2015 LAKE MANAWA DREDGING
IOWA DNR PROJECT # 14-04-78-03

AUTHORIZATION TO BID
3-31-15
8/3/15

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CONSTRUCTION NOTES:
1. THE LOCATION OF ALL OVERGROUND AND UNDERGROUND UTILITY FACILITIES ARE APPROXIMATE OR MAY NOT BE INDICATED ON THESE PLANS. UNDERGROUND FACILITIES, WHETHER INDICATED OR NOT, SHALL BE LOCATED AND CAVED OUT BY THE CONTRACTOR. ALL UTILITY COMPANIES ARE NOTIFIED BEFORE WORK IS STARTED. VARIOUS UTILITY LOCATIONS BY CONTRACTORS OWNERS CALL 211 OR AT 515.249.0776. CONTRACTORS ARE RESPONSIBLE FOR NOT CAVING OUT OTHER FACILITIES. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT ALL EXISTING UTILITY, PARALLEL STRUCTURES, PIPES, POLES, WOODS, TREES, BRIDGE SPANS, WIRE, Rigid hemo, SUN, GRAVE AND OTHER IMPROVEMENTS NOT DESIGNATED FOR REMOVAL, ANY DAMAGE CAUSED BY THE CONTRACTORS OPERATIONS SHALL BE REPAIRED BY THE CONTRACTORS EXPENSE.
2. WATER LEVEL CONTOURS SHOWN ON THE PLANS ARE 2 INTERVALS. REMAINING UPLAND CONTOURS ENLARGED ON THE PLANS ARE 2 INTERVALS ASSUMED FROM SURVEY DATA. ELEVATIONS CALLED OUT ON THE PLANS ARE REFERENCED TO NAVIGATIONAL Datum. PERCENTAGE CONTROL IS SHOWN ON THE PLANS.
3. CLEARING AND DREDGING TO BE PERFORMED ONLY IN LOCATIONS ABSOLUTELY NECESSARY TO CONSTRUCT AND ACCESS THE SITE BUILDING. ONE 300 FEET X 300 FEET METERED AREA MAY BE RESIZED. CONTRACTOR SHALL LIMIT CONSTRUCTION OPERATIONS WITHIN THE CONSTRUCTION AREA BOUND OUTLINES.
4. LIMITS OF CONSTRUCTION SHALL BE WITHIN STAGING AREAS AND AREAS IDENTIFIED BY THE PLANS OR IN PROGRESS IN CONTRACTORS SUBMITTED ALTERNATIVE.
5. CONTRACTOR IS SUBJECT TO PERMITS WHERE REQUIRED BY NATIONAL OR FIELD ENGINEER. CONTRACTOR SHALL NOT BE RESPONSIBLE FOR ADDITIONAL, MISSING OR CLEARING AND DREDGING UNLESS ALTERNATIVE LIMITS AND APPROACH defined TO CONSTRUCTION.
6. ALL PUBLIC WORKS NOT CONSTRUCTION ACTIVITIES MUST BE RECORDED FROM THE SITE UPON PROJECT COMPLETION. ALL REQUIRED WORKS ARE TO BE RESTORED TO ORIGIANAL CONDITIONS BY SMOOTHING COMPACTED SOIL TO ARTIFICIAL GRAVING AND DREDGING WITH PROPERTY OWNERS APPROVAL. AREAS OF work EQUIPED PRIOR TO THE DREDGING SEASON MUST BE RESTORED TO THEIR ORIGINAL CONDITIONS.
7. THE CONTRACTOR SHALL LEFT ALLOW LIMING OF WATER IN THE CONSTRUCTION AREA OUTSIDE OF THE NAVIGATION POOL AT ANY TIME, WITHOUT ALL EXISTING EXCHANGE PATTERNS.
8. THE CONTRACTOR SHALL CONSIDER ALL OPERATIONS AND MANAGE CONSTRUCTION WORK AREA IN A SAFE MANNER IN ACCORDANCE WITH IOWA REGULATIONS.
9. CONTRACTOR TO COORDINATE WITH USG AND ISD WITH POTENTIAL MODIFICATIONS TO THE LIMITS OF CONSTRUCTION BASED ON FIELD CONDITIONS.

ABBREVIATIONS
O/A - OVERVIEW
D - DISTANCE
F - FLOODLINE
LS - LANDMARK
V - VARIOUS
T - TYPICAL
S - SURFACE
F - FURROW
D - DRAINAGE
T - THRESHOLD
P - PIGEON
SP - SWEEP
SL - SLOPE
BR - BRIDGE
PL - PUMP
LEGEND
- EXISTING MAJOR CONTOURS
- EXISTING MINOR CONTOURS
- TARGET POOL ELEVATION
- AMP CORRIDOR BOUNDARY
- ARM'S LENGTH WATERMARK
- DREDGED MATERIAL MARK
- DREDGING PERMIT MARK
- DREDGING PERMIT MARK
- S - SINKHOLE FORCE MAIN
- DREDGED MATERIAL MARK

CONTACT INFORMATION
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DIMENSIONS:
LENGTH: 1000
WIDTH: 1000
HEIGHT: 1000
RESOLUTION: 1000
UNIT: MILLIMETERS
DATE: 08/03/15
081
1

1.25"=1'-0"
INSTALL INSTRUMENTATION UNDER PEDESTRIAN BRIDGE ACCORDING TO SHEET 6

INSTALL INSTRUMENTATION UNDER HWY 275/92 BRIDGE ACCORDING TO SHEET 6

INSTALL INSTRUMENTATION IN EXISTING MANHOLE ON MOSQUITO CREEK DIVERSION PIPE ACCORDING TO SHEET 6

SEE SHEET 8 FOR PIEZOMETER REPAIRS AND INSTRUMENTATION (TYP)
DREDGING NOTES:
1. DREDGED MATERIAL FROM IDENTIFIED DREDGING AREA TO ACHIEVE MATERIAL NEEDS DESCRIBED IN SPECIFICATIONS.
2. SEE SHEET 8 FOR SOIL BORING INFORMATION.
3. ENTIRE DREDGING AREA TO BE DREDGED TO ACHIEVE LAKE DEPTHS GREATER THAN 8 FT BELOW PLANNED PERMANENT LAKE ELEVATION OF 967.0 AND NO DEEPER THAN 16 FT UPON COMPLETION OF THE PROJECT. TEMPORARY DEPTHS OUTSIDE THIS RANGE DURING CONSTRUCTION ARE ACCEPTABLE.
4. ANY DREDGE DISCHARGE PIPING OUTSIDE THE LAKE TO BE PLACED WITHIN PIPE CORRIDORS IDENTIFIED ON PLANS. ANY PIPE TO CROSS EXISTING ROADS, SIDEWALKS OR TRAILS TO BE BORED THROUGH THE EMBANKMENT. DO NOT PLACE PIPE WITHIN EXISTING PARKING LOTS.
5. CONTRACTOR'S DREDGING PLAN (NB) PROJECT SPECIFICATIONS TO BE STRICTLY ADHERED TO UNLESS WRITTEN ACCEPTANCE OF MODIFIED PLAN IS RECEIVED FROM FIELD ENGINEER.

BUOY NOTES:
1. PROTECT DREDGE EQUIPMENT AT ALL TIMES WHEN PLACED IN THE WATER.
2. BUOY LINES TO BE PLACED AROUND AREA WHERE DREDGE IS IN USE AT A DISTANCE OF 30 FT OR MORE PERIMETER OF DREDGE AREA. TEMPORARY DREDGE ZONE NO BUOYS TO BE 30 FT OR LESS CAN BE CROSSED TO ACCOMPLISH BUOY PLACEMENT.
3. BUOY LINES TO BE PLACED ALONG EACH SIDE OF THE DREDGE PIPE AT A DISTANCE OF 30 FT OR MORE PERIMETER.
4. BUOY LINES TO BE PLACED AROUND THE EXISTING CANAL. DREDGE ZONE CAN BE CROSSED TO ACCOMPLISH BUOY PLACEMENT.
5. DREDGE ZONE TO BE 30 FT OR LESS CAN BE CROSSED TO ACCOMPLISH BUOY PLACEMENT.
6. CONTRACTOR'S IN-LAKE BUOY PLAN TO BE STRICTLY ADHERED TO UNLESS WRITTEN ACCEPTANCE OF MODIFIED PLAN IS RECEIVED FROM FIELD ENGINEER.
STOCKPILE NOTES:

1. CONSTRUCT BERM NECESSARY USING MATERIAL WITHIN THE STOCKPILE SITE TO CONFORM ALL DREDGE MATERIAL AND WATER WITHIN THE LIMITS OF THE STOCKPILE AREA.

2. LIMITS OF STOCKPILE AREA CAN BE SLIGHTLY ADJUSTED (EXCEPT TO THE SOUTH) UPON CONTRACTOR REQUEST AND ENGINEERS WRITTEN APPROVAL.

3. FIELD SURVEY TO PROVIDE TOPOGRAPHIC SURVEY AFTER ANY INITIAL BERM DREDGING PRIOR TO DREDGING TO PROVIDE A WEEKS NOTICE TO FIELD ENGINEER PRIOR TO INITIAL DREDGING AND EXCEPT 4-2 DAY WORK PERIOD FOR SURVEYING.

4. PLACE ALL DREDGE MATERIALS WITHIN THE LIMITS OF PIPE CORRIDOR BOUNDARIES. ANY PIPE CROSSING AN EXISTING ROAD OR TRAIL TO BE BORED THROUGH THE EMBANKMENT.

5. CONTRACTOR TO DEVELOP DRAINAGE SYSTEM WITHIN STOCKPILE SITE TO DEWATER ANY LACUSTRINE MATERIAL TO EXPEDITE DRYING TIME. DEWATERING OF THE TARGETED SANDS WILL BE IDENTIFIED IN CONTRACTOR'S DREDGING PLAN. IF SAND IS ADEQUATELY DEWATED IN A STAGING AREA, FURTHER STOCKPILE AREA DEWATERING MAY NOT BE NEEDED.

7. CONTRACTOR TO SELECT METHOD TO RETURN WATER TO LAKE MANAWA, EITHER BY PUMPING OR GRAVITY FLOW.

8. LIMIT STOCKPILE HEIGHT TO 35 FT MAXIMUM.

9. ALL DREDGE WATER TO BE RETURNED TO LAKE MANAWA. NO WATER TO BE DISCHARGED INTO NEIGHBORING WATER BODIES THAT DO NOT DRAIN TO LAKE MANAWA.

10. CONTRACTOR TO DEVELOP DRAINAGE SYSTEM WITHIN STOCKPILE AREA TO DRAIN ALL LACUSTRINE MATERIAL. SDOT TO DETERMINE THE FINAL DRAINAGE SYSTEM.

11. CONTRACTOR TO SELECT METHOD TO RETURN WATER TO LAKE MANAWA, EITHER BY PUMPING OR GRAVITY FLOW.

12. CONTRACTOR TO DEVELOP DRAINAGE SYSTEM WITHIN STOCKPILE AREA TO DRAIN ALL LACUSTRINE MATERIAL. SDOT TO DETERMINE THE FINAL DRAINAGE SYSTEM.
UNNAMED TRIBUTARY CURRENTLY FLOWS TO MISSOURI RIVER. IF ROUTE IS SELECTED, TEMPORARY MEASURE TO BE TAKEN TO REVERSE DIRECTION OF FLOW TO MANAWA. MUST MAINTAIN ABILITY TO OVERFLOW BACK TO MISSOURI IN TIMES OF HIGH LAKE ELEVATIONS OR RAIN EVENTS.

EXISTING TRIBUTARY AS GRAVITY FLOW ROUTE OPTION

EXISTING DITCH WITH AVAILABLE STORAGE AS GRAVITY FLOW ROUTE OPTION

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EXISTING DITCH - AS GRAVITY FLOW ROUTE OPTION
OPERATION NOTES:
1. CONTRACTOR IS RESPONSIBLE FOR MAINTENANCE OF ALL DEVICES UNTIL THE FINAL COMPLETION DATE. INCLUDES ADDITIONAL BATTERIES AND/or CHARGING BATTERY SYSTEM FOR EACH DEVICE.
2. OWNER AND/OR FIELD ENGINEER IS RESPONSIBLE FOR DOWNLOADING DATA FROM THE DEVICES.

INSTALLATION NOTES:
1. THE ISCO 2150 FLOW MODULE AND 2160 LASERFLOW SYSTEM INCLUDE THE FLOW /2191 BATTERY MODULE - ANY APPROVED EQUAL MUST CONTAIN ALL SIMILAR COMPONENTS.
2. INDICATIONS SHOWN IN THIS SHEET ARE TO BE CONSIDERED AS GENERAL GUIDELINES. CONTRACTOR TO COORDINATE INSTALLATION WITH IDNR PARK STAFF AND FIELD ENGINEER. INSTALLATION OF DEVICES WILL REQUIRE ADDITIONAL RESOURCE.
3. LOCATIONS AND PLACEMENT OF FLOW MODULE TO BE COORDINATED WITH FIELD ENGINEER.
4. INSTALL FLOW MODULE (ISCO 2150 AREA FLOW MODULE OR APPROVED EQUIVALENT) AND APPURTENANCES PER MANUFACTURER'S SPECIFICATIONS IN INDIAN CREEK BELOW THE HWY 275 BRIDGE CROSSING.
5. INSTALL TIPPING BUCKET RAIN GAUGE SYSTEM, ISCO 667 WITH 2105 NETWORK INTERFACE, OR APPROVED EQUAL, ON A GALVANIZED STEEL POLE MOUNTED TO MOSQUITO CREEK MANHOLE. DATA MODULE TO INTERFACE WITH LASERFLOW SYSTEM LOCATED IN MANHOLE. MODIFICATIONS TO MANHOLE FOR PROPER INSTALLATION TO BE COORDINATED WITH FIELD ENGINEER.
6. INSTALL LAKE LEVEL PIEZOMETER AND STAFF GAUGE ON DOCK PER DETAILS ON SHEET 8.
7. INSTALL DATA LOGGER IN EXISTING PIEZOMETER PER DETAILS ON SHEET 8 (TYP).
8. INSTALL FLOW MODULE (ISCO 2150 AREA FLOW MODULE OR APPROVED EQUIVALENT) AND APPURTENANCES PER MANUFACTURER'S SPECIFICATIONS IN MOSQUITO CREEK BELOW THE HWY 275 BRIDGE CROSSING.

INSTRUMENTATION PLAN
2015 LAKE MANAWA DREDGING
POTTAWATTAMIE COUNTY, IOWA
IOWA DEPARTMENT OF NATURAL RESOURCES
2015

TARGET POOL ELEVATION = 967

INSTALL LAKE LEVEL PIEZOMETER AND STAFF GAUGE ON DOCK PER DETAILS ON SHEET 8

INSTALL FLOW MODULE (ISCO 2150 AREA FLOW MODULE OR APPROVED EQUIVALENT) AND APPURTENANCES PER MANUFACTURER'S SPECIFICATIONS IN INDIAN CREEK BELOW THE PEDESTRIAN BRIDGE CROSSING.

INSTALLATION NOTES:
1. THE ISCO 2150 FLOW MODULE AND 2160 LASERFLOW SYSTEM INCLUDE THE FLOW /2191 BATTERY MODULE - ANY APPROVED EQUAL MUST CONTAIN ALL SIMILAR COMPONENTS.
2. INSTALLATION OF DEVICES WILL REQUIRE ADDITIONAL RESOURCE.
3. LOCATIONS AND PLACEMENT OF FLOW MODULE TO BE COORDINATED WITH FIELD ENGINEER.
4. INSTALL FLOW MODULE (ISCO 2150 AREA FLOW MODULE OR APPROVED EQUIVALENT) AND APPURTENANCES PER MANUFACTURER'S SPECIFICATIONS IN INDIAN CREEK BELOW THE PEDESTRIAN BRIDGE CROSSING.
5. INSTALL TIPPING BUCKET RAIN GAUGE SYSTEM, ISCO 667 WITH 2105 NETWORK INTERFACE, OR APPROVED EQUAL, ON A GALVANIZED STEEL POLE MOUNTED TO MOSQUITO CREEK MANHOLE. DATA MODULE TO INTERFACE WITH LASERFLOW SYSTEM LOCATED IN MANHOLE. MODIFICATIONS TO MANHOLE FOR PROPER INSTALLATION TO BE COORDINATED WITH FIELD ENGINEER.
6. INSTALL LAKE LEVEL PIEZOMETER AND STAFF GAUGE ON DOCK PER DETAILS ON SHEET 8.
7. INSTALL DATA LOGGER IN EXISTING PIEZOMETER PER DETAILS ON SHEET 8 (TYP).
8. INSTALL FLOW MODULE (ISCO 2150 AREA FLOW MODULE OR APPROVED EQUIVALENT) AND APPURTENANCES PER MANUFACTURER'S SPECIFICATIONS IN MOSQUITO CREEK BELOW THE HWY 275 BRIDGE CROSSING.
ALL WP PREFIX BORINGS WERE FROM REPORT STP-275-3(27)-2C-78 AUGUST 31, 2004 AND ALL TB PREFIX BORINGS ARE FROM REPORT IM-029-3(62)54-1C-78 JANUARY 30, 2007. ELECTRONIC VERSIONS ARE AVAILABLE UPON REQUEST.

BORINGS INTERPRETATION IN DREDGE VICINITY

WP 9 WP 10 WP 11 WP 15 WP 16 WP 17 WP 18

TARGET POOL ELEVATION 967

LACUSTRINE DEPOSIT (TYP)

SILT/SAND (TYP)

FINES (TYP)

99%

80%

98%

6%

1%

2%

2%

9%

WP 18

WP 17

WP 16

WP 15

WP 11

WP 10

WP 9

SAND (TYP)
STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

1. INSTALL SWPPP BEST MANAGEMENT PRACTICES (BMPs) PRIOR TO GRADING OPERATIONS. THE CONTRACTOR SHALL COMPLY WITH THE PROCEDURES SET FORTH ON THESE PLANS.

2. STONE SIZE - USE 2" STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.

9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

8. WASHING - WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-OF-WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON A RESIDENCE STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.

7. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.

IF PIPING IS IMPractical, A MOUNTABLE BERM WITH 5H:1V SLOPES WILL BE PERMITTED.

6. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE.

5. FILTER CLOTH - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE. FILTER WILL NOT BE REQUIRED ON A SINGLE FAMILY RESIDENCE LOT.

4. WIDTH - TWENTY FIVE (25) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.

3. THICKNESS - NOT LESS THAN SIX (6) INCHES.

2. LENGTH - AS REQUIRED, BUT NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD BE REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.

1. "SOIL" IS DEFINED AS MATERIAL WITH A PUNCTURE STRENGTH NOT LESS THAN 90 LBS. FOR NON-URBAN COVERS AND 180 LBS. FOR URBAN COVERS. Silt fence shall be kept in good repair during the life of this contract. Maintenance of all erosion control items is to be performed by the contractor.

CONSTRUCTION SPECIFICATIONS

1. STONE SIZE - USE 2" STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.

2. LENGTH - AS REQUIRED, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.

3. THICKNESS - NOT LESS THAN 60 INCHES.

4. WIDTH - TYPICALLY FIVE (5) FOOT WIDTH, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.

5. FILTER CLOTH - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE. FILTER WILL NOT BE REQUIRED ON A SINGLE FAMILY RESIDENCE LOT.

6. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE.

7. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE_removed IMMEDIATELY.

8. WASHING - WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-OF-WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON A RESIDENCE STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.

9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.