHIC CONDITIONS SURVEY
## HUDSON RIVER FEDERAL NAVIGATION CHANNEL
## REACH 54-55

SHEET IDENTIFICATION
VH-189
SHEET 89 OF 103




PROJECT SPECIFIC NOTES:

1. COORDINATES REFER TO US STATE PLANE COORDINATE SYSTEM NAD 1983(2011). NEW YORK. 3101 EAST US SURVEY FEET.
2. THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS THE GENERAL CONDITIONS EXISTING AT THAT TIME.
3. THE SOUNDINGS ON THIS MAP MEET USACE EM 1110-2-1003 ACCURACY STANDARDS.
4. VERTICAL DATUM FOR THIS PROJECT IS NAVD 88.
   A. REACH 63 TO REACH 01 AUTHORIZED PROJECT DEPTH OF 32', MEASURED FROM 2.55' BELOW NAVD 88.
   B. FROM 2200' SOUTH TO 900' SOUTH OF MALL DUNN BRIDGE AUTHORIZED PROJECT DEPTH OF 27' MEASURED FROM 3.8' BELOW NAVD 88.
   C. REACH 01 TO REACH N05 AUTHORIZED PROJECT DEPTH OF 14', MEASURED FROM 3.8' BELOW NAVD 88.
   D. REACH N04 TO N01 AUTHORIZED PROJECT DATUM IS 14', MEASURED FROM NORMAL POOL OF 13.59' ABOVE NAVD 88.
5. MULTI-BEAM SOUNDINGS AS SHOWN ARE REPRESENTED USING THE MEDIAN OF A THREE (3') FOOT CELL SORTED TO THIRTY (30') FEET WITH CHANNEL PRIORITY.
6. CONTOURS ON THIS MAP WERE GENERATED USING THE MAP DATA SET.
7. THE DATA DEPICTED ON THIS MAP SHOULD NOT BE USED FOR VOLUME CALCULATION PURPOSES.
8. THE PLANIMETRICS DEPICTED ON THIS MAP ARE FOR ORIENTATION PURPOSES ONLY.
9. THIS SURVEY WAS PERFORMED USING LOCAL CONTROL ESTABLISHED BY THE CORPS OF ENGINEERS.
10. THIS MAP IS CEPD COMPLIANT IN ACCORDANCE WITH ER 1110-2-8160 AND EM 1110-2-6056.
11. THE SURVEY WAS CONDUCTED BY MCKIM & CREED USING THE FOLLOWING:
    SURVEY VESSELS: SV SOUNDS DEEP
    ECHOSOUNDER: R2SONIC 2022 MULTIBEAM SYSTEM.
    NAVIGATION SYSTEMS: INTEGRATED I2NS INERTIAL NAVIGATION SYSTEM. IN REAL TIME KINEMATIC (RTK) MODE.
    SURVEY ACQUISITION SOFTWARE: HYPACK VERSION 2018A
    SURVEY PROCESSING SOFTWARE: HYPACK/HYSWEEP VERSION 2018A
    CTD CAST WERE TAKEN DURING ACQUISITION FOR ACCURATE SPEED OF SOUND PROFILES USING AN AML BASE X2 AS WELL AS A AML MICRO-X SOUND VELOCITY PROBE AT THE HEAD.
12. THE INFORMATION PRESENTED ON THIS DRAWING REPRESENTS THE RESULTS OF A SURVEY PERFORMED BY MCKIM & CREED ON JULY 1-31, 2018 AND CAN ONLY BE CONSIDERED AS INDICATING THE CONDITIONS EXISTING AT THAT TIME. BECAUSE THESE CONDITIONS MAY BE SUBJECT TO RAPID CHANGE DUE TO SHOALING EVENTS, A PRUDENT MARINER SHOULD NOT RELY EXCLUSIVELY ON THE INFORMATION PROVIDED HERE. REUSE OF THIS INFORMATION BY CLIENT OR OTHERS BEYOND THE SPECIFIC SCOPE OF WORK FOR WHICH IT WAS ACQUIRED SHALL BE AT THE SOLE RISK OF THE USER AND WITHOUT LIABILITY TO MCKIM & CREED.

| NSRS/NGS CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: TROY DAM 1 | PID# BBDR68 | NORTHING | EASTING |
| ELEVATION: 25.32' NAVD 88 | | 1,428,037.76 | 709,760.15 |

| LOCAL CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: HR-12 | PID# | NORTHING | EASTING |
| ELEVATION: 8.67' NAVD 88 | | 1,318821.55 | 684451.34 |
| STAMPED: HR-12 2016 | | | |

| LOCAL CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: 01-1 | PID# | NORTHING | EASTING |
| ELEVATION: 3.87' NAVD 88 | | 1,124,859.59 | 641003.46 |
| STAMPED: | | | |

STATE OF NEW YORK
RAYMOND B. DAVIES
No. 49350
LICENSED LAND SURVEYOR

SCALE 1" = 100'
0 100 200 300 400

US Army Corps of Engineers ®
New York District

| MARK | DESCRIPTION | DATE | APPR. |
|---|---|---|---|
| | | | |

| MARK | DESCRIPTION | DATE | APPR. |
|---|---|---|---|
| | | | |

U.S. ARMY CORPS OF ENGINEERS
NEW YORK DISTRICT
NEW YORK, NY

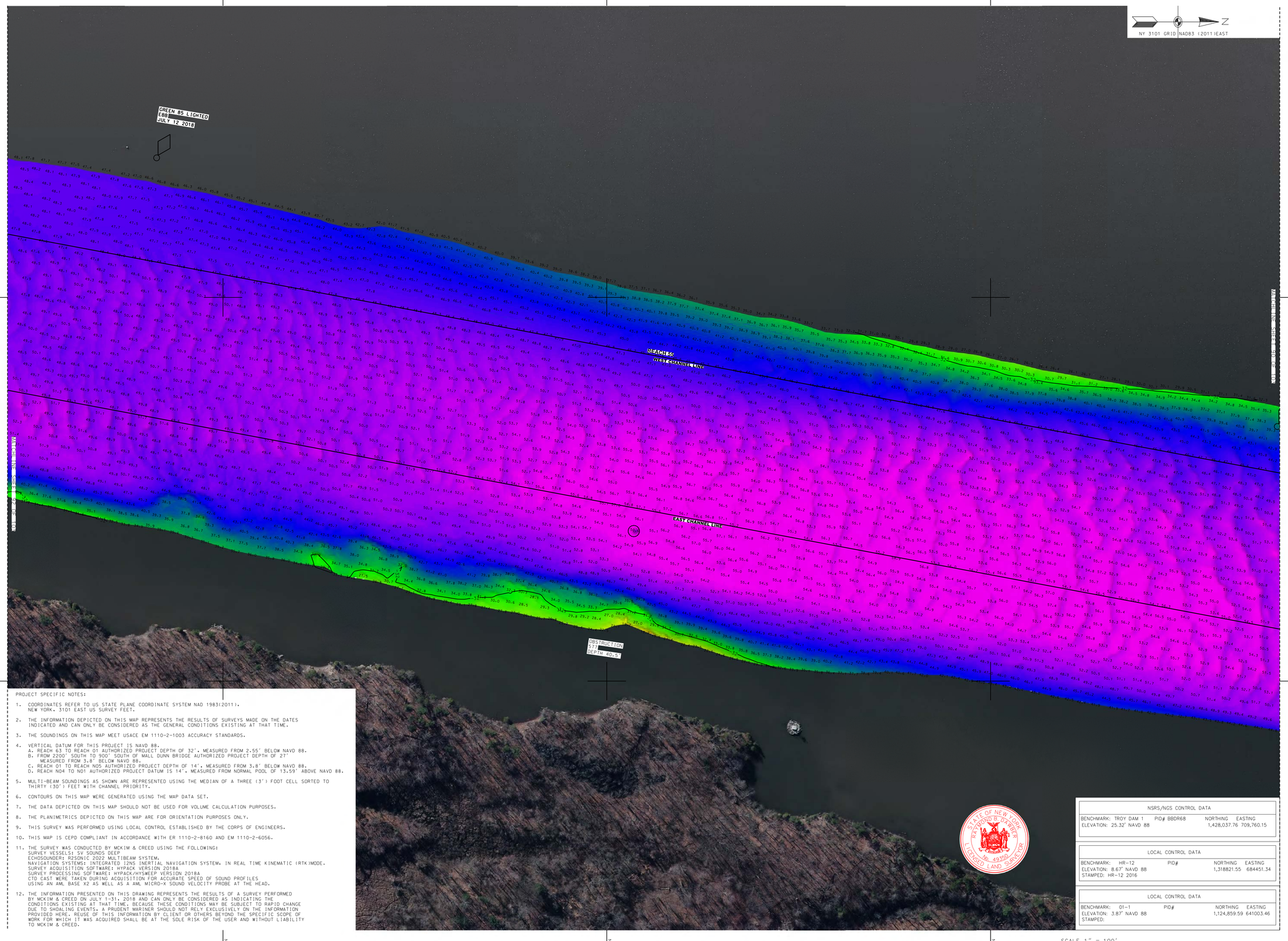
McKIM & CREED
243 NORTH FRONT STREET
WILMINGTON, NORTH CAROLINA 28401
TELEPHONE: (910) 251-8444
FAX: (910) 251-8282

| | |
|---|---|
| DESIGNED BY: DSL | CKD BY: RBD |
| DWN BY: MBH | SUBMITTED BY: DLJ |
| PLOT SCALE: 1" = 100' | ISSUE DATE: NOV 2018 |
| SIZE: ANSI F | FILE NAME: VH101-056890063_HUDSON_MB.DGN |

DATE: DEC 31, 2018
SOLICITATION NO.:
CONTRACT NO.: W912DS-14-D-0004
FILE NUMBER:

# HYDROGRAPHIC CONDITIONS SURVEY
## HUDSON RIVER FEDERAL NAVIGATION CHANNEL
## REACH 55

SHEET IDENTIFICATION
VH-190
SHEET 90 OF 103




PROJECT SPECIFIC NOTES:

1. COORDINATES REFER TO US STATE PLANE COORDINATE SYSTEM NAD 1983(2011). NEW YORK, 3101 EAST US SURVEY FEET.

2. THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS THE GENERAL CONDITIONS EXISTING AT THAT TIME.

3. THE SOUNDINGS ON THIS MAP MEET USACE EM 1110-2-1003 ACCURACY STANDARDS.

4. VERTICAL DATUM FOR THIS PROJECT IS NAVD 88.
   A. REACH 63 TO REACH 01 AUTHORIZED PROJECT DEPTH OF 32'. MEASURED FROM 2.55' BELOW NAVD 88.
   B. FROM 2200' SOUTH TO 900' SOUTH OF MALL DUNN BRIDGE AUTHORIZED PROJECT DEPTH OF 27' MEASURED FROM 3.8' BELOW NAVD 88.
   C. REACH 01 TO REACH N05 AUTHORIZED PROJECT DEPTH OF 14', MEASURED FROM 3.8' BELOW NAVD 88.
   D. REACH N04 TO N01 AUTHORIZED PROJECT DATUM IS 14', MEASURED FROM NORMAL POOL OF 13.59' ABOVE NAVD 88.

5. MULTI-BEAM SOUNDINGS AS SHOWN ARE REPRESENTED USING THE MEDIAN OF A THREE (3') FOOT CELL SORTED TO THIRTY (30') FEET WITH CHANNEL PRIORITY.

6. CONTOURS ON THIS MAP WERE GENERATED USING THE MAP DATA SET.

7. THE DATA DEPICTED ON THIS MAP SHOULD NOT BE USED FOR VOLUME CALCULATION PURPOSES.

8. THE PLANIMETRICS DEPICTED ON THIS MAP ARE FOR ORIENTATION PURPOSES ONLY.

9. THIS SURVEY WAS PERFORMED USING LOCAL CONTROL ESTABLISHED BY THE CORPS OF ENGINEERS.

10. THIS MAP IS CEPD COMPLIANT IN ACCORDANCE WITH ER 1110-2-8160 AND EM 1110-2-6056.

11. THE SURVEY WAS CONDUCTED BY MCKIM & CREED USING THE FOLLOWING:
    SURVEY VESSELS: SV SOUNDS DEEP
    ECHOSOUNDER: R2SONIC 2022 MULTIBEAM SYSTEM.
    NAVIGATION SYSTEMS: INTEGRATED I2NS INERTIAL NAVIGATION SYSTEM. IN REAL TIME KINEMATIC (RTK)MODE.
    SURVEY ACQUISITION SOFTWARE: HYPACK VERSION 2018A
    SURVEY PROCESSING SOFTWARE: HYPACK/HYSWEEP VERSION 2018A
    CTD CAST WERE TAKEN DURING ACQUISITION FOR ACCURATE SPEED OF SOUND PROFILES USING AN AML BASE X2 AS WELL AS A AML MICRO-X SOUND VELOCITY PROBE AT THE HEAD.

12. THE INFORMATION PRESENTED ON THIS DRAWING REPRESENTS THE RESULTS OF A SURVEY PERFORMED BY MCKIM & CREED ON JULY 1-31, 2018 AND CAN ONLY BE CONSIDERED AS INDICATING THE CONDITIONS EXISTING AT THAT TIME. BECAUSE THESE CONDITIONS MAY BE SUBJECT TO RAPID CHANGE DUE TO SHOALING EVENTS, A PRUDENT MARINER SHOULD NOT RELY EXCLUSIVELY ON THE INFORMATION PROVIDED HERE. REUSE OF THIS INFORMATION BY CLIENT OR OTHERS BEYOND THE SPECIFIC SCOPE OF WORK FOR WHICH IT WAS ACQUIRED SHALL BE AT THE SOLE RISK OF THE USER AND WITHOUT LIABILITY TO MCKIM & CREED.

STATE OF NEW YORK
RICHARD B. WARNER
049350
LICENSED LAND SURVEYOR

| NSRS/NGS CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: TROY DAM 1 | PID# BBDR68 | NORTHING | EASTING |
| ELEVATION: 25.32' NAVD 88 | | 1,428,037.76 | 709,760.15 |

| LOCAL CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: HR-12 | PID# | NORTHING | EASTING |
| ELEVATION: 8.67' NAVD 88 | | 1,318821.55 | 684451.34 |
| STAMPED: HR-12 2016 | | | |

| LOCAL CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: 01-1 | PID# | NORTHING | EASTING |
| ELEVATION: 3.87' NAVD 88 | | 1,124,859.59 | 641003.46 |
| STAMPED: | | | |

US Army Corps of Engineers ®
New York District

| MARK | DESCRIPTION | DATE | APPR. |
|---|---|---|---|
| | | | |

| MARK | DESCRIPTION | DATE | APPR. |
|---|---|---|---|
| | | | |

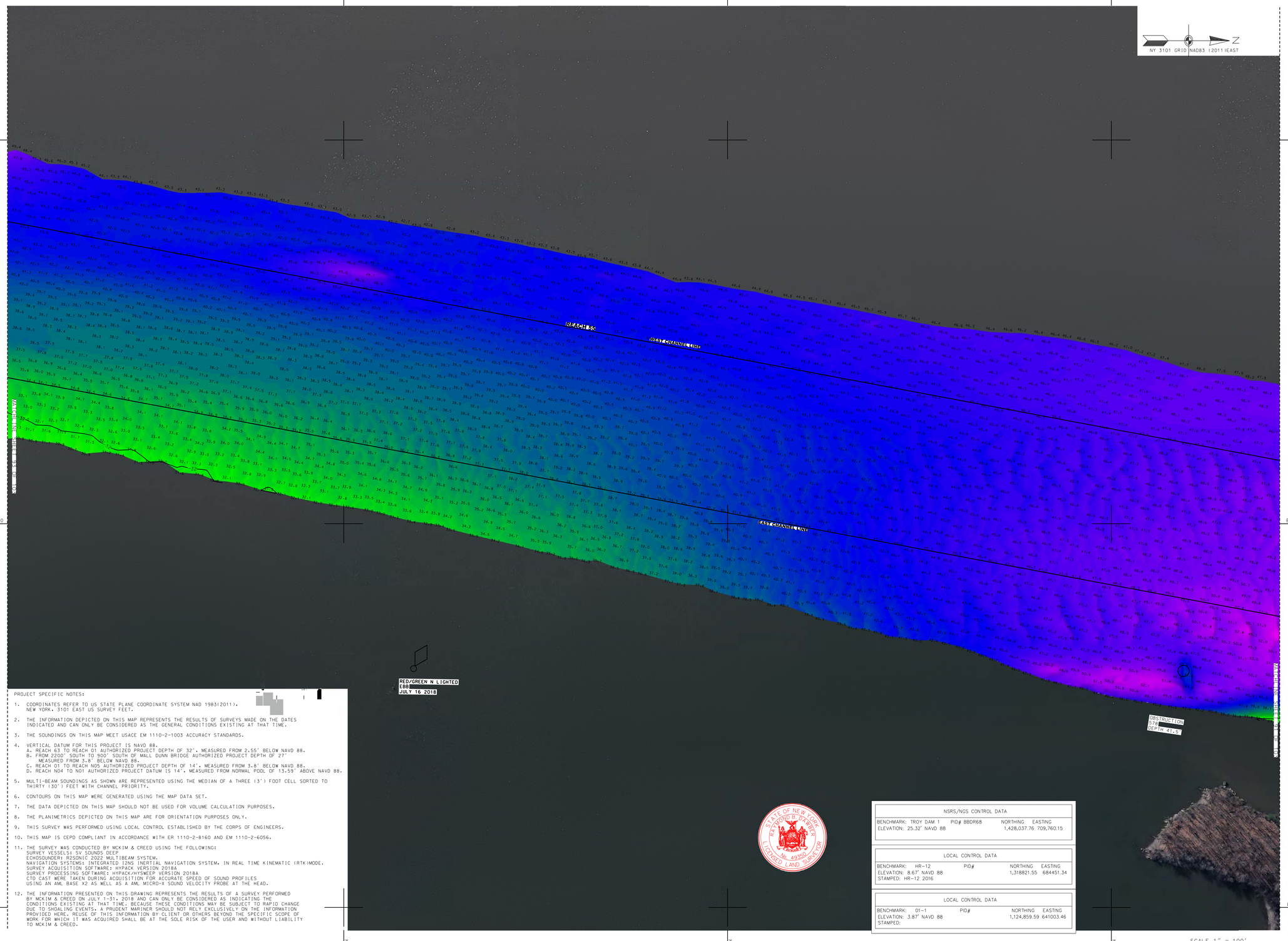
U.S. ARMY CORPS OF ENGINEERS
NEW YORK DISTRICT
NEW YORK, NY

McKIM & CREED
243 NORTH FRONT STREET
WILMINGTON, NORTH CAROLINA 28401
TELEPHONE: (910) 251-8444
FAX: (910) 251-8282

| | | | |
|---|---|---|---|
| DESIGNED BY: DSA | CKD BY: RBD | DATE: JULY 31, 2018 | SOLICITATION NO.: |
| DWN BY: MBH | | | |
| SUBMITTED BY: DLJ | | CONTRACT NO.: W912DS-14-D-0004 | |
| PLOT SCALE: 1" = 100' | ISSUE DATE: NOVEMBER 2018 | FILE NUMBER: | |
| SIZE: ANSI F | FILE NAME: VH101-0268990063_HUDSON_MB.DGN | | |

# HYDROGRAPHIC CONDITIONS SURVEY
## HUDSON RIVER FEDERAL NAVIGATION CHANNEL
## REACH 55

SHEET IDENTIFICATION
VH-191
SHEET 91 OF 103




PROJECT SPECIFIC NOTES:

1. COORDINATES REFER TO US STATE PLANE COORDINATE SYSTEM NAD 1983(2011). NEW YORK. 3101 EAST US SURVEY FEET.
2. THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS THE GENERAL CONDITIONS EXISTING AT THAT TIME.
3. THE SOUNDINGS ON THIS MAP MEET USACE EM 1110-2-1003 ACCURACY STANDARDS.
4. VERTICAL DATUM FOR THIS PROJECT IS NAVD 88.
   A. REACH 63 TO REACH 01 AUTHORIZED PROJECT DEPTH OF 32'. MEASURED FROM 2.55' BELOW NAVD 88.
   B. FROM 2200' SOUTH TO 900' SOUTH OF MALL DUNN BRIDGE AUTHORIZED PROJECT DEPTH OF 27' MEASURED FROM 3.8' BELOW NAVD 88.
   C. REACH 01 TO REACH N05 AUTHORIZED PROJECT DEPTH OF 14'. MEASURED FROM 3.8' BELOW NAVD 88.
   D. REACH N04 TO N01 AUTHORIZED PROJECT DATUM IS 14'. MEASURED FROM NORMAL POOL OF 13.59' ABOVE NAVD 88.
5. MULTI-BEAM SOUNDINGS AS SHOWN ARE REPRESENTED USING THE MEDIAN OF A THREE (3') FOOT CELL SORTED TO THIRTY (30') FEET WITH CHANNEL PRIORITY.
6. CONTOURS ON THIS MAP WERE GENERATED USING THE MAP DATA SET.
7. THE DATA DEPICTED ON THIS MAP SHOULD NOT BE USED FOR VOLUME CALCULATION PURPOSES.
8. THE PLANIMETRICS DEPICTED ON THIS MAP ARE FOR ORIENTATION PURPOSES ONLY.
9. THIS SURVEY WAS PERFORMED USING LOCAL CONTROL ESTABLISHED BY THE CORPS OF ENGINEERS.
10. THIS MAP IS CEPD COMPLIANT IN ACCORDANCE WITH ER 1110-2-8160 AND EM 1110-2-6056.
11. THE SURVEY WAS CONDUCTED BY MCKIM & CREED USING THE FOLLOWING:
    SURVEY VESSELS: SV SOUNDS DEEP
    ECHOSOUNDER: R2SONIC 2022 MULTIBEAM SYSTEM.
    NAVIGATION SYSTEMS: INTEGRATED I2NS INERTIAL NAVIGATION SYSTEM. IN REAL TIME KINEMATIC (RTK)MODE.
    SURVEY ACQUISITION SOFTWARE: HYPACK VERSION 2018A
    SURVEY PROCESSING SOFTWARE: HYPACK/HYSWEEP VERSION 2018A
    CTD CAST WERE TAKEN DURING ACQUISITION FOR ACCURATE SPEED OF SOUND PROFILES USING AN AML BASE X2 AS WELL AS A AML MICRO-X SOUND VELOCITY PROBE AT THE HEAD.
12. THE INFORMATION PRESENTED ON THIS DRAWING REPRESENTS THE RESULTS OF A SURVEY PERFORMED BY MCKIM & CREED ON JULY 1-31, 2018 AND CAN ONLY BE CONSIDERED AS INDICATING THE CONDITIONS EXISTING AT THAT TIME. BECAUSE THESE CONDITIONS MAY BE SUBJECT TO RAPID CHANGE DUE TO SHOALING EVENTS. A PRUDENT MARINER SHOULD NOT RELY EXCLUSIVELY ON THE INFORMATION PROVIDED HERE. REUSE OF THIS INFORMATION BY CLIENT OR OTHERS BEYOND THE SPECIFIC SCOPE OF WORK FOR WHICH IT WAS ACQUIRED SHALL BE AT THE SOLE RISK OF THE USER AND WITHOUT LIABILITY TO MCKIM & CREED.

STATE OF NEW YORK
RAYMOND B. PARKER
049360
LICENSED LAND SURVEYOR

| NSRS/NGS CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: TROY DAM 1 | PID# BBDR68 | NORTHING | EASTING |
| ELEVATION: 25.32' NAVD 88 | | 1,428,037.76 | 709,760.15 |

| LOCAL CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: HR-12 | PID# | NORTHING | EASTING |
| ELEVATION: 8.67' NAVD 88 | | 1,318821.55 | 684451.34 |
| STAMPED: HR-12 2016 | | | |

| LOCAL CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: 01-1 | PID# | NORTHING | EASTING |
| ELEVATION: 3.87' NAVD 88 | | 1,124,859.59 | 641003.46 |
| STAMPED: | | | |

SCALE 1" = 100'
0 100 200 300 400

US Army Corps of Engineers ®
New York District

| MARK | DESCRIPTION | DATE | APPR. |
|---|---|---|---|
| | | | |

DESIGNED BY: DSL
DWN BY: MBH
CKD BY: RBD
SUBMITTED BY: DLJ
DATE: MAY 31, 2018
SOLICITATION NO.:
CONTRACT NO.: W912DS-14-D-0004
FILE NUMBER:
PLOT SCALE: 1" = 100'
ISSUE DATE: NOV 2018
SIZE: ANSI F
FILE NAME: VH101-0368900063_HUDSON_MB.DGN

U.S. ARMY CORPS OF ENGINEERS
NEW YORK DISTRICT
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TELEPHONE: (910) 251-8444
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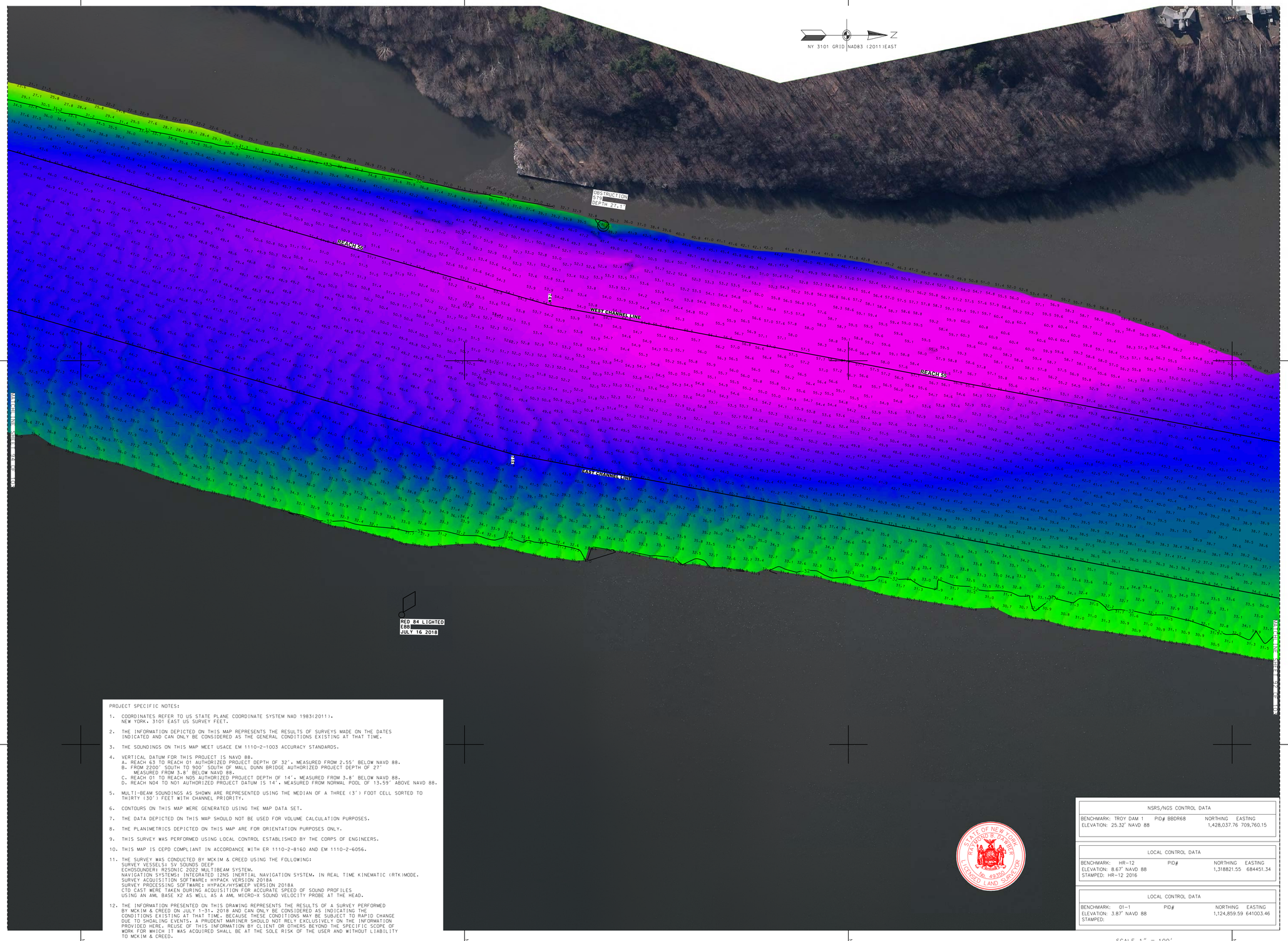
# HYDROGRAPHIC CONDITIONS SURVEY
## HUDSON RIVER FEDERAL NAVIGATION CHANNEL
## REACH 55

SHEET IDENTIFICATION
VH-192
SHEET 92 OF 103




PROJECT SPECIFIC NOTES:

1. COORDINATES REFER TO US STATE PLANE COORDINATE SYSTEM NAD 1983(2011). NEW YORK. 3101 EAST US SURVEY FEET.
2. THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS THE GENERAL CONDITIONS EXISTING AT THAT TIME.
3. THE SOUNDINGS ON THIS MAP MEET USACE EM 1110-2-1003 ACCURACY STANDARDS.
4. VERTICAL DATUM FOR THIS PROJECT IS NAVD 88.
   A. REACH 63 TO REACH 01 AUTHORIZED PROJECT DEPTH OF 32'. MEASURED FROM 2.55' BELOW NAVD 88.
   B. FROM 2200' SOUTH TO 900' SOUTH OF MALL DUNN BRIDGE AUTHORIZED PROJECT DEPTH OF 27' MEASURED FROM 3.8' BELOW NAVD 88.
   C. REACH 01 TO REACH N05 AUTHORIZED PROJECT DEPTH OF 14'. MEASURED FROM 3.8' BELOW NAVD 88.
   D. REACH N04 TO N01 AUTHORIZED PROJECT DATUM IS 14'. MEASURED FROM NORMAL POOL OF 13.59' ABOVE NAVD 88.
5. MULTI-BEAM SOUNDINGS AS SHOWN ARE REPRESENTED USING THE MEDIAN OF A THREE (3') FOOT CELL SORTED TO THIRTY (30') FEET WITH CHANNEL PRIORITY.
6. CONTOURS ON THIS MAP WERE GENERATED USING THE MAP DATA SET.
7. THE DATA DEPICTED ON THIS MAP SHOULD NOT BE USED FOR VOLUME CALCULATION PURPOSES.
8. THE PLANIMETRICS DEPICTED ON THIS MAP ARE FOR ORIENTATION PURPOSES ONLY.
9. THIS SURVEY WAS PERFORMED USING LOCAL CONTROL ESTABLISHED BY THE CORPS OF ENGINEERS.
10. THIS MAP IS CEPD COMPLIANT IN ACCORDANCE WITH ER 1110-2-8160 AND EM 1110-2-6056.
11. THE SURVEY WAS CONDUCTED BY MCKIM & CREED USING THE FOLLOWING:
    SURVEY VESSELS: SV SOUNDS DEEP
    ECHOSOUNDER: R2SONIC 2022 MULTIBEAM SYSTEM.
    NAVIGATION SYSTEMS: INTEGRATED I2NS INERTIAL NAVIGATION SYSTEM. IN REAL TIME KINEMATIC (RTK) MODE.
    SURVEY ACQUISITION SOFTWARE: HYPACK VERSION 2018A
    SURVEY PROCESSING SOFTWARE: HYPACK/HYSWEEP VERSION 2018A
    CTD CAST WERE TAKEN DURING ACQUISITION FOR ACCURATE SPEED OF SOUND PROFILES USING AN AML BASE X2 AS WELL AS A AML MICRO-X SOUND VELOCITY PROBE AT THE HEAD.
12. THE INFORMATION PRESENTED ON THIS DRAWING REPRESENTS THE RESULTS OF A SURVEY PERFORMED BY MCKIM & CREED ON JULY 1-31, 2018 AND CAN ONLY BE CONSIDERED AS INDICATING THE CONDITIONS EXISTING AT THAT TIME. BECAUSE THESE CONDITIONS MAY BE SUBJECT TO RAPID CHANGE DUE TO SHOALING EVENTS, A PRUDENT MARINER SHOULD NOT RELY EXCLUSIVELY ON THE INFORMATION PROVIDED HERE. REUSE OF THIS INFORMATION BY CLIENT OR OTHERS BEYOND THE SPECIFIC SCOPE OF WORK FOR WHICH IT WAS ACQUIRED SHALL BE AT THE SOLE RISK OF THE USER AND WITHOUT LIABILITY TO MCKIM & CREED.

STATE OF NEW YORK
RAYMOND E. DARBEE
No. 49350
LICENSED LAND SURVEYOR

| NSRS/NGS CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: TROY DAM 1 | PID# BBDR68 | NORTHING | EASTING |
| ELEVATION: 25.32' NAVD 88 | | 1,428,037.76 | 709,760.15 |

| LOCAL CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: HR-12 | PID# | NORTHING | EASTING |
| ELEVATION: 8.67' NAVD 88 | | 1,318821.55 | 684451.34 |
| STAMPED: HR-12 2016 | | | |

| LOCAL CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: 01-1 | PID# | NORTHING | EASTING |
| ELEVATION: 3.87' NAVD 88 | | 1,124,859.59 | 641003.46 |
| STAMPED: | | | |

SCALE 1" = 100'
0 100 200 300 400

US Army Corps of Engineers ®
New York District

| MARK | DESCRIPTION | DATE | APPR. |
|---|---|---|---|
| | | | |

| MARK | DESCRIPTION | DATE | APPR. |
|---|---|---|---|
| | | | |

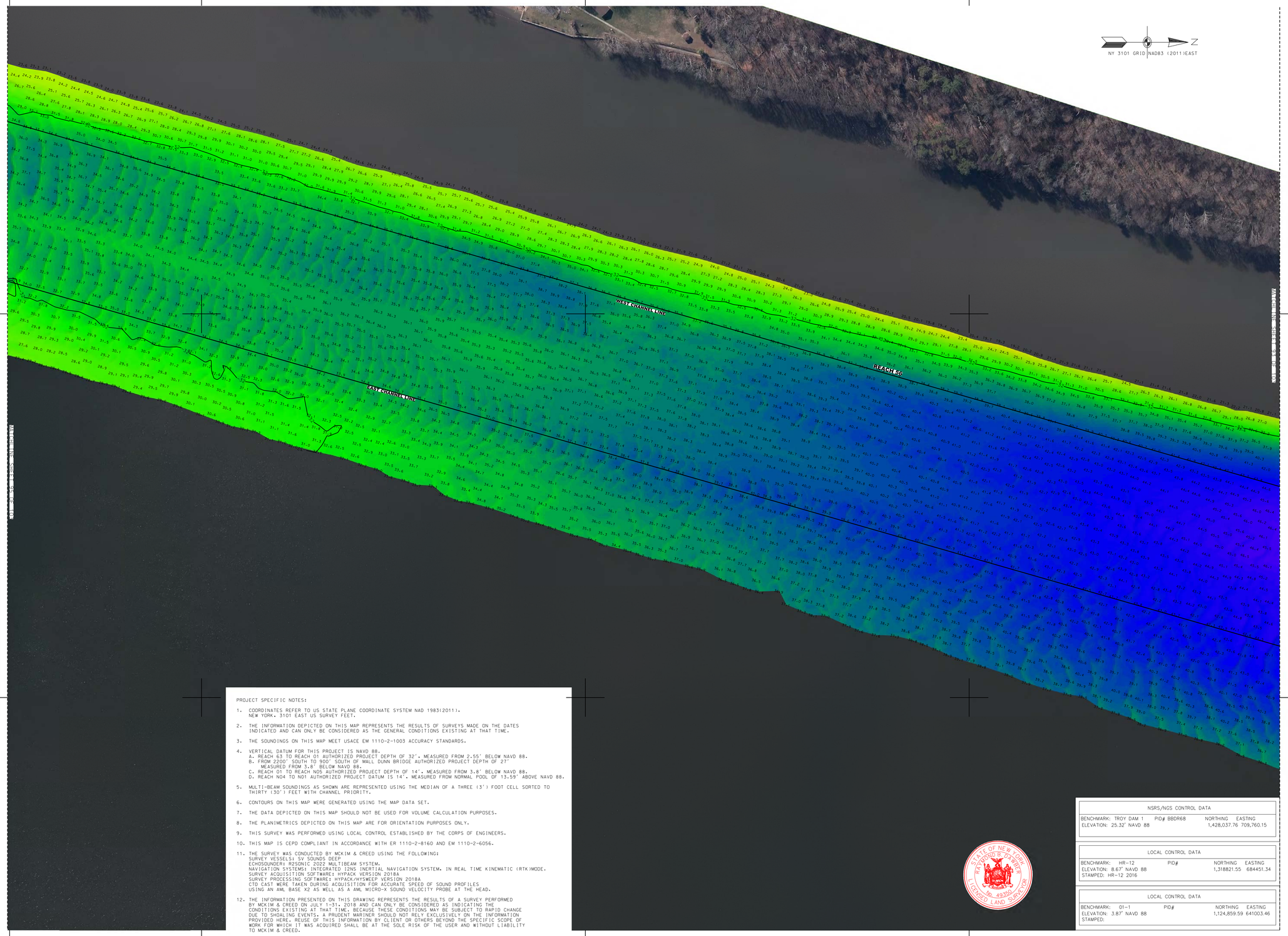
U.S. ARMY CORPS OF ENGINEERS
NEW YORK DISTRICT
NEW YORK, NY

McKIM & CREED
243 NORTH FRONT STREET
WILMINGTON, NORTH CAROLINA 28401
TELEPHONE: (910) 251-8444
FAX: (910) 251-8282

| | |
|---|---|
| DESIGNED BY: DSL | DATE: MAY 31, 2018 |
| DWN BY: MBH | CKD BY: RBD |
| SUBMITTED BY: DLJ | SOLICITATION NO.: |
| PLOT SCALE: 1" = 100' | CONTRACT NO.: W912DS-14-D-0004 |
| ISSUE DATE: NOV 2018 | FILE NUMBER: |
| SIZE: ANSI F | FILE NAME: VH101-056890063_HUDSON_MB.DGN |

# HYDROGRAPHIC CONDITIONS SURVEY
## HUDSON RIVER FEDERAL NAVIGATION CHANNEL
## REACH 55-56

SHEET IDENTIFICATION
VH-193
SHEET 93 OF 103




PROJECT SPECIFIC NOTES:

1. COORDINATES REFER TO US STATE PLANE COORDINATE SYSTEM NAD 1983(2011). NEW YORK. 3101 EAST US SURVEY FEET.
2. THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS THE GENERAL CONDITIONS EXISTING AT THAT TIME.
3. THE SOUNDINGS ON THIS MAP MEET USACE EM 1110-2-1003 ACCURACY STANDARDS.
4. VERTICAL DATUM FOR THIS PROJECT IS NAVD 88.
   A. REACH 63 TO REACH 01 AUTHORIZED PROJECT DEPTH OF 32'. MEASURED FROM 2.55' BELOW NAVD 88.
   B. FROM 2200' SOUTH TO 900' SOUTH OF MALL DUNN BRIDGE AUTHORIZED PROJECT DEPTH OF 27' MEASURED FROM 3.8' BELOW NAVD 88.
   C. REACH 01 TO REACH N05 AUTHORIZED PROJECT DEPTH OF 14'. MEASURED FROM 3.8' BELOW NAVD 88.
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7. THE DATA DEPICTED ON THIS MAP SHOULD NOT BE USED FOR VOLUME CALCULATION PURPOSES.
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11. THE SURVEY WAS CONDUCTED BY MCKIM & CREED USING THE FOLLOWING:
    SURVEY VESSELS: SV SOUNDS DEEP
    ECHOSOUNDER: R2SONIC 2022 MULTIBEAM SYSTEM.
    NAVIGATION SYSTEMS: INTEGRATED 12NS INERTIAL NAVIGATION SYSTEM. IN REAL TIME KINEMATIC (RTK)MODE.
    SURVEY ACQUISITION SOFTWARE: HYPACK VERSION 2018A
    SURVEY PROCESSING SOFTWARE: HYPACK/HYSWEEP VERSION 2018A
    CTD CAST WERE TAKEN DURING ACQUISITION FOR ACCURATE SPEED OF SOUND PROFILES USING AN AML BASE X2 AS WELL AS A AML MICRO-X SOUND VELOCITY PROBE AT THE HEAD.
12. THE INFORMATION PRESENTED ON THIS DRAWING REPRESENTS THE RESULTS OF A SURVEY PERFORMED BY MCKIM & CREED ON JULY 1-31, 2018 AND CAN ONLY BE CONSIDERED AS INDICATING THE CONDITIONS EXISTING AT THAT TIME. BECAUSE THESE CONDITIONS MAY BE SUBJECT TO RAPID CHANGE DUE TO SHOALING EVENTS, A PRUDENT MARINER SHOULD NOT RELY EXCLUSIVELY ON THE INFORMATION PROVIDED HERE. REUSE OF THIS INFORMATION BY CLIENT OR OTHERS BEYOND THE SPECIFIC SCOPE OF WORK FOR WHICH IT WAS ACQUIRED SHALL BE AT THE SOLE RISK OF THE USER AND WITHOUT LIABILITY TO MCKIM & CREED.

| NSRS/NGS CONTROL DATA | | |
|---|---|---|
| BENCHMARK: TROY DAM 1 PID# BBDR68 | NORTHING | EASTING |
| ELEVATION: 25.32' NAVD 88 | 1,428,037.76 | 709,760.15 |

| LOCAL CONTROL DATA | | |
|---|---|---|
| BENCHMARK: HR-12 PID# | NORTHING | EASTING |
| ELEVATION: 8.67' NAVD 88 | 1,318821.55 | 684451.34 |
| STAMPED: HR-12 2016 | | |

| LOCAL CONTROL DATA | | |
|---|---|---|
| BENCHMARK: 01-1 PID# | NORTHING | EASTING |
| ELEVATION: 3.87' NAVD 88 | 1,124,859.59 | 641003.46 |
| STAMPED: | | |

STATE OF NEW YORK
RAYMOND R. DARRE
LICENSED LAND SURVEYOR
No. 49,250

US Army Corps of Engineers ®
New York District

| MARK | DESCRIPTION | DATE | APPR. | MARK | DESCRIPTION | DATE | APPR. |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

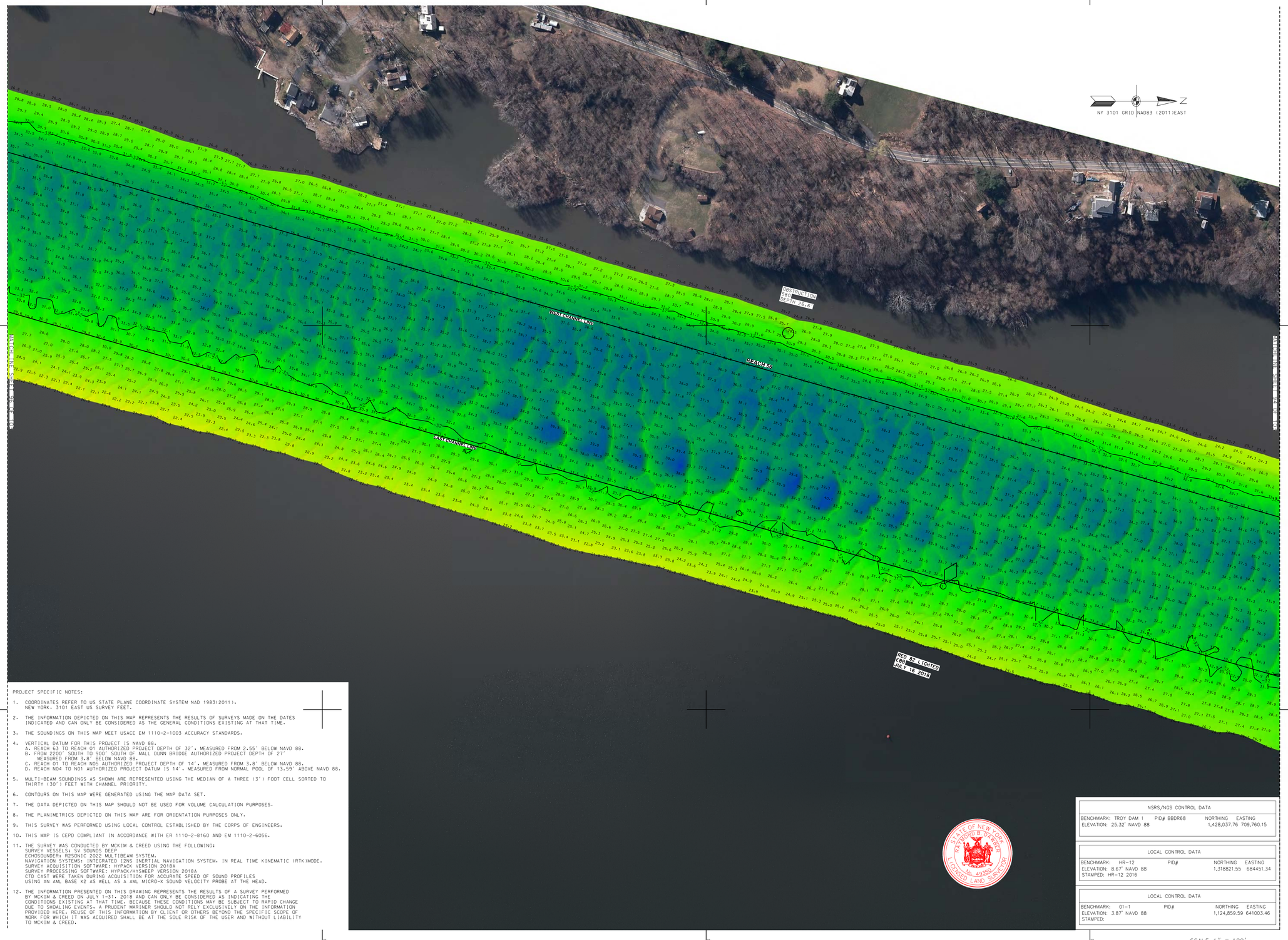
DESIGNED BY: DRG
DWN BY: MBH
CKD BY: RBD
SUBMITTED BY: DLJ
DATE: JULY 31, 2018
SOLICITATION NO.:
CONTRACT NO.: W912DS-14-D-0004
TASK ORDER NO.:
PLOT SCALE: 1" = 100'
PLOT DATE: 8/6/2018
FILE NUMBER:
ISSUE DATE:
REVISION:
SIZE: ANSI F
FILE NAME: VH101-056890053_HUDSON_MB.DGN

U.S. ARMY CORPS OF ENGINEERS
NEW YORK DISTRICT
NEW YORK, NY

McKIM & CREED
243 NORTH FRONT STREET
WILMINGTON, NORTH CAROLINA 28401
TELEPHONE: (910) 251-0486
FAX: (910) 251-8282

# HYDROGRAPHIC CONDITIONS SURVEY
## HUDSON RIVER FEDERAL NAVIGATION CHANNEL
## REACH 56

SHEET IDENTIFICATION
VH-194
SHEET 94 OF 103




PROJECT SPECIFIC NOTES:

1. COORDINATES REFER TO US STATE PLANE COORDINATE SYSTEM NAD 1983(2011). NEW YORK, 3101 EAST US SURVEY FEET.
2. THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS THE GENERAL CONDITIONS EXISTING AT THAT TIME.
3. THE SOUNDINGS ON THIS MAP MEET USACE EM 1110-2-1003 ACCURACY STANDARDS.
4. VERTICAL DATUM FOR THIS PROJECT IS NAVD 88.
   A. REACH 63 TO REACH 01 AUTHORIZED PROJECT DEPTH OF 32'. MEASURED FROM 2.55' BELOW NAVD 88.
   B. FROM 2200' SOUTH TO 900' SOUTH OF MALL DUNN BRIDGE AUTHORIZED PROJECT DEPTH OF 27' MEASURED FROM 3.8' BELOW NAVD 88.
   C. REACH 01 TO REACH N05 AUTHORIZED PROJECT DEPTH OF 14'. MEASURED FROM 3.8' BELOW NAVD 88.
   D. REACH N04 TO N01 AUTHORIZED PROJECT DATUM IS 14'. MEASURED FROM NORMAL POOL OF 13.59' ABOVE NAVD 88.
5. MULTI-BEAM SOUNDINGS AS SHOWN ARE REPRESENTED USING THE MEDIAN OF A THREE (3') FOOT CELL SORTED TO THIRTY (30') FEET WITH CHANNEL PRIORITY.
6. CONTOURS ON THIS MAP WERE GENERATED USING THE MAP DATA SET.
7. THE DATA DEPICTED ON THIS MAP SHOULD NOT BE USED FOR VOLUME CALCULATION PURPOSES.
8. THE PLANIMETRICS DEPICTED ON THIS MAP ARE FOR ORIENTATION PURPOSES ONLY.
9. THIS SURVEY WAS PERFORMED USING LOCAL CONTROL ESTABLISHED BY THE CORPS OF ENGINEERS.
10. THIS MAP IS CEPD COMPLIANT IN ACCORDANCE WITH ER 1110-2-8160 AND EM 1110-2-6056.
11. THE SURVEY WAS CONDUCTED BY MCKIM & CREED USING THE FOLLOWING:
    SURVEY VESSELS: SV SOUNDS DEEP
    ECHOSOUNDER: R2SONIC 2022 MULTIBEAM SYSTEM.
    NAVIGATION SYSTEMS: INTEGRATED I2NS INERTIAL NAVIGATION SYSTEM. IN REAL TIME KINEMATIC (RTK)MODE.
    SURVEY ACQUISITION SOFTWARE: HYPACK VERSION 2018A
    SURVEY PROCESSING SOFTWARE: HYPACK/HYSWEEP VERSION 2018A
    CTD CAST WERE TAKEN DURING ACQUISITION FOR ACCURATE SPEED OF SOUND PROFILES USING AN AML BASE X2 AS WELL AS A AML MICRO-X SOUND VELOCITY PROBE AT THE HEAD.
12. THE INFORMATION PRESENTED ON THIS DRAWING REPRESENTS THE RESULTS OF A SURVEY PERFORMED BY MCKIM & CREED ON JULY 1-31, 2018 AND CAN ONLY BE CONSIDERED AS INDICATING THE CONDITIONS EXISTING AT THAT TIME. BECAUSE THESE CONDITIONS MAY BE SUBJECT TO RAPID CHANGE DUE TO SHOALING EVENTS. A PRUDENT MARINER SHOULD NOT RELY EXCLUSIVELY ON THE INFORMATION PROVIDED HERE. REUSE OF THIS INFORMATION BY CLIENT OR OTHERS BEYOND THE SPECIFIC SCOPE OF WORK FOR WHICH IT WAS ACQUIRED SHALL BE AT THE SOLE RISK OF THE USER AND WITHOUT LIABILITY TO MCKIM & CREED.

| NSRS/NGS CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: TROY DAM 1 | PID# BBDR68 | NORTHING | EASTING |
| ELEVATION: 25.32' NAVD 88 | | 1,428,037.76 | 709,760.15 |

| LOCAL CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: HR-12 | PID# | NORTHING | EASTING |
| ELEVATION: 8.67' NAVD 88 | | 1,318821.55 | 684451.34 |
| STAMPED: HR-12 2016 | | | |

| LOCAL CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: 01-1 | PID# | NORTHING | EASTING |
| ELEVATION: 3.87' NAVD 88 | | 1,124,859.59 | 641003.46 |
| STAMPED: | | | |

STATE OF NEW YORK
RAYMOND B. BAKER
049350
LICENSED LAND SURVEYOR

US Army Corps of Engineers ®
New York District

| MARK | DESCRIPTION | DATE | APPR. |
|---|---|---|---|
| | | | |

| MARK | DESCRIPTION | DATE | APPR. |
|---|---|---|---|
| | | | |

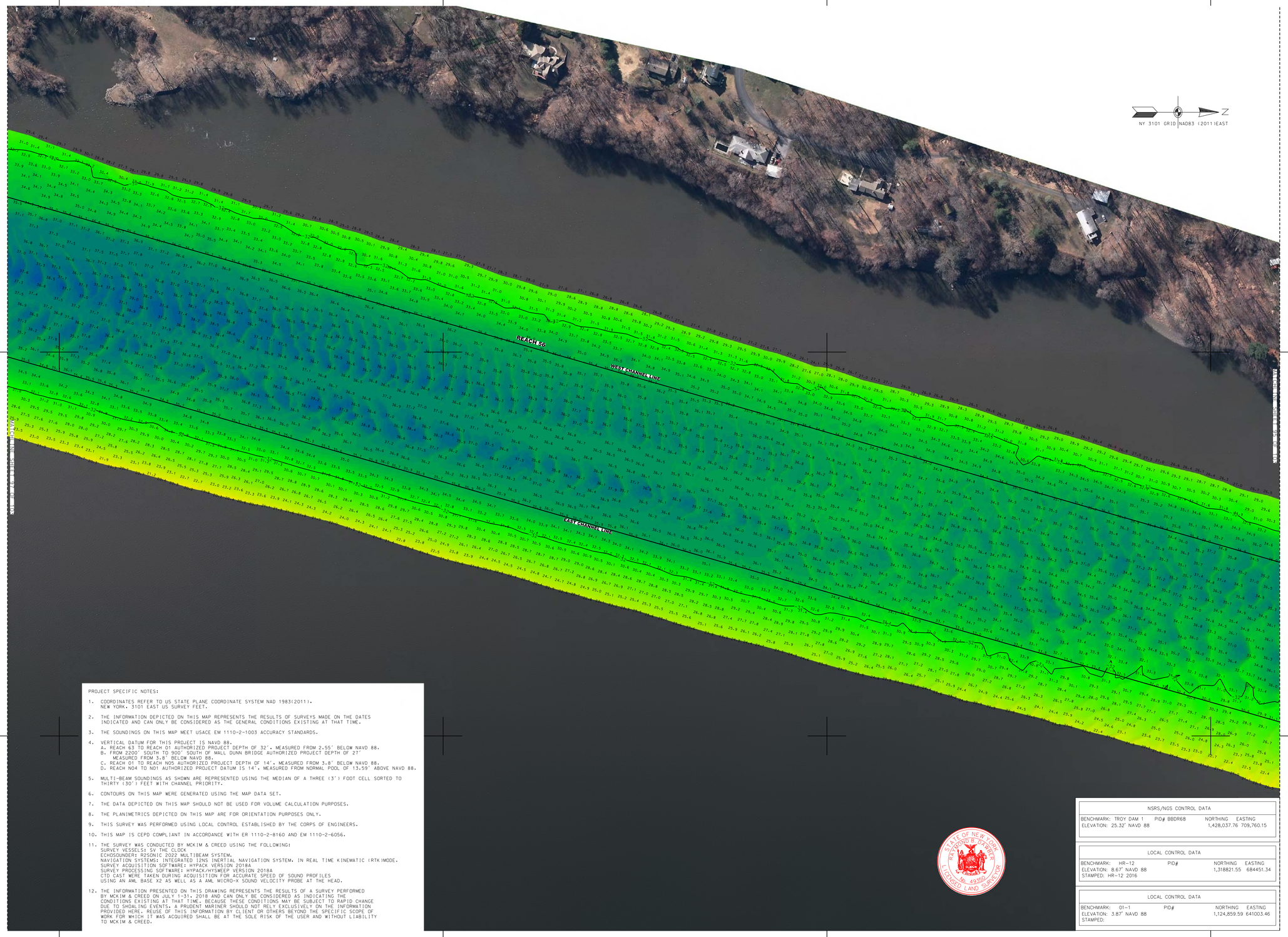
U.S. ARMY CORPS OF ENGINEERS
NEW YORK DISTRICT
NEW YORK, NY

McKIM & CREED
243 NORTH FRONT STREET
WILMINGTON, NORTH CAROLINA 28401
TELEPHONE: (910) 251-8348
FAX: (910) 251-8282

DESIGNED BY: DLJ
DWN BY: MBH
CKD BY: RBD
SUBMITTED BY: DLJ
PLOT SCALE: 1:100
SIZE: ANSI F
ISSUE DATE: NOVEMBER 2018
FILE NAME: VH101-058890053_HUDSON_MB.DGN
FILE NUMBER:
CONTRACT NO.: W912DS-14-D-0004
SOLICITATION NO.:
DATE: JULY 31, 2018

# HYDROGRAPHIC CONDITIONS SURVEY
## HUDSON RIVER FEDERAL NAVIGATION CHANNEL
## REACH 56

SHEET IDENTIFICATION
VH-195
SHEET 95 OF 103




PROJECT SPECIFIC NOTES:

1. COORDINATES REFER TO US STATE PLANE COORDINATE SYSTEM NAD 1983(2011). NEW YORK, 3101 EAST US SURVEY FEET.
2. THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS THE GENERAL CONDITIONS EXISTING AT THAT TIME.
3. THE SOUNDINGS ON THIS MAP MEET USACE EM 1110-2-1003 ACCURACY STANDARDS.
4. VERTICAL DATUM FOR THIS PROJECT IS NAVD 88.
   A. REACH 63 TO REACH 01 AUTHORIZED PROJECT DEPTH OF 32'. MEASURED FROM 2.55' BELOW NAVD 88.
   B. FROM 2200' SOUTH TO 900' SOUTH OF MALL DUNN BRIDGE AUTHORIZED PROJECT DEPTH OF 27' MEASURED FROM 3.8' BELOW NAVD 88.
   C. REACH 01 TO REACH N05 AUTHORIZED PROJECT DEPTH OF 14'. MEASURED FROM 3.8' BELOW NAVD 88.
   D. REACH N04 TO N01 AUTHORIZED PROJECT DATUM IS 14'. MEASURED FROM NORMAL POOL OF 13.59' ABOVE NAVD 88.
5. MULTI-BEAM SOUNDINGS AS SHOWN ARE REPRESENTED USING THE MEDIAN OF A THREE (3') FOOT CELL SORTED TO THIRTY (30') FEET WITH CHANNEL PRIORITY.
6. CONTOURS ON THIS MAP WERE GENERATED USING THE MAP DATA SET.
7. THE DATA DEPICTED ON THIS MAP SHOULD NOT BE USED FOR VOLUME CALCULATION PURPOSES.
8. THE PLANIMETRICS DEPICTED ON THIS MAP ARE FOR ORIENTATION PURPOSES ONLY.
9. THIS SURVEY WAS PERFORMED USING LOCAL CONTROL ESTABLISHED BY THE CORPS OF ENGINEERS.
10. THIS MAP IS CEPD COMPLIANT IN ACCORDANCE WITH ER 1110-2-8160 AND EM 1110-2-6056.
11. THE SURVEY WAS CONDUCTED BY MCKIM & CREED USING THE FOLLOWING:
    SURVEY VESSELS: SV THE CLOCK
    ECHOSOUNDER: R2SONIC 2022 MULTIBEAM SYSTEM.
    NAVIGATION SYSTEMS: INTEGRATED I2NS INERTIAL NAVIGATION SYSTEM. IN REAL TIME KINEMATIC (RTK)MODE.
    SURVEY ACQUISITION SOFTWARE: HYPACK VERSION 2018A
    SURVEY PROCESSING SOFTWARE: HYPACK/HYSWEEP VERSION 2018A
    CTD CAST WERE TAKEN DURING ACQUISITION FOR ACCURATE SPEED OF SOUND PROFILES USING AN AML BASE X2 AS WELL AS A AML MICRO-V SOUND VELOCITY PROBE AT THE HEAD.
12. THE INFORMATION PRESENTED ON THIS DRAWING REPRESENTS THE RESULTS OF A SURVEY PERFORMED BY MCKIM & CREED ON JULY 1-31, 2018 AND CAN ONLY BE CONSIDERED AS INDICATING THE CONDITIONS EXISTING AT THAT TIME. BECAUSE THESE CONDITIONS MAY BE SUBJECT TO RAPID CHANGE DUE TO SHOALING EVENTS, A PRUDENT MARINER SHOULD NOT RELY EXCLUSIVELY ON THE INFORMATION PROVIDED HERE. REUSE OF THIS INFORMATION BY CLIENT OR OTHERS BEYOND THE SPECIFIC SCOPE OF WORK FOR WHICH IT WAS ACQUIRED SHALL BE AT THE SOLE RISK OF THE USER AND WITHOUT LIABILITY TO MCKIM & CREED.

STATE OF NEW YORK
RAYMOND B. DARBY
No. 49350
LICENSED LAND SURVEYOR

NSRS/NGS CONTROL DATA

| BENCHMARK: TROY DAM 1 | PID# BBDR68 | NORTHING | EASTING |
|---|---|---|---|
| ELEVATION: 25.32' NAVD 88 | | 1,428,037.76 | 709,760.15 |

LOCAL CONTROL DATA

| BENCHMARK: HR-12 | PID# | NORTHING | EASTING |
|---|---|---|---|
| ELEVATION: 8.67' NAVD 88 | | 1,318821.55 | 684451.34 |
| STAMPED: HR-12 2016 | | | |

LOCAL CONTROL DATA

| BENCHMARK: 01-1 | PID# | NORTHING | EASTING |
|---|---|---|---|
| ELEVATION: 3.87' NAVD 88 | | 1,124,859.59 | 641003.46 |
| STAMPED: | | | |

US Army Corps of Engineers ®
New York District

| MARK | DESCRIPTION | DATE | APPR. |
|---|---|---|---|
| | | | |

| MARK | DESCRIPTION | DATE | APPR. |
|---|---|---|---|
| | | | |

U.S. ARMY CORPS OF ENGINEERS
NEW YORK DISTRICT
NEW YORK, NY

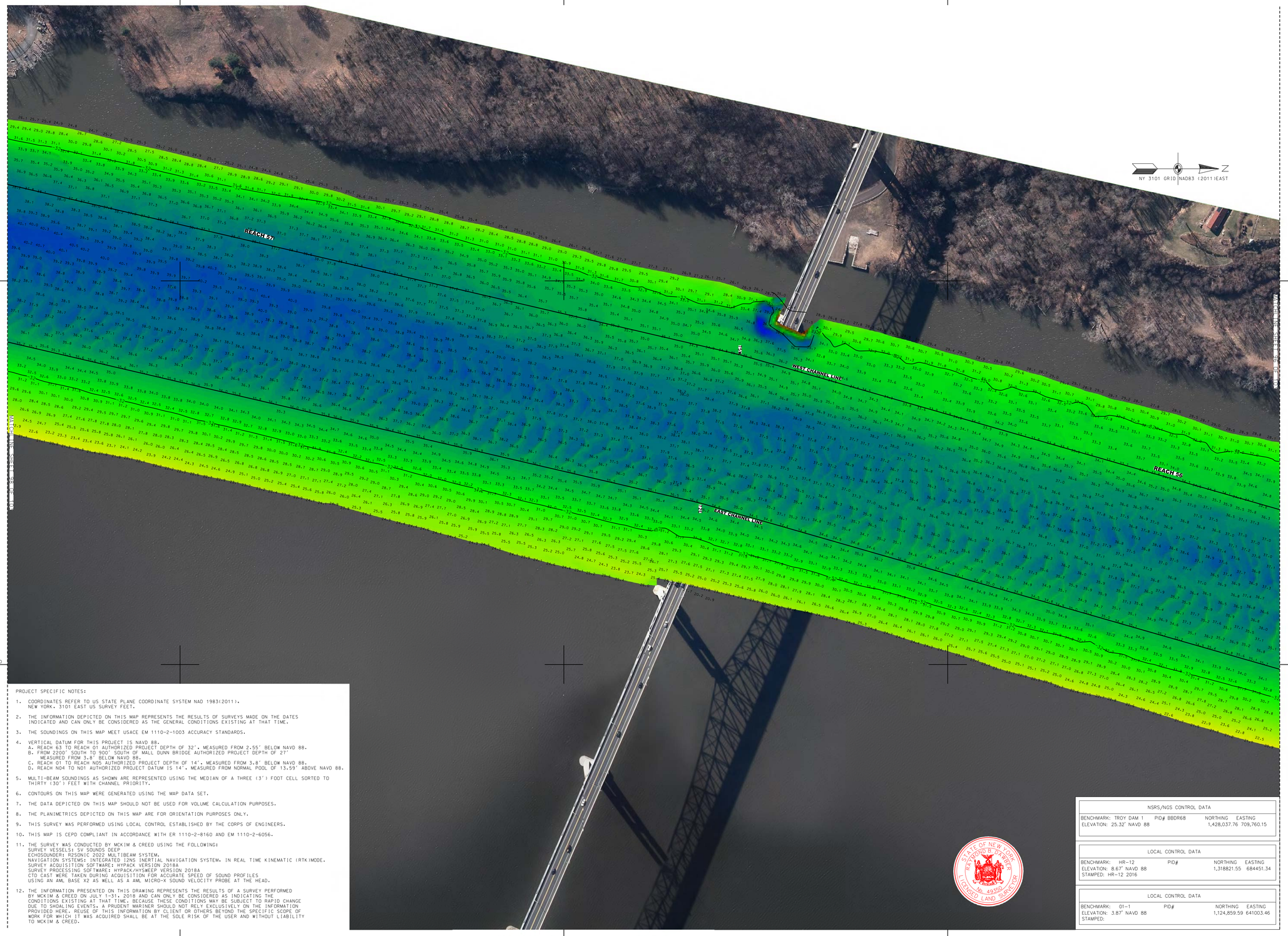
McKIM & CREED
243 NORTH FRONT STREET
WILMINGTON, NORTH CAROLINA 28401
TELEPHONE: (910) 251-8586
FAX: (910) 251-8282

| | |
|---|---|
| DESIGNED BY: | |
| DWN BY: MBH | CKD BY: RBD |
| SUBMITTED BY: DLJ | |
| PLOT SCALE: 1=100' | ISSUE DATE: NOVEMBER 2018 |
| SIZE: ANSI F | FILE NAME: V:\110\1-058\80005\3_HUDSON_MB.DGN |

DATE: JANUARY 31, 2018
SOLICITATION NO.:
CONTRACT NO.: W912DS-14-D-0004
FILE NUMBER:

# HYDROGRAPHIC CONDITIONS SURVEY
## HUDSON RIVER FEDERAL NAVIGATION CHANNEL
## REACH 56

SHEET IDENTIFICATION
VH-196
SHEET 96 OF 103




PROJECT SPECIFIC NOTES:

1. COORDINATES REFER TO US STATE PLANE COORDINATE SYSTEM NAD 1983(2011). NEW YORK, 3101 EAST US SURVEY FEET.
2. THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS THE GENERAL CONDITIONS EXISTING AT THAT TIME.
3. THE SOUNDINGS ON THIS MAP MEET USACE EM 1110-2-1003 ACCURACY STANDARDS.
4. VERTICAL DATUM FOR THIS PROJECT IS NAVD 88.
   A. REACH 63 TO REACH 01 AUTHORIZED PROJECT DEPTH OF 32', MEASURED FROM 2.55' BELOW NAVD 88.
   B. FROM 2200' SOUTH TO 900' SOUTH OF MALL DUNN BRIDGE AUTHORIZED PROJECT DEPTH OF 27' MEASURED FROM 3.8' BELOW NAVD 88.
   C. REACH 01 TO REACH N05 AUTHORIZED PROJECT DEPTH OF 14', MEASURED FROM 3.8' BELOW NAVD 88.
   D. REACH N04 TO N01 AUTHORIZED PROJECT DATUM IS 14', MEASURED FROM NORMAL POOL OF 13.59' ABOVE NAVD 88.
5. MULTI-BEAM SOUNDINGS AS SHOWN ARE REPRESENTED USING THE MEDIAN OF A THREE (3') FOOT CELL SORTED TO THIRTY (30') FEET WITH CHANNEL PRIORITY.
6. CONTOURS ON THIS MAP WERE GENERATED USING THE MAP DATA SET.
7. THE DATA DEPICTED ON THIS MAP SHOULD NOT BE USED FOR VOLUME CALCULATION PURPOSES.
8. THE PLANIMETRICS DEPICTED ON THIS MAP ARE FOR ORIENTATION PURPOSES ONLY.
9. THIS SURVEY WAS PERFORMED USING LOCAL CONTROL ESTABLISHED BY THE CORPS OF ENGINEERS.
10. THIS MAP IS CEPD COMPLIANT IN ACCORDANCE WITH ER 1110-2-8160 AND EM 1110-2-6056.
11. THE SURVEY WAS CONDUCTED BY MCKIM & CREED USING THE FOLLOWING:
    SURVEY VESSELS: SV SOUNDS DEEP
    ECHOSOUNDER: R2SONIC 2022 MULTIBEAM SYSTEM.
    NAVIGATION SYSTEMS: INTEGRATED I2NS INERTIAL NAVIGATION SYSTEM. IN REAL TIME KINEMATIC (RTK)MODE.
    SURVEY ACQUISITION SOFTWARE: HYPACK VERSION 2018A
    SURVEY PROCESSING SOFTWARE: HYPACK/HYSWEEP VERSION 2018A
    CTD CAST WERE TAKEN DURING ACQUISITION FOR ACCURATE SPEED OF SOUND PROFILES USING AN AML BASE X2 AS WELL AS A AML MICRO-X SOUND VELOCITY PROBE AT THE HEAD.
12. THE INFORMATION PRESENTED ON THIS DRAWING REPRESENTS THE RESULTS OF A SURVEY PERFORMED BY MCKIM & CREED ON JULY 1-31, 2018 AND CAN ONLY BE CONSIDERED AS INDICATING THE CONDITIONS EXISTING AT THAT TIME. BECAUSE THESE CONDITIONS MAY BE SUBJECT TO RAPID CHANGE DUE TO SHOALING EVENTS, A PRUDENT MARINER SHOULD NOT RELY EXCLUSIVELY ON THE INFORMATION PROVIDED HERE. REUSE OF THIS INFORMATION BY CLIENT OR OTHERS BEYOND THE SPECIFIC SCOPE OF WORK FOR WHICH IT WAS ACQUIRED SHALL BE AT THE SOLE RISK OF THE USER AND WITHOUT LIABILITY TO MCKIM & CREED.

| NSRS/NGS CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: TROY DAM 1 | PID# BBDR68 | NORTHING | EASTING |
| ELEVATION: 25.32' NAVD 88 | | 1,428,037.76 | 709,760.15 |

| LOCAL CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: HR-12 | PID# | NORTHING | EASTING |
| ELEVATION: 8.67' NAVD 88 | | 1,318821.55 | 684451.34 |
| STAMPED: HR-12 2016 | | | |

| LOCAL CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: 01-1 | PID# | NORTHING | EASTING |
| ELEVATION: 3.87' NAVD 88 | | 1,124,859.59 | 641003.46 |
| STAMPED: | | | |

STATE OF NEW YORK
RAYMOND B. DARBER
No. 49350
LICENSED LAND SURVEYOR

SCALE 1" = 100'
0 100 200 300 400

US Army Corps of Engineers ®
New York District

| MARK | DESCRIPTION | DATE | APPR. |
|---|---|---|---|
| MARK | DESCRIPTION | DATE | APPR. |

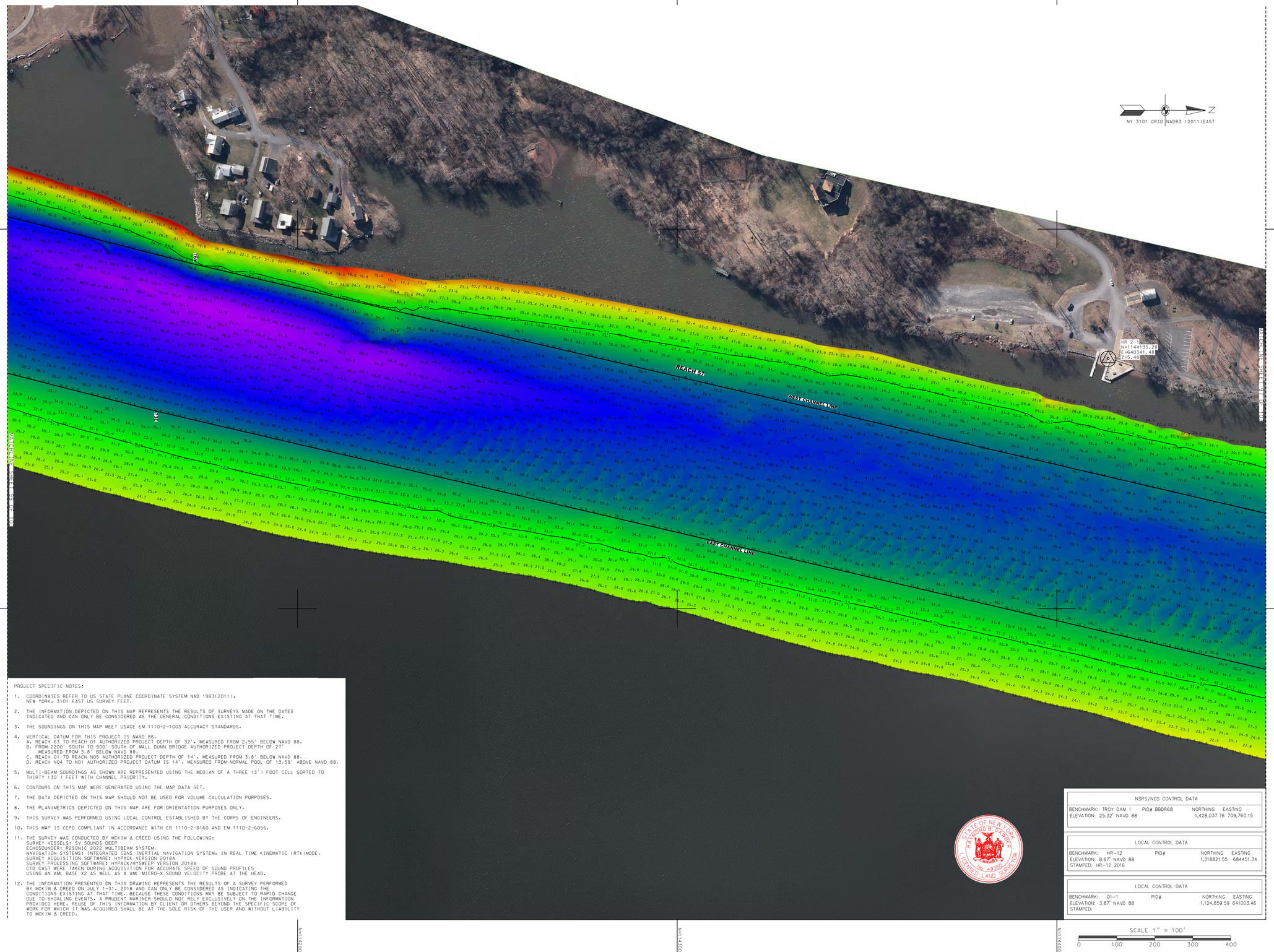
U.S. ARMY CORPS OF ENGINEERS
NEW YORK DISTRICT
NEW YORK, NY

McKIM & CREED
243 NORTH FRONT STREET
WILMINGTON, NORTH CAROLINA 28401
TELEPHONE: (910) 251-8246
FAX: (910) 251-4262

| | |
|---|---|
| DESIGNED BY: DGW | DATE: JULY 1-31, 2018 |
| DWN BY: MBH | CKD BY: RBD |
| SUBMITTED BY: DLJ | SOLICITATION NO.: |
| PLOT SCALE: 1:100' | CONTRACT NO.: W912DS-14-D-0004 |
| PLOT DATE: 8/6/2018 | ISSUE DATE: AUGUST 2018 |
| SIZE: ANSI F | FILE NUMBER: |
| | FILE NAME: VH101-DSB890083_HUDSON_MB.DGN |

# HYDROGRAPHIC CONDITIONS SURVEY
## HUDSON RIVER FEDERAL NAVIGATION CHANNEL
## REACH 56-57

SHEET IDENTIFICATION
VH-197
SHEET 97 OF 103




PROJECT SPECIFIC NOTES:

1. COORDINATES REFER TO US STATE PLANE COORDINATE SYSTEM NAD 1983(2011). NEW YORK. 3101 EAST US SURVEY FEET.
2. THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS THE GENERAL CONDITIONS EXISTING AT THAT TIME.
3. THE SOUNDINGS ON THIS MAP MEET USACE EM 1110-2-1003 ACCURACY STANDARDS.
4. VERTICAL DATUM FOR THIS PROJECT IS NAVD 88.
   A. REACH 63 TO REACH 01 AUTHORIZED PROJECT DEPTH OF 32'. MEASURED FROM 2.55' BELOW NAVD 88.
   B. FROM 2200' SOUTH TO 900' SOUTH OF MALL DUNN BRIDGE AUTHORIZED PROJECT DEPTH OF 27' MEASURED FROM 3.8' BELOW NAVD 88.
   C. REACH 01 TO REACH N05 AUTHORIZED PROJECT DEPTH OF 14'. MEASURED FROM 3.8' BELOW NAVD 88.
   D. REACH N04 TO N01 AUTHORIZED PROJECT DATUM IS 14'. MEASURED FROM NORMAL POOL OF 13.59' ABOVE NAVD 88.
5. MULTI-BEAM SOUNDINGS AS SHOWN ARE REPRESENTED USING THE MEDIAN OF A THREE (3') FOOT CELL SORTED TO THIRTY (30') FEET WITH CHANNEL PRIORITY.
6. CONTOURS ON THIS MAP WERE GENERATED USING THE MAP DATA SET.
7. THE DATA DEPICTED ON THIS MAP SHOULD NOT BE USED FOR VOLUME CALCULATION PURPOSES.
8. THE PLANIMETRICS DEPICTED ON THIS MAP ARE FOR ORIENTATION PURPOSES ONLY.
9. THIS SURVEY WAS PERFORMED USING LOCAL CONTROL ESTABLISHED BY THE CORPS OF ENGINEERS.
10. THIS MAP IS CEPD COMPLIANT IN ACCORDANCE WITH ER 1110-2-8160 AND EM 1110-2-6056.
11. THE SURVEY WAS CONDUCTED BY MCKIM & CREED USING THE FOLLOWING:
    SURVEY VESSELS: SV SOUNDS DEEP
    ECHOSOUNDER: R2SONIC 2022 MULTIBEAM SYSTEM.
    NAVIGATION SYSTEMS: INTEGRATED I2NS INERTIAL NAVIGATION SYSTEM. IN REAL TIME KINEMATIC (RTK)MODE.
    SURVEY ACQUISITION SOFTWARE: HYPACK VERSION 2018A
    SURVEY PROCESSING SOFTWARE: HYPACK/HYSWEEP VERSION 2018A
    CTD CAST WERE TAKEN DURING ACQUISITION FOR ACCURATE SPEED OF SOUND PROFILES USING AN AML BASE X2 AS WELL AS A AML MICRO-X SOUND VELOCITY PROBE AT THE HEAD.
12. THE INFORMATION PRESENTED ON THIS DRAWING REPRESENTS THE RESULTS OF A SURVEY PERFORMED BY MCKIM & CREED ON JULY 1-31, 2018 AND CAN ONLY BE CONSIDERED AS INDICATING THE CONDITIONS EXISTING AT THAT TIME. BECAUSE THESE CONDITIONS MAY BE SUBJECT TO RAPID CHANGE DUE TO SHOALING EVENTS. A PRUDENT MARINER SHOULD NOT RELY EXCLUSIVELY ON THE INFORMATION PROVIDED HERE. REUSE OF THIS INFORMATION BY CLIENT OR OTHERS BEYOND THE SPECIFIC SCOPE OF WORK FOR WHICH IT WAS ACQUIRED SHALL BE AT THE SOLE RISK OF THE USER AND WITHOUT LIABILITY TO MCKIM & CREED.

| NSRS/NGS CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: TROY DAM 1 | PID# BBDR68 | NORTHING | EASTING |
| ELEVATION: 25.32' NAVD 88 | | 1,428,037.76 | 709,760.15 |

| LOCAL CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: HR-12 | PID# | NORTHING | EASTING |
| ELEVATION: 8.67' NAVD 88 | | 1,318821.55 | 684451.34 |
| STAMPED: HR-12 2016 | | | |

| LOCAL CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: 01-1 | PID# | NORTHING | EASTING |
| ELEVATION: 3.87' NAVD 88 | | 1,124,859.59 | 641003.46 |
| STAMPED: | | | |

STATE OF NEW YORK
RAYMOND B. OWEN
LICENSED LAND SURVEYOR
No. 49350

US Army Corps of Engineers ®
New York District

| MARK | DESCRIPTION | DATE | APPR. |
|---|---|---|---|
| MARK | DESCRIPTION | DATE | APPR. |

DESIGNED BY: DLJ
DRAWN BY: MBH
SUBMITTED BY: DLJ
PLOT SCALE: 1" = 100'
SIZE: ANSI F

DATE: JULY 31, 2018
CKD BY: RBD
SOLICITATION NO.:
CONTRACT NO.: W912DS-14-D-0004
FILE NUMBER:
ISSUE DATE: NOVEMBER 2018
FILE NAME: VH101-056890063_HUDSON_MB.DGN

U.S. ARMY CORPS OF ENGINEERS
NEW YORK DISTRICT
NEW YORK, NY

McKIM & CREED
243 NORTH FRONT STREET
WILMINGTON, NORTH CAROLINA 28401
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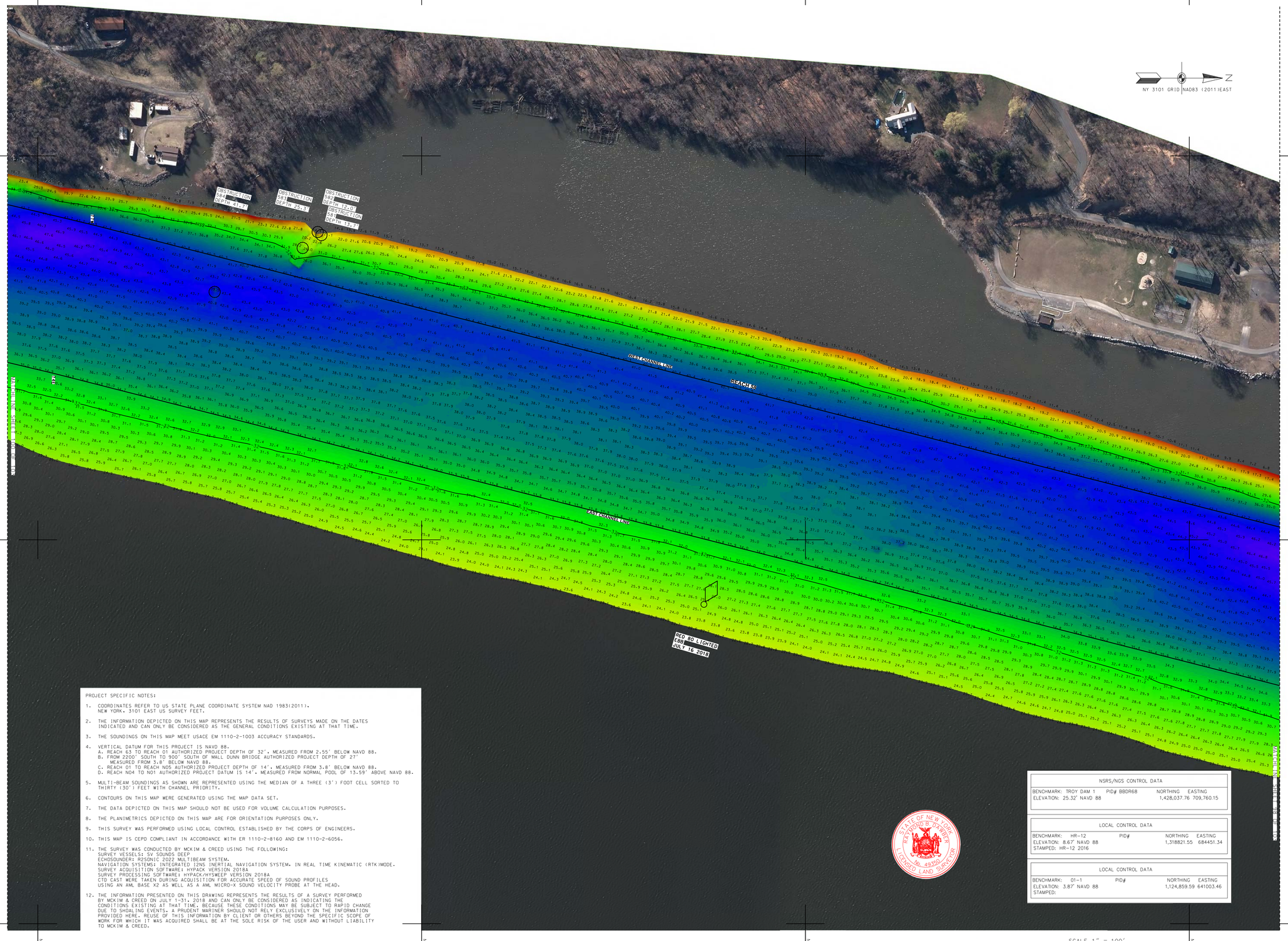
FAX: (910) 251-8282

# HYDROGRAPHIC CONDITIONS SURVEY
## HUDSON RIVER FEDERAL NAVIGATION CHANNEL
## REACH 57

SHEET IDENTIFICATION
VH-198
SHEET 98 OF 103




PROJECT SPECIFIC NOTES:

1. COORDINATES REFER TO US STATE PLANE COORDINATE SYSTEM NAD 1983(2011), NEW YORK, 3101 EAST US SURVEY FEET.
2. THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS THE GENERAL CONDITIONS EXISTING AT THAT TIME.
3. THE SOUNDINGS ON THIS MAP MEET USACE EM 1110-2-1003 ACCURACY STANDARDS.
4. VERTICAL DATUM FOR THIS PROJECT IS NAVD 88.
   A. REACH 63 TO REACH 01 AUTHORIZED PROJECT DEPTH OF 32'. MEASURED FROM 2.55' BELOW NAVD 88.
   B. FROM 2200' SOUTH TO 900' SOUTH OF MALL DUNN BRIDGE AUTHORIZED PROJECT DEPTH OF 27' MEASURED FROM 3.8' BELOW NAVD 88.
   C. REACH 01 TO REACH N05 AUTHORIZED PROJECT DEPTH OF 14'. MEASURED FROM 3.8' BELOW NAVD 88.
   D. REACH N04 TO N01 AUTHORIZED PROJECT DATUM IS 14'. MEASURED FROM NORMAL POOL OF 13.59' ABOVE NAVD 88.
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6. CONTOURS ON THIS MAP WERE GENERATED USING THE MAP DATA SET.
7. THE DATA DEPICTED ON THIS MAP SHOULD NOT BE USED FOR VOLUME CALCULATION PURPOSES.
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10. THIS MAP IS CEPD COMPLIANT IN ACCORDANCE WITH ER 1110-2-8160 AND EM 1110-2-6056.
11. THE SURVEY WAS CONDUCTED BY MCKIM & CREED USING THE FOLLOWING:
    SURVEY VESSELS: SV SOUNDS DEEP
    ECHOSOUNDER: R2SONIC 2022 MULTIBEAM SYSTEM.
    NAVIGATION SYSTEMS: INTEGRATED IXNS INERTIAL NAVIGATION SYSTEM. IN REAL TIME KINEMATIC (RTK) MODE.
    SURVEY ACQUISITION SOFTWARE: HYPACK VERSION 2018A
    SURVEY PROCESSING SOFTWARE: HYPACK/HYSWEEP VERSION 2018A
    CTD CAST WERE TAKEN DURING ACQUISITION FOR ACCURATE SPEED OF SOUND PROFILES USING AN AML BASE X2 AS WELL AS A AML MICRO-X SOUND VELOCITY PROBE AT THE HEAD.
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| NSRS/NGS CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: TROY DAM 1 | PID# BBDR68 | NORTHING | EASTING |
| ELEVATION: 25.32' NAVD 88 | | 1,428,037.76 | 709,760.15 |

| LOCAL CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: HR-12 | PID# | NORTHING | EASTING |
| ELEVATION: 8.67' NAVD 88 | | 1,318821.55 | 684451.34 |
| STAMPED: HR-12 2016 | | | |

| LOCAL CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: 01-1 | PID# | NORTHING | EASTING |
| ELEVATION: 3.87' NAVD 88 | | 1,124,859.59 | 641003.46 |
| STAMPED: | | | |

STATE OF NEW YORK RAYMOND P. GARBER LICENSED LAND SURVEYOR No. 49350

US Army Corps of Engineers ®
New York District

| MARK | DESCRIPTION | DATE | APPR. |
|---|---|---|---|
| | | | |

DESIGNED BY:
DWN BY: MBH
CKD BY: RBD
SUBMITTED BY: DLJ
DATE: JULY 31, 2018
SOLICITATION NO.:
CONTRACT NO.: W912DS-14-D-0004
TASK ORDER:
PLOT SCALE: 1"=100'
PLOT DATE: 2018
ISSUE DATE: NOVEMBER 2018
FILE NUMBER:
FILE NAME: VH101-058890953_HUDSON_MB.DGN
SIZE: ANSI F

U.S. ARMY CORPS OF ENGINEERS
NEW YORK DISTRICT
NEW YORK, NY

McKIM & CREED
243 NORTH FRONT STREET
WILMINGTON, NORTH CAROLINA 28401
TELEPHONE: (910) 251-8848
FAX: (910) 251-8282

# HYDROGRAPHIC CONDITIONS SURVEY
## HUDSON RIVER FEDERAL NAVIGATION CHANNEL
## REACH 58

SHEET IDENTIFICATION
VH-199
SHEET 99 OF 103

| NSRS/NGS CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: TROY DAM 1 | PID# BBDR68 | NORTHING | EASTING |
| ELEVATION: 25.32' NAVD 88 | | 1,428,037.76 | 709,760.15 |

| LOCAL CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: HR-12 | PID# | NORTHING | EASTING |
| ELEVATION: 8.67' NAVD 88 | | 1,318821.55 | 684451.34 |
| STAMPED: HR-12 2016 | | | |

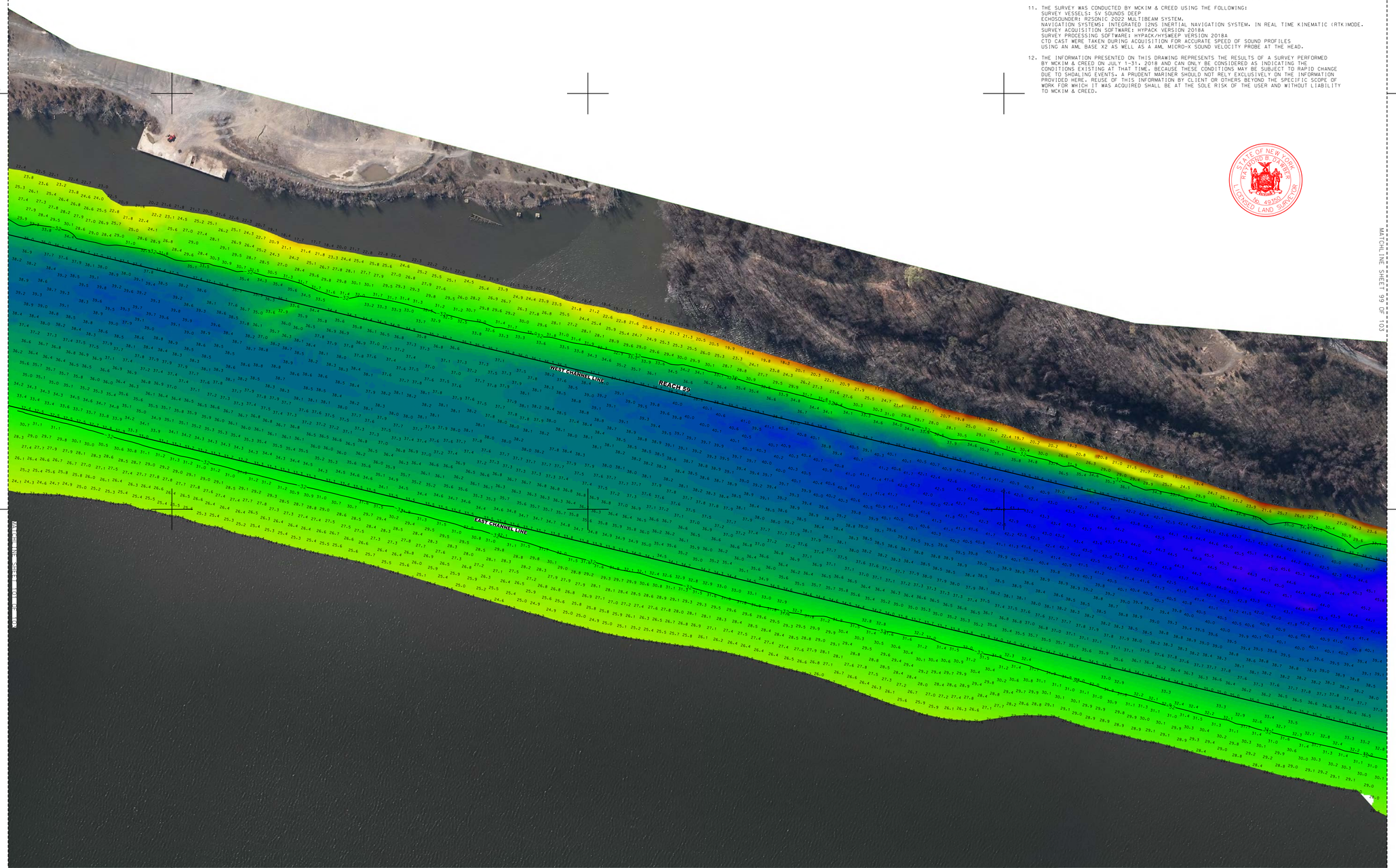
| LOCAL CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: 01-1 | PID# | NORTHING | EASTING |
| ELEVATION: 3.87' NAVD 88 | | 1,124,859.59 | 641003.46 |
| STAMPED: | | | |

NY 3101 GRID NAD83 (2011) EAST

PROJECT SPECIFIC NOTES:

1. COORDINATES REFER TO US STATE PLANE COORDINATE SYSTEM NAD 1983(2011). NEW YORK, 3101 EAST US SURVEY FEET.
2. THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS THE GENERAL CONDITIONS EXISTING AT THAT TIME.
3. THE SOUNDINGS ON THIS MAP MEET USACE EM 1110-2-1003 ACCURACY STANDARDS.
4. VERTICAL DATUM FOR THIS PROJECT IS NAVD 88.
   A. REACH 63 TO REACH 01 AUTHORIZED PROJECT DEPTH OF 32'. MEASURED FROM 2.55' BELOW NAVD 88.
   B. FROM 2200' SOUTH TO 900' SOUTH OF MALL DUNN BRIDGE AUTHORIZED PROJECT DEPTH OF 27' MEASURED FROM 3.8' BELOW NAVD 88.
   C. REACH 01 TO REACH N05 AUTHORIZED PROJECT DEPTH OF 14'. MEASURED FROM 3.8' BELOW NAVD 88.
   D. REACH N04 TO N01 AUTHORIZED PROJECT DATUM IS 14'. MEASURED FROM NORMAL POOL OF 13.59' ABOVE NAVD 88.
5. MULTI-BEAM SOUNDINGS AS SHOWN ARE REPRESENTED USING THE MEDIAN OF A THREE (3') FOOT CELL SORTED TO THIRTY (30') FEET WITH CHANNEL PRIORITY.
6. CONTOURS ON THIS MAP WERE GENERATED USING THE MAP DATA SET.
7. THE DATA DEPICTED ON THIS MAP SHOULD NOT BE USED FOR VOLUME CALCULATION PURPOSES.
8. THE PLANIMETRICS DEPICTED ON THIS MAP ARE FOR ORIENTATION PURPOSES ONLY.
9. THIS SURVEY WAS PERFORMED USING LOCAL CONTROL ESTABLISHED BY THE CORPS OF ENGINEERS.
10. THIS MAP IS CEPD COMPLIANT IN ACCORDANCE WITH ER 1110-2-8160 AND EM 1110-2-6056.
11. THE SURVEY WAS CONDUCTED BY MCKIM & CREED USING THE FOLLOWING:
    SURVEY VESSELS: SV SOUNDS DEEP
    ECHOSOUNDER: R2SONIC 2022 MULTIBEAM SYSTEM.
    NAVIGATION SYSTEMS: INTEGRATED I2NS INERTIAL NAVIGATION SYSTEM. IN REAL TIME KINEMATIC (RTK)MODE.
    SURVEY ACQUISITION SOFTWARE: HYPACK VERSION 2018A
    SURVEY PROCESSING SOFTWARE: HYPACK/HYSWEEP VERSION 2018A
    CTD CAST WERE TAKEN DURING ACQUISITION FOR ACCURATE SPEED OF SOUND PROFILES
    USING AN AML BASE X2 AS WELL AS A AML MICRO-X SOUND VELOCITY PROBE AT THE HEAD.
12. THE INFORMATION PRESENTED ON THIS DRAWING REPRESENTS THE RESULTS OF A SURVEY PERFORMED BY MCKIM & CREED ON JULY 1-31, 2018 AND CAN ONLY BE CONSIDERED AS INDICATING THE CONDITIONS EXISTING AT THAT TIME. BECAUSE THESE CONDITIONS MAY BE SUBJECT TO RAPID CHANGE DUE TO SHOALING EVENTS, A PRUDENT MARINER SHOULD NOT RELY EXCLUSIVELY ON THE INFORMATION PROVIDED HERE. REUSE OF THIS INFORMATION BY CLIENT OR OTHERS BEYOND THE SPECIFIC SCOPE OF WORK FOR WHICH IT WAS ACQUIRED SHALL BE AT THE SOLE RISK OF THE USER AND WITHOUT LIABILITY TO MCKIM & CREED.

STATE OF NEW YORK
RAYMOND B. PARKER
LICENSED LAND SURVEYOR
No. 49350




US Army Corps of Engineers ®
New York District

| MARK | DESCRIPTION | DATE | APPR. |
|---|---|---|---|
| | | | |

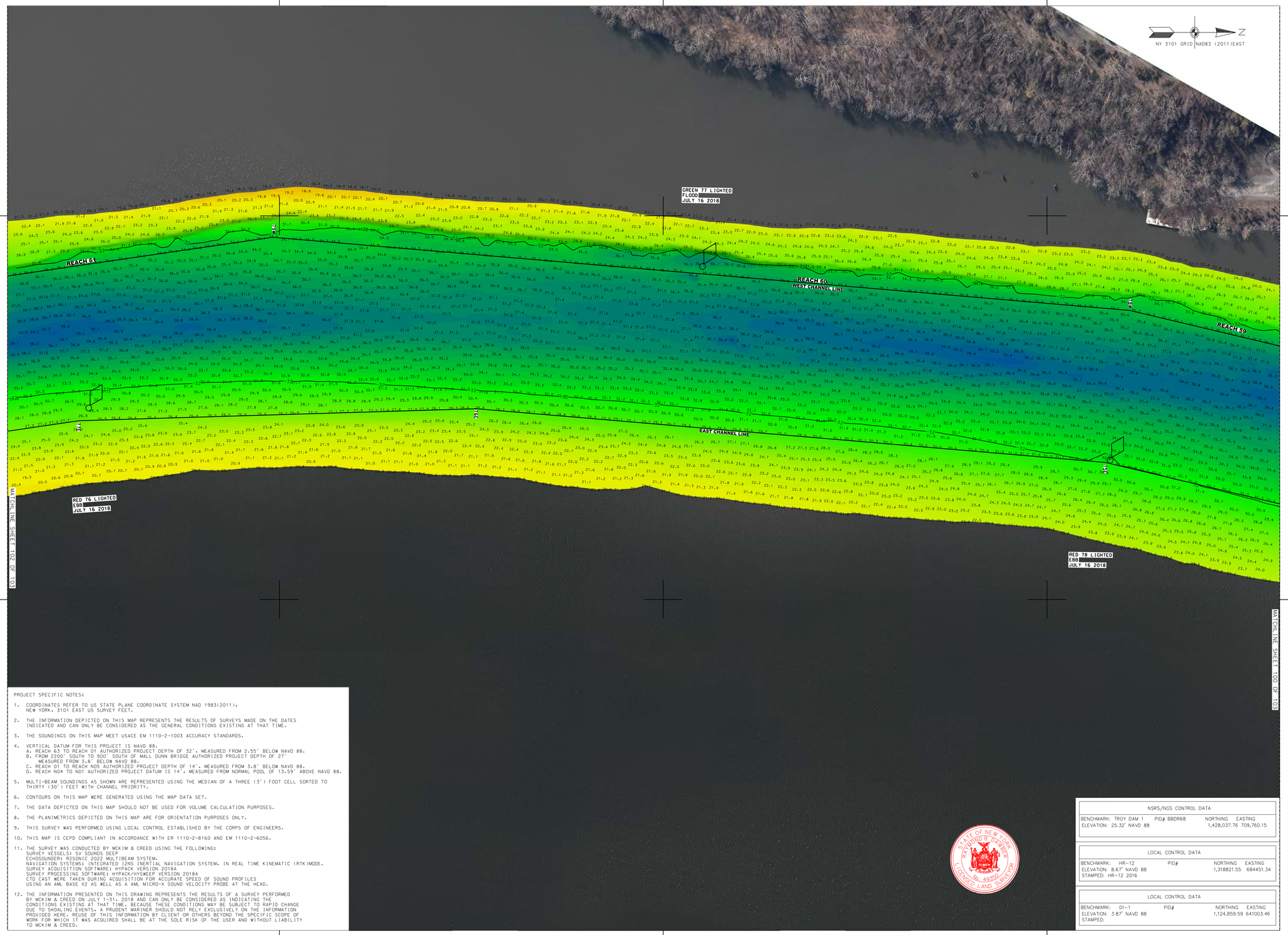
DESIGNED BY: MBH
DWN BY: MBH
CKD BY: RBD
SUBMITTED BY: DLJ
DATE: JULY 31, 2018
SOLICITATION NO.:
CONTRACT NO.: W912DS-14-D-0004
PLOT SCALE: 1:00'
PLOT DATE:
FILE NUMBER:
SIZE: ANSI F
FILE NAME: VH101-0588890063_HUDSON_MB.DGN

U.S. ARMY CORPS OF ENGINEERS
NEW YORK DISTRICT
NEW YORK, NY

McKIM & CREED
243 NORTH FRONT STREET
WILMINGTON, NORTH CAROLINA 28401
TELEPHONE: (910) 251-8448
FAX: (910) 251-8282

**HYDROGRAPHIC CONDITIONS SURVEY**
**HUDSON RIVER FEDERAL NAVIGATION CHANNEL**
**REACH 59**

SHEET IDENTIFICATION
VH-200
SHEET 100 OF 103




PROJECT SPECIFIC NOTES:

1. COORDINATES REFER TO US STATE PLANE COORDINATE SYSTEM NAD 1983(2011). NEW YORK. 3101 EAST US SURVEY FEET.
2. THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS THE GENERAL CONDITIONS EXISTING AT THAT TIME.
3. THE SOUNDINGS ON THIS MAP MEET USACE EM 1110-2-1003 ACCURACY STANDARDS.
4. VERTICAL DATUM FOR THIS PROJECT IS NAVD 88.
   A. REACH 63 TO REACH 01 AUTHORIZED PROJECT DEPTH OF 32'. MEASURED FROM 2.55' BELOW NAVD 88.
   B. FROM 2200' SOUTH TO 900' SOUTH OF MALL DUNN BRIDGE AUTHORIZED PROJECT DEPTH OF 27' MEASURED FROM 3.8' BELOW NAVD 88.
   C. REACH 01 TO REACH N05 AUTHORIZED PROJECT DEPTH OF 14'. MEASURED FROM 3.8' BELOW NAVD 88.
   D. REACH N04 TO N01 AUTHORIZED PROJECT DATUM IS 14'. MEASURED FROM NORMAL POOL OF 13.59' ABOVE NAVD 88.
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10. THIS MAP IS CEPD COMPLIANT IN ACCORDANCE WITH ER 1110-2-8160 AND EM 1110-2-6056.
11. THE SURVEY WAS CONDUCTED BY MCKIM & CREED USING THE FOLLOWING:
    SURVEY VESSELS: SV SOUNDS DEEP
    ECHOSOUNDER: R2SONIC 2022 MULTIBEAM SYSTEM.
    NAVIGATION SYSTEMS: INTEGRATED I2NS INERTIAL NAVIGATION SYSTEM. IN REAL TIME KINEMATIC (RTK)MODE.
    SURVEY ACQUISITION SOFTWARE: HYPACK VERSION 2018A
    SURVEY PROCESSING SOFTWARE: HYPACK/HYSWEEP VERSION 2018A
    CTD CAST WERE TAKEN DURING ACQUISITION FOR ACCURATE SPEED OF SOUND PROFILES USING AN AML BASE X2 AS WELL AS A AML MICRO-X SOUND VELOCITY PROBE AT THE HEAD.
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| NSRS/NGS CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: TROY DAM 1 | PID# BBDR68 | NORTHING | EASTING |
| ELEVATION: 25.32' NAVD 88 | | 1,428,037.76 | 709,760.15 |

| LOCAL CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: HR-12 | PID# | NORTHING | EASTING |
| ELEVATION: 8.67' NAVD 88 | | 1,318821.55 | 684451.34 |
| STAMPED: HR-12 2016 | | | |

| LOCAL CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: 01-1 | PID# | NORTHING | EASTING |
| ELEVATION: 3.87' NAVD 88 | | 1,124,859.59 | 641003.46 |
| STAMPED: | | | |

STATE OF NEW YORK
RICHARD B. PARKER
No. 49380
LICENSED LAND SURVEYOR

SCALE 1" = 100'
0 100 200 300 400

US Army Corps of Engineers ®
New York District

| MARK | DESCRIPTION | DATE | APPR. |
|---|---|---|---|
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DESIGNED BY: DBJ
DWN BY: MBH
CKD BY: RBD
SUBMITTED BY: DLJ
PLOT SCALE: 1" = 100'
SIZE: ANSI F
DATE: AUG 31, 2018
SOLICITATION NO.:
CONTRACT NO.: W912DS-14-D-0004
FILE NUMBER:
ISSUE DATE: NOV 2018
FILE NAME: VH101-056880053_HUDSON_MB.DGN

U.S. ARMY CORPS OF ENGINEERS
NEW YORK DISTRICT
NEW YORK, NY

McKIM & CREED
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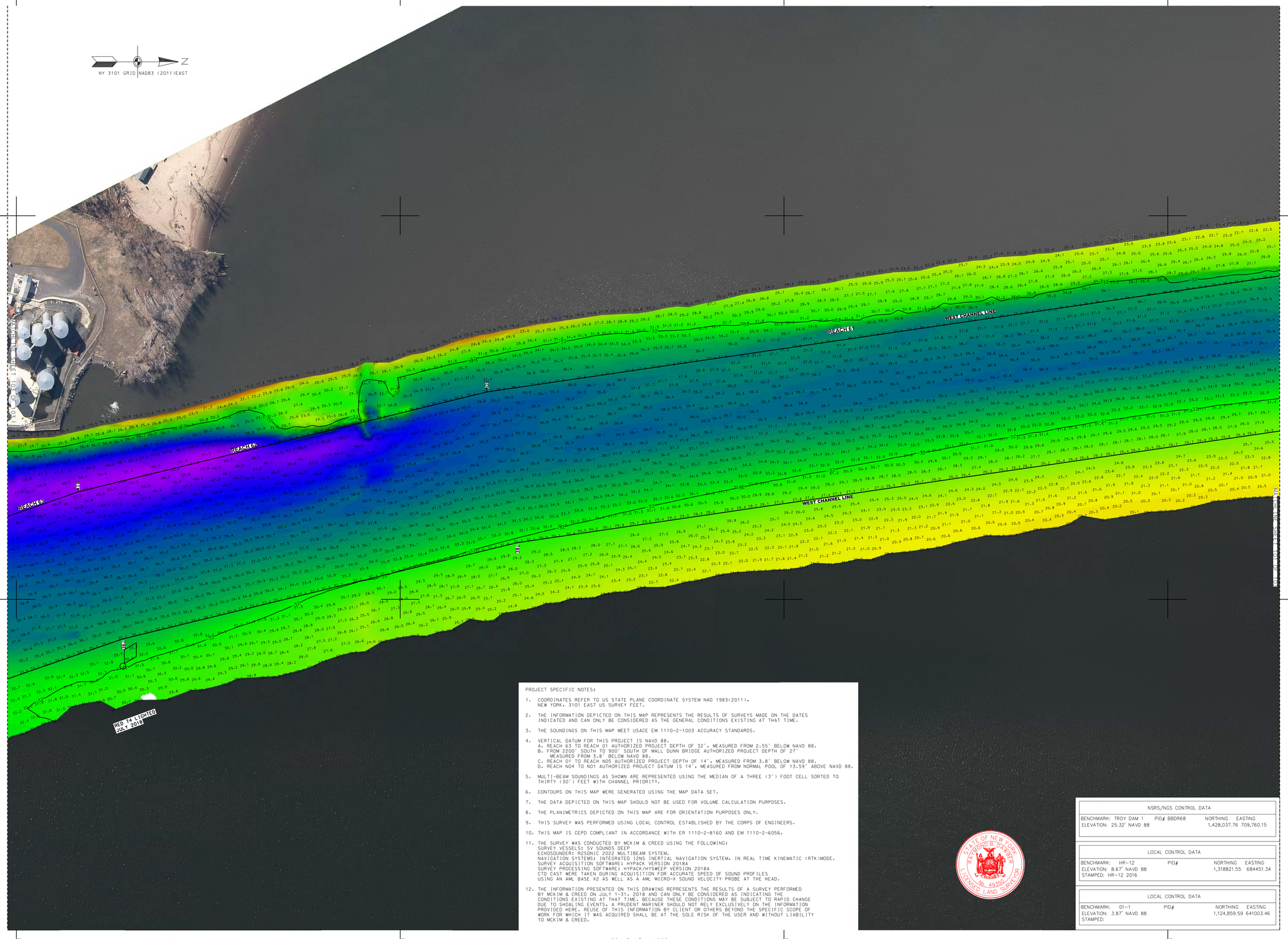
WILMINGTON, NORTH CAROLINA 28401
TELEPHONE: (910) 251-0048
FAX: (910) 251-8282

# HYDROGRAPHIC CONDITIONS SURVEY
## HUDSON RIVER FEDERAL NAVIGATION CHANNEL
## REACH 59-61

SHEET IDENTIFICATION
VH-201
SHEET 101 OF 103


NY 3101 GRID NAD83 (2011)EAST
N
N=1128000
N=1129000
N=1130000
N=1131000
E=638000
E=639000
REACH 63
REACH 62
REACH 61
REACH 01
WEST CHANNEL LINE
RED 74 LIGHTED JULY 2018
GREEN 73 LIGHTED JULY 2018
GREEN 75 LIGHTED JULY 2018
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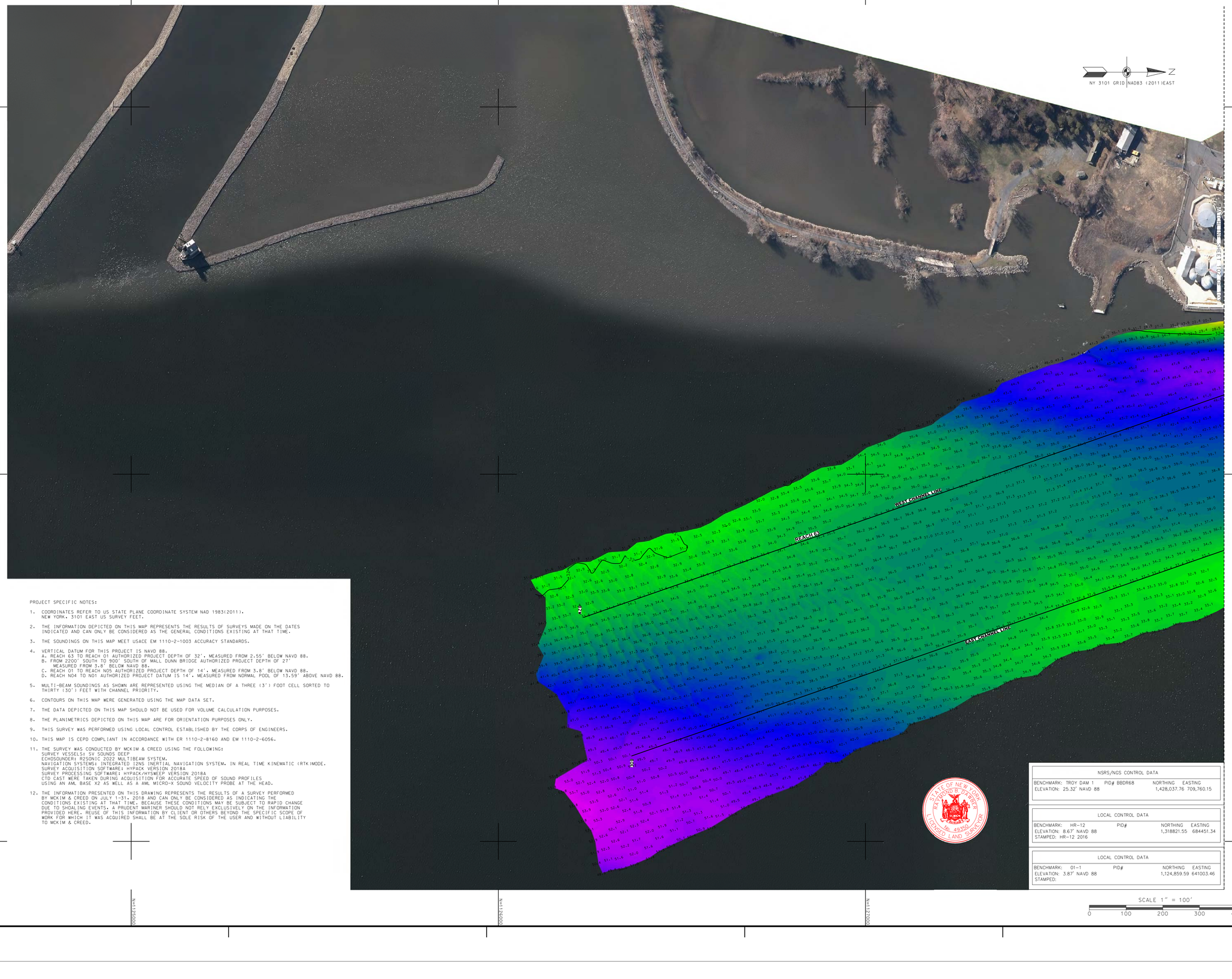


PROJECT SPECIFIC NOTES:

1. COORDINATES REFER TO US STATE PLANE COORDINATE SYSTEM NAD 1983(2011). NEW YORK. 3101 EAST US SURVEY FEET.
2. THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS THE GENERAL CONDITIONS EXISTING AT THAT TIME.
3. THE SOUNDINGS ON THIS MAP MEET USACE EM 1110-2-1003 ACCURACY STANDARDS.
4. VERTICAL DATUM FOR THIS PROJECT IS NAVD 88.
   A. REACH 63 TO REACH 01 AUTHORIZED PROJECT DEPTH OF 32'. MEASURED FROM 2.55' BELOW NAVD 88.
   B. FROM 2200' SOUTH TO 900' SOUTH OF MALL DUNN BRIDGE AUTHORIZED PROJECT DEPTH OF 27' MEASURED FROM 3.8' BELOW NAVD 88.
   C. REACH 01 TO REACH NO5 AUTHORIZED PROJECT DEPTH OF 14'. MEASURED FROM 3.8' BELOW NAVD 88.
   D. REACH NO4 TO NO1 AUTHORIZED PROJECT DATUM IS 14'. MEASURED FROM NORMAL POOL OF 13.59' ABOVE NAVD 88.
5. MULTI-BEAM SOUNDINGS AS SHOWN ARE REPRESENTED USING THE MEDIAN OF A THREE (3') FOOT CELL SORTED TO THIRTY (30') FEET WITH CHANNEL PRIORITY.
6. CONTOURS ON THIS MAP WERE GENERATED USING THE MAP DATA SET.
7. THE DATA DEPICTED ON THIS MAP SHOULD NOT BE USED FOR VOLUME CALCULATION PURPOSES.
8. THE PLANIMETRICS DEPICTED ON THIS MAP ARE FOR ORIENTATION PURPOSES ONLY.
9. THIS SURVEY WAS PERFORMED USING LOCAL CONTROL ESTABLISHED BY THE CORPS OF ENGINEERS.
10. THIS MAP IS CEPD COMPLIANT IN ACCORDANCE WITH ER 1110-2-8160 AND EM 1110-2-6056.
11. THE SURVEY WAS CONDUCTED BY MCKIM & CREED USING THE FOLLOWING:
    SURVEY VESSELS: SV SOUNDS DEEP
    ECHOSOUNDER: R2SONIC 2022 MULTIBEAM SYSTEM.
    NAVIGATION SYSTEMS: INTEGRATED I2NS INERTIAL NAVIGATION SYSTEM. IN REAL TIME KINEMATIC (RTK)MODE.
    SURVEY ACQUISITION SOFTWARE: HYPACK VERSION 2018A
    SURVEY PROCESSING SOFTWARE: HYPACK/HYSWEEP VERSION 2018A
    CTD CAST WERE TAKEN DURING ACQUISITION FOR ACCURATE SPEED OF SOUND PROFILES USING AN AML BASE X2 AS WELL AS A AML MICRO-X SOUND VELOCITY PROBE AT THE HEAD.
12. THE INFORMATION PRESENTED ON THIS DRAWING REPRESENTS THE RESULTS OF A SURVEY PERFORMED BY MCKIM & CREED ON JULY 1-31, 2018 AND CAN ONLY BE CONSIDERED AS INDICATING THE CONDITIONS EXISTING AT THAT TIME. BECAUSE THESE CONDITIONS MAY BE SUBJECT TO RAPID CHANGE DUE TO SHOALING EVENTS, A PRUDENT MARINER SHOULD NOT RELY EXCLUSIVELY ON THE INFORMATION PROVIDED HERE. REUSE OF THIS INFORMATION BY CLIENT OR OTHERS BEYOND THE SPECIFIC SCOPE OF WORK FOR WHICH IT WAS ACQUIRED SHALL BE AT THE SOLE RISK OF THE USER AND WITHOUT LIABILITY TO MCKIM & CREED.

| NSRS/NGS CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: TROY DAM 1 | PID# BBDR68 | NORTHING | EASTING |
| ELEVATION: 25.32' NAVD 88 | | 1,428,037.76 | 709,760.15 |

| LOCAL CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: HR-12 | PID# | NORTHING | EASTING |
| ELEVATION: 8.67' NAVD 88 | | 1,318821.55 | 684451.34 |
| STAMPED: HR-12 2016 | | | |

| LOCAL CONTROL DATA | | | |
|---|---|---|---|
| BENCHMARK: 01-1 | PID# | NORTHING | EASTING |
| ELEVATION: 3.87' NAVD 88 | | 1,124,859.59 | 641003.46 |
| STAMPED: | | | |

STATE OF NEW YORK
RAYMOND B. O'BRIEN
No. 49350
LICENSED LAND SURVEYOR

US Army Corps of Engineers ®
New York District

| MARK | DESCRIPTION | DATE | APPR. |
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| MARK | DESCRIPTION | DATE | APPR. |
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DESIGNED BY:
DRAWN BY: MBH
CHKD BY: RBD
SUBMITTED BY: DLJ
PLOT SCALE: 1:100'
PLOT DATE: 11/6/2018
SIZE: ANSI F
DATE: JULY 31, 2018
SOLICITATION NO.:
CONTRACT NO.: W912DS-14-D-0004
ISSUE DATE: NOV 2018
FILE NUMBER:
FILE NAME: VH101-058890063_HUDSON_MB.DGN

U.S. ARMY CORPS OF ENGINEERS
NEW YORK DISTRICT
NEW YORK, NY

McKIM & CREED
243 NORTH FRONT STREET
WILMINGTON, NORTH CAROLINA 28401
TELEPHONE: (910) 251-8444
FAX: (910) 251-8282

# HYDROGRAPHIC CONDITIONS SURVEY
## HUDSON RIVER FEDERAL NAVIGATION CHANNEL
## REACH 63

SHEET IDENTIFICATION
VH-203
SHEET 103 OF 103