These data and related items of information have not been formally disseminated by NOAA, and do not represent any agency determination, view, or policy.









Herpetological Resource and Management 1101 S. Main Street Suite #110 Chelsea, MI 48118 Phone: (517)522-3524





NOT TO SCALE

PROJECT DESIGN FUNDED BY THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION THROUGH GREAT LAKE RESTORATION INITIATIVE GRANT. #NA13NMF4630230 PROJECT CONSTRUCTION FUNDED BY THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION THROUGH GREAT LAKE RESTORATION INITIATIVE GRANT. #NA16NMF4630342

DETROIT RIVER AOC- CELERON ISLAND HABITAT RESTORATION PROJECT

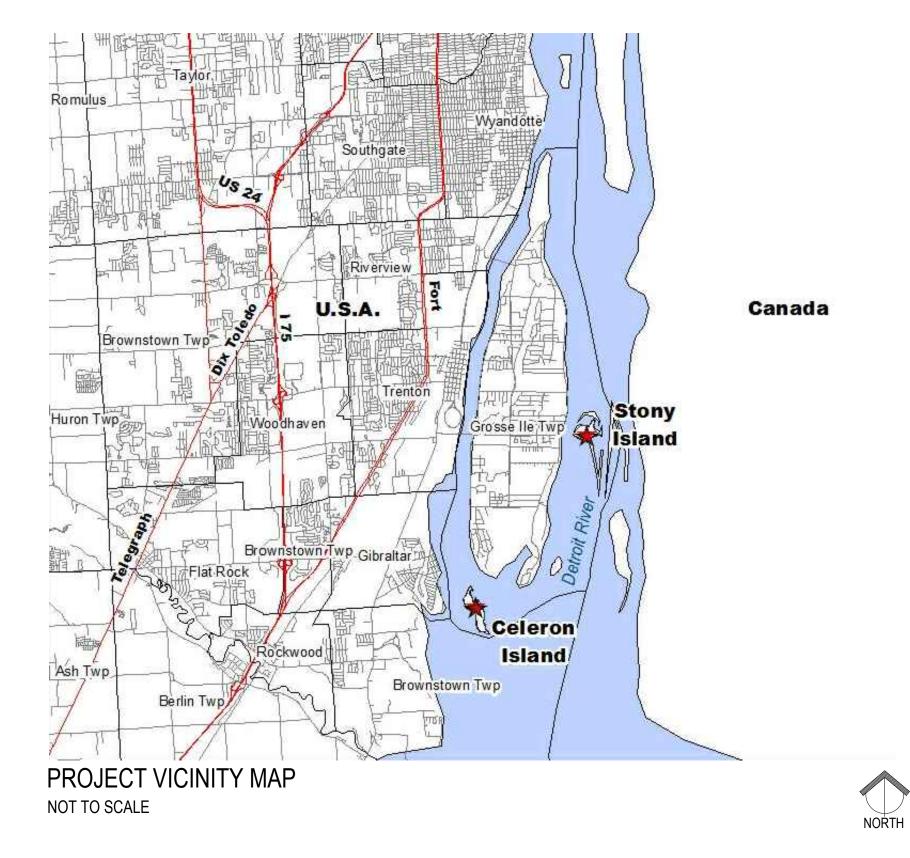
CELERON ISLAND





GREAT LAKES RESTORATION INITIATIVE (GLRI) PROJECT # NA16NMF4630342

FOR BID - AUGUST 2017





DRAWING INDEX

- **COVER SHEET**
- **EXISTING CONDITIONS**
- SITE PLAN OVERVIEW
- NORTH SITE PLAN
- SOUTH SITE PLAN
- SHOAL PROFILES
- **TYPICAL SECTIONS**
- HABITAT STRUCTURE DETAILS
- **PROJECT NOTES** 9.

SURVEY PROVIDED BY SMITHGROUP JJR, JANUARY 2014

EXISTING CONDITIONS NOTES:

- 1. THE CONTRACT DOCUMENTS REFLECT SURVEYS AND ELEVATIONS AT THE WORK AREA AS FOUND IN CONDITIONS SURVEYS MADE AS STATED ON THE DRAWINGS. THE CONDITIONS SHOWN ARE INDICATIVE OF THOSE THAT PREVAILED AT THE TIME OF THE SITE INVESTIGATIONS AND MAY BE DIFFERENT THAN THOSE AT THE TIME OF CONSTRUCTION. GENERAL LOCATIONS OF APPLICABLE EXISTING UTILITIES, VEGETATION, STRUCTURES, EQUIPMENT AND IMPROVEMENTS, BASED UPON LATEST INFORMATION AVAILABLE HAVE BEEN SHOWN ON THE DRAWINGS.
- 2. UTILITY LINES, VEGETATION, STRUCTURES, EQUIPMENT OR IMPROVEMENTS SHALL BE PROTECTED FROM DAMAGE, AND IF DAMAGED, SHALL BE REPAIRED BY THE CONTRACTOR AT ITS OWN EXPENSE.
- THE WATER SURFACE ELEVATION AT THE TIME OF THE SURVEY IS SHOWN ON THE PROJECT DRAWINGS. WATER LEVELS HAVE FLUCTUATED SINCE THE SURVEY WAS CONDUCTED. CONTRACTOR TO USE BEST AVAILABLE INFORMATION TO UNDERSTAND THE CONDITIONS OF THE WATER LEVELS.
- 4. SEE ALSO WATER LEVEL NOTES, THIS SHEET.
- 5. CONTRACTOR TO CONDUCT BATHYMETRIC SURVEY PRIOR TO CONSTRUCTION AND TO NOTIFY ENGINEER OF ANY SIGNIFICANT DIFFERENCES IN DATA FROM THAT WHICH IS SHOWN HERE.

SURVEY NOTES:

- 1. HORIZONTAL DATUM IS ACCORDING TO MICHIGAN STATE PLANE COORDINATES, SOUTH ZONE (2113). INTERNATIONAL FEET AS LINEAR UNIT OF MEASURE.
- 2. VERTICAL DATUM IS ACCORDING TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88), WITH PRIMARY BENCHMARKS AND DATUM CONVERSIONS LISTED HEREON.
- 3. THIS SURVEY DOES NOT CONSTITUTE A TITLE SEARCH BY THE SURVEYOR. ALL INFORMATION REGARDING LAND BOUNDARY, EASEMENTS, AND OTHER INFORMATION THAT MAY AFFECT TITLE WAS GAINED FROM A CLIENT PROVIDED ALTA SURVEY, PROPERTY INFORMATION REFERENCE.
- 4. NO UNDERGROUND UTILITIES WERE RESEARCHED AS PART OF THIS EFFORT. NO EXCAVATIONS WERE MADE AS PART OF THIS SURVEY TO LOCATE BURIED STRUCTURES AND OR UTILITIES.
- 5. SUBSURFACE AND ENVIRONMENTAL CONDITIONS WERE NOT EXAMINED AND ARE NOT CONSIDERED A PART OF THIS SURVEY. NO STATEMENT IS MADE CONCERNING THE EXISTENCE OF UNDERGROUND OR OVERHEAD CONTAINERS OR FACILITIES THAT MAY AFFECT THE USE AND OR DEVELOPMENT OF THIS SITE.
- 6. SMITHGROUPJJR PERFORMED A BATHYMETRIC SURVEY OF A PORTION OF THE DETROIT RIVER, ADJACENT TO CELERON ISLAND, AS ILLUSTRATED HEREON. THE RESULTANT ONE-FOOT CONTOURS ARE BASED ON SOUNDINGS, COMBINED WITH SHORE TOPOGRAPHY COLLECTED USING GLOBAL POSITIONING RECEIVERS REFERENCING THE MICHIGAN CONTINUOUSLY OPERATING REFERENCE SYSTEM (CORS) FOR PROJECT SITE CONTROL.

BENCH MARKS:

PRIMARY BENCHMARK NO. 82624 (NGS):

NATIONAL GEODETIC SURVEY PRIMARY BENCHMARK (NGS PID# DI6435); HEIGHT MODERNIZATION STATION ALUMINUM DISC, SET FLUSH ON A 16" DIAMETER CONC. CYLINDAR, FLUSH WITH THE GROUND.

NORTHING= 223952.3878EASTING= 13446899.6702ELEVATION= 579.25 FEET (NAVD88)

PRIMARY BENCHMARK NO. H 115 X (NGS):

NATIONAL GEODETIC SURVEY PRIMARY BENCHMARK (NGS PID# NE0516); HEIGHT MODERNIZATION STATION ALUMINUM DISC, SET FLUSH ON A 16" DIAMETER CONC. CYLINDAR, FLUSH WITH THE GROUND.

NORTHING= 219063.3065EASTING= 13442499.9723ELEVATION= 581.68 FEET (NAVD88)

DATUM CONVERSIONS:

NAVD88 = IGLD85 + 0.27 FEET NAVD88 = NGVD29 - 0.56 FEET

FLOODPLAIN NOTES:

THE ENTIRETY OF STONY ISLAND LIES WITHIN FEMA FIRM ZONE AE, ACCORDING TO FEMA FIRM MAPS 26163C0535E AND 26163C0420E. COMMUNITY 260227, PANELS NO. 420 & 535 OF 575, MAP(S) REVISED FEBRUARY 2, 2012. THE FOLLOWING STATEMENTS APPLY:

ZONE AE IS DEFINED AS "BASE FLOOD ELEVATIONS DETERMINED."
FLOODWAY AREAS IN ZONE AE MUST BE KEPT FREE OF ENCROACHMENT SO THAT THE 1% ANNUAL CHANCE FLOOD CAN BE CARRIED WITHOUT SUBSTANTIAL INCREASES IN FLOOD HEIGHTS.



AERIAL PHOTO OF CELERON ISLAND



SURVEY LEGEND

EDGE OF WATER
 EDGE OF WATER
 EX. TOPO CONTOUR
 PROPERTY LINE

WATER LEVEL NOTES:

THE CONTRACTOR UNDERSTANDS AND ACKNOWLEDGES THAT THE PERFORMANCE OF THE WORK IS REQUIRED WITHIN THE DETROIT RIVER SYSTEM AND FLOODPLAIN AND THAT THE DETROIT RIVER WATER LEVEL FLUCTUATES FREQUENTLY. THE CONTRACTOR UNDERSTANDS AND ACKNOWLEDGES THAT THEY HAVE TAKEN INTO ACCOUNT THE POTENTIAL FOR ANY WATER LEVEL CHANGES THAT MIGHT OCCUR IN COSTING AND PERFORMING THE CONTRACT WORK. THEREFORE, THE CONTRACTOR ACKNOWLEDGES THAT ANY FLUCTUATION IN WATER LEVELS DURING/OVER THE COURSE OF THE PROJECT WILL MOST LIKELY HAPPEN AND DOES NOT CONSTITUTE A CHANGE IN CONDITIONS OR AN UNFORESEEN SITE CONDITION.

THE CONTRACTOR SHALL BE FULLY AWARE OF THE DETROIT RIVER HYDROLOGY AND CURRENT WEATHER CONDITIONS SO THAT WORK IN PROGRESS CAN BE SECURED AND PROTECTED, SO THAT SAFE JOB SITE WORKING CONDITIONS ARE MAINTAINED, AND SO THAT SOIL EROSION IS MINIMIZED.

THE CONTRACTOR ACKNOWLEDGES THAT DELAYS IN THE START OF, OR COMPLETION OF WORK DUE TO FLUCTUATIONS IN THE WATER LEVEL THROUGHOUT THE DURATION OF THE PROJECT SHALL NOT CONSTITUTE A CHANGE IN CONDITIONS NOR SHALL BE A BASIS FOR ANY EXTENSION OF TIME OR DAMAGES. IF THE CONTRACTOR SHALL BE UNAVOIDABLY DELAYED IN BEGINNING OR FULFILLING THIS CONTRACT BY REASONS OF CHANGING WATER LEVELS, EXCESSIVE STORMS OR FLOODS, THE CONTRACTOR SHALL HAVE NO VALID CLAIM FOR DAMAGES, BUT HE SHALL IN SUCH CASE BE ENTITLED TO AN EXTENSION OF TIME AS THE ENGINEER SHALL ADJUDGE TO BE JUST AND REASONABLE, PROVIDED THAT FORMAL CLAIM FOR AN EXTENSION OF TIME IS MADE IN WRITING BY THE CONTRACTOR WITHIN ONE WEEK OF THE ALLEGED DELAY.

3 WORKING DAYS

BEFORE YOU DIG

CALL MISS DIG

1-800-482-7171





DETROIT RIVER AOC- CELERON ISLAND HABITAT RESTORATION PROJECT

FRIENDS OF THE DETROIT RIVER

WAYNE COUNTY, MICHIGAN

 FOR BID
 08-2017

 100% DRAWINGS
 11-03-14

 PERMIT DRAWINGS
 10-07-14

 PRELIMINARY
 03-11-14

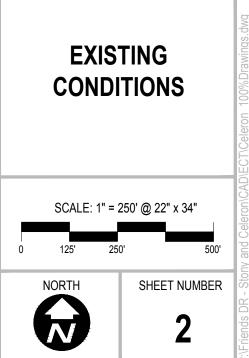
130638 ECT PROJECT NUMBER

AB/EC JO DESIGNED BY CHECKED BY

AB/EC DRAWN BY

APPROVED BY

SHEET TITLE



GENERAL NOTES

1. ALL WORK TO BE PERFORMED IN ACCORDANCE WITH THE MDEQ AND USACE PERMITS, AND ALL OTHER PERMITS ISSUED FOR THIS PROJECT.

STAGING AND ACCESS NOTES

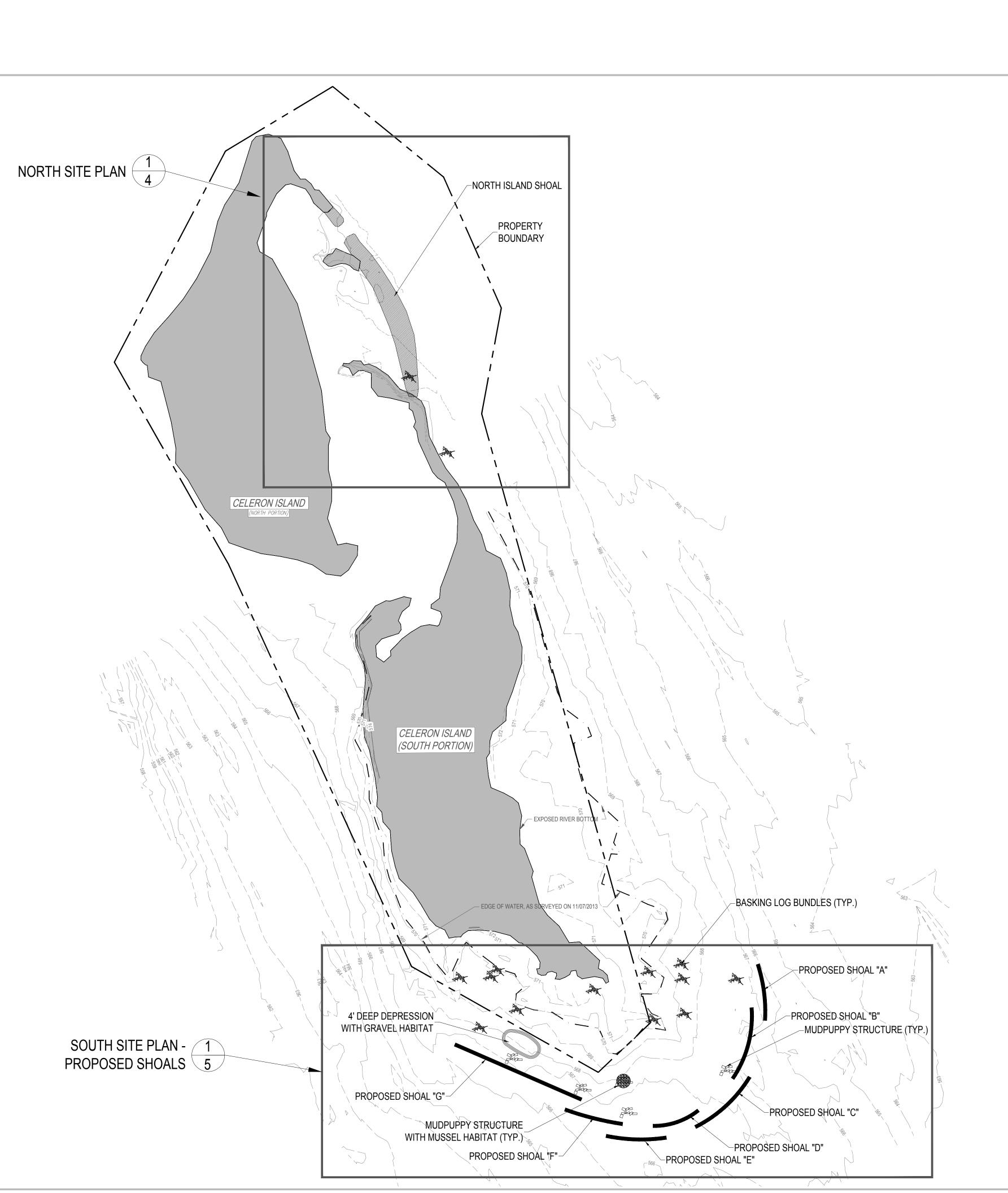
1. THE PROJECT TO BE ACCESSED AND CONSTRUCTED VIA THE RIVER. NO STAGING OR ACCESS ON THE ISLAND.

TURBIDITY CONTROL NOTES

1. NO WORK OR DREDGING WITHIN THE WATER IS ALLOWED FROM MAY 1 THROUGH JULY 30 WITHOUT THE USE OF A TURBIDITY CURTAIN/ CONTAINMENT. THIS RESTRICTION DOES NOT APPLY TO THE PLACEMENT OF CLEAN ROCK AND GRAVEL.

2. WHEN REQUIRED, TURBIDITY CURTAIN TO ENCLOSE THE WORK AREA ENTIRELY. CURTAIN TO BE INSTALLED TO EXTEND FROM THE BED OF THE WATER BODY TO A POINT ABOVE THE EXISTING WATER'S SURFACE.

3. WHEN USED, TURBIDITY CURTAIN TO BE MAINTAINED FOR THE DURATION OF THE PROJECT AND LEFT IN PLACE AFTER COMPLETION OF DREDGING UNTIL ALL DISTURBED SEDIMENTS HAVE SETTLED.



LEGEND — EDGE OF WATER — EDGE OF WATER EX. TOPO CONTOUR	Environmental Consulting & Consulting & Technology, Inc. 2200 Commonwealth Blvd, Suite 300 Ann Arbor, Michigan 48105 734.769.3004 734.769.3164 fax www.ectinc.com
PROPERTY LINE PROPOSED SHOAL	
MUDPUPPY STRUCTURE MUDPUPPY STRUCTURE WITH MUSSEL HABITAT BASKING LOG BUNDLES	Somat Engineering
	FRIENDS of the DETROFT RIVER Second
	DETROIT RIVER AOC- CELERON ISLAND HABITAT RESTORATION PROJECT
	FRIENDS OF THE DETROIT RIVER WAYNE COUNTY, MICHIGAN
	FOR BID 08-2017 100% DRAWINGS 11-03-14 PERMIT DRAWINGS 10-07-14 PRELIMINARY 03-11-14 <u>130638</u> ECT PROJECT NUMBER <u>AB/EC JO</u> DESIGNED BY CHECKED BY <u>AB/EC JO</u> DRAWN BY APPROVED BY
	SHEET TITLE SITE PLAN OVERVIEW
SURVEY PROVIDED BY SMITHGROUP JJR, JANUARY 2014	SCALE: 1" = 300' @ 22" x 34" 0 150' 300' 600'

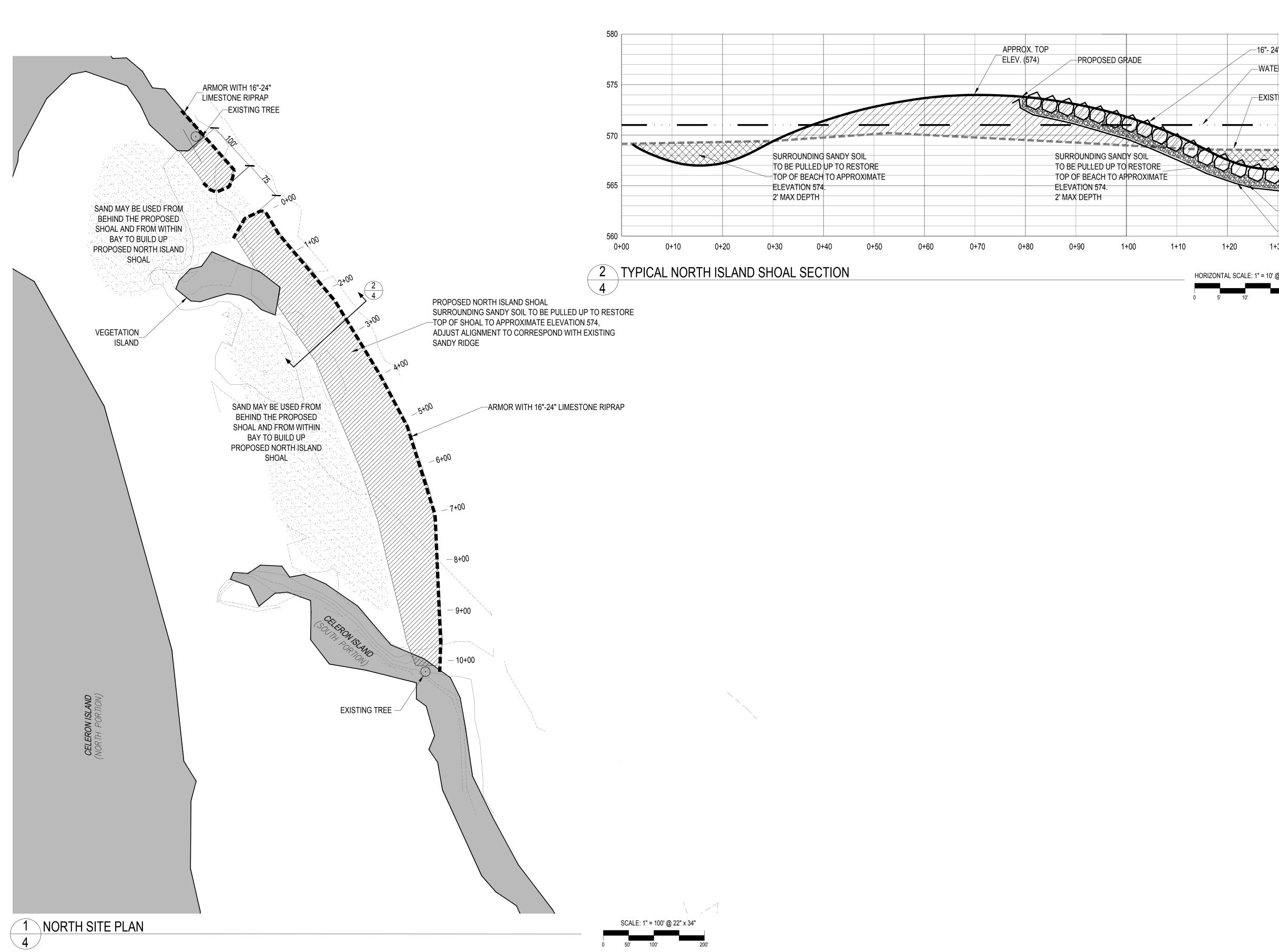
08-2017 11-03-14 10-07-14 03-11-14

SHEET NUMBER

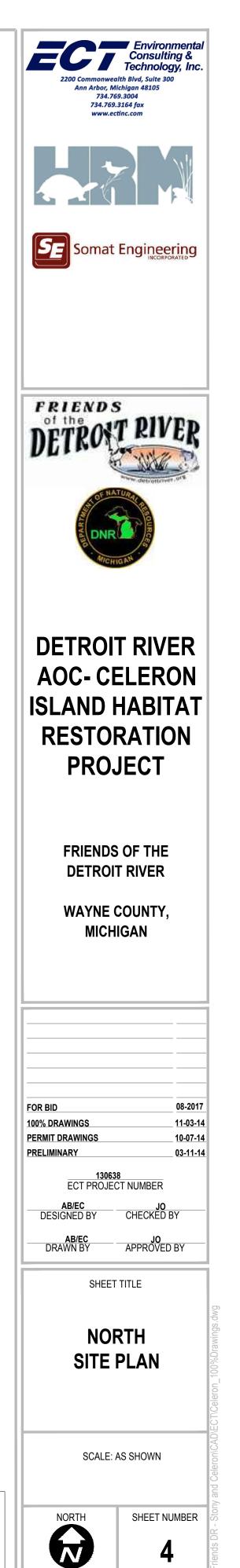
3

NORTH

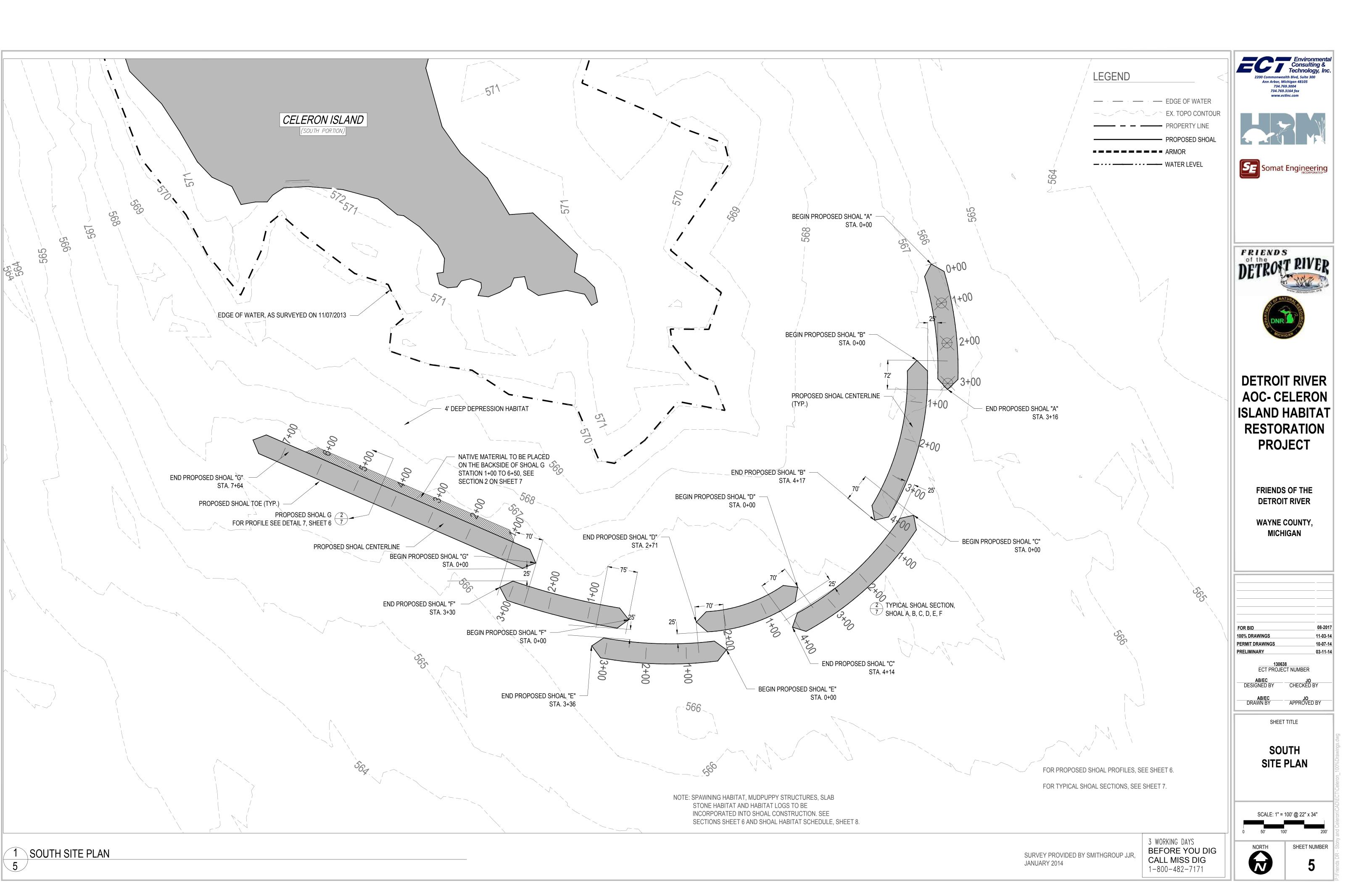
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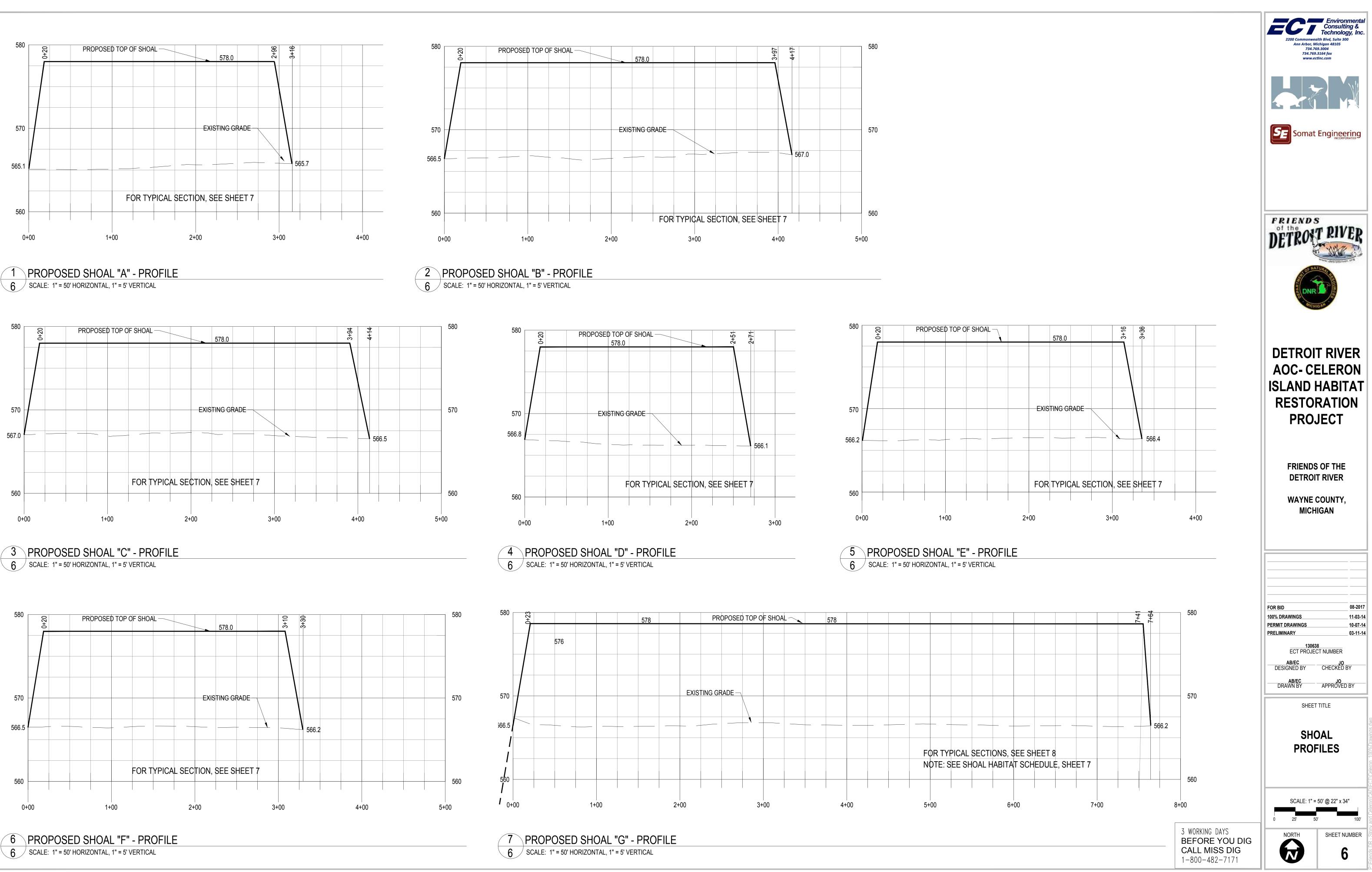


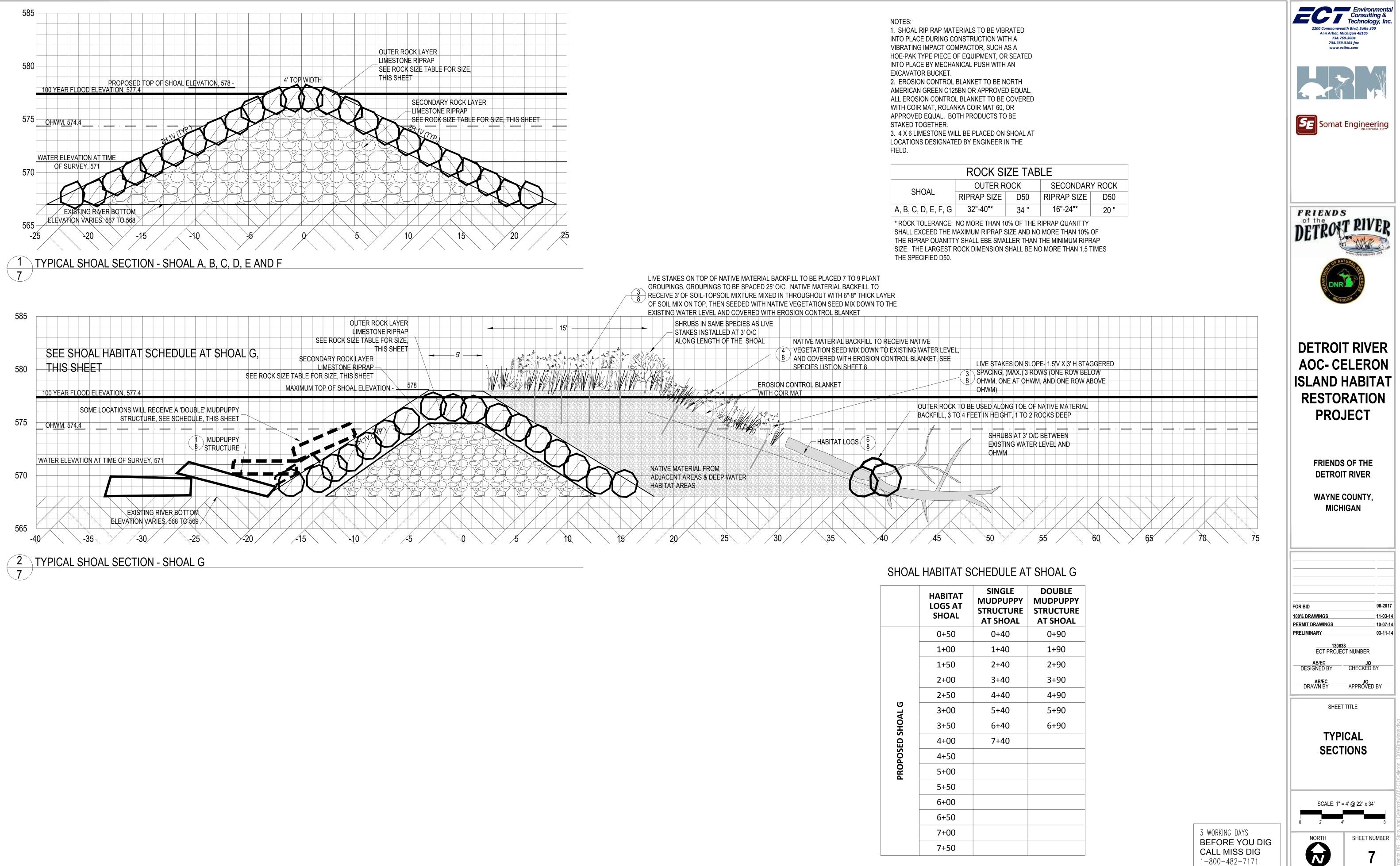
—16"- 24" LIMESTO	ONE RIPRAP		
-WATER LEVEL /	AT TIME OF SURVEY	(571)	
	R BOTTOM		
			-
		0	
	x 6 LIMESTONE GRAV		-
			-
1+30		+50 1+	60
	VERTICAL SCALE:		
20'	0 2.5' 5'	10'	
	LEGEND		
		EDGE OF	WATER
		EX. TOPC	
		PROPER	
		PROPOS	ED SHOAL
		WATER L	EVEL



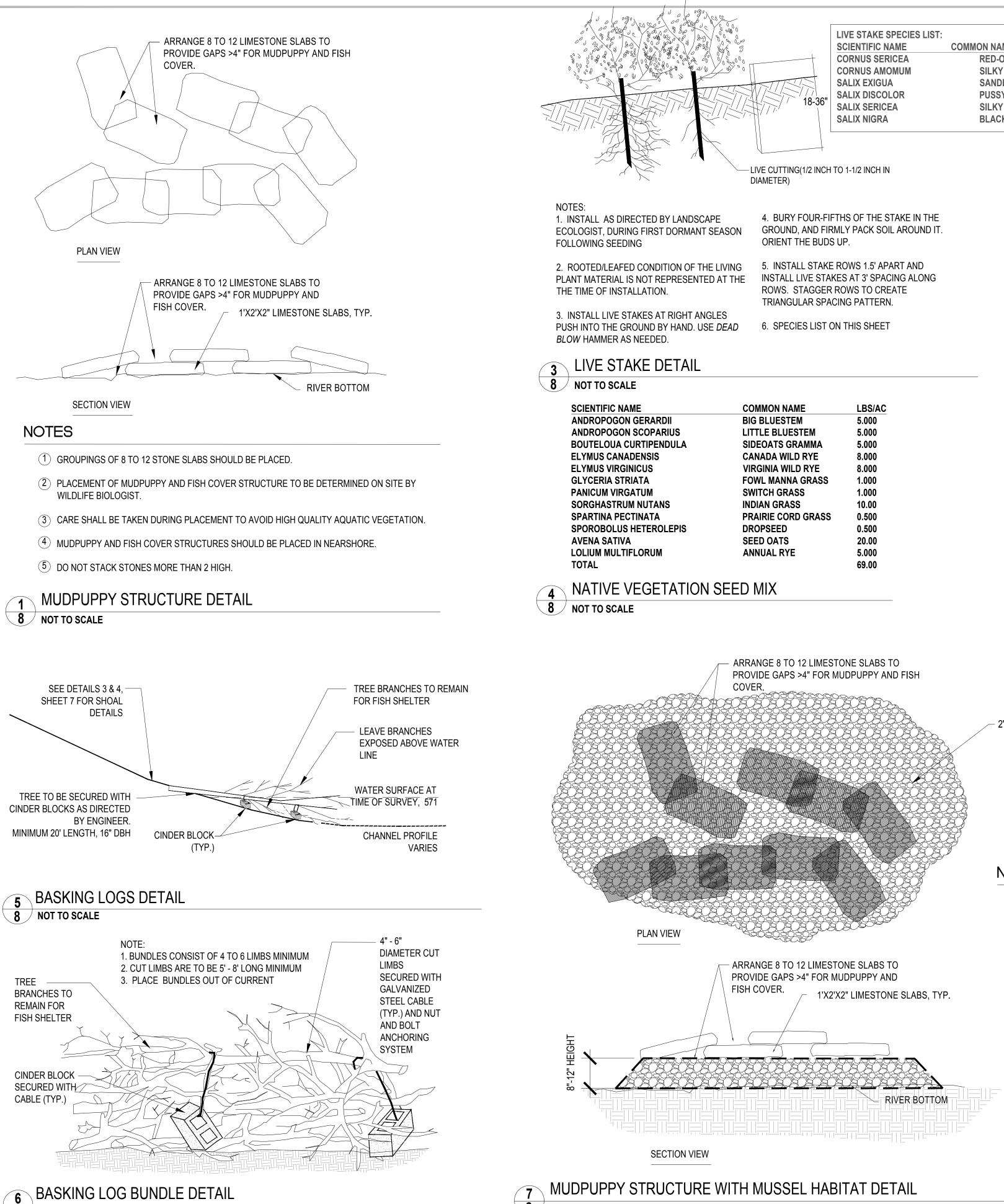
SURVEY PROVIDED BY SMITHGROUP JJR, JANUARY 2014







	HABITAT LOGS AT SHOAL	SINGLE MUDPUPPY STRUCTURE AT SHOAL	DO MUD STRU AT S
	0+50	0+40	0
	1+00	1+40	1
	1+50	2+40	2
	2+00	3+40	3
	2+50	4+40	4
AL G	3+00	5+40	5
ЮН	3+50	6+40	6
ED S	4+00	7+40	
POS	4+50		
PROPOSED SHOAL G	5+00		
-	5+50		
	6+00		
	6+50		
	7+00		
	7+50		



 $\mathbf{8}$ / NOT TO SCALE

8 NOT TO SCALE

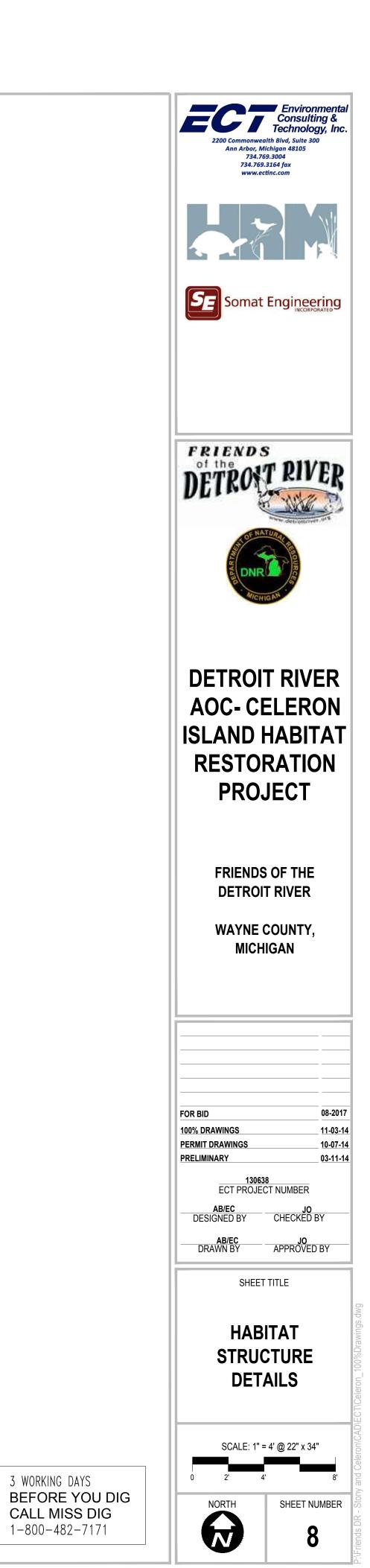
COMMON NAME **RED-OSIER DOGWOOD** SILKY DOGWOOD SANDBAR WILLOW PUSSY WILLOW SILKY WILLOW **BLACK WILLOW**

COMMON NAME	LBS/AC
BIG BLUESTEM	5.000
LITTLE BLUESTEM	5.000
SIDEOATS GRAMMA	5.000
CANADA WILD RYE	8.000
VIRGINIA WILD RYE	8.000
FOWL MANNA GRASS	1.000
SWITCH GRASS	1.000
INDIAN GRASS	10.00
PRAIRIE CORD GRASS	0.500
DROPSEED	0.500
SEED OATS	20.00
ANNUAL RYE	5.000
	69.00

- 2"-4" LIMESTONE

NOTES

- (1) GROUPINGS OF 8 TO 12 STONE SLABS SHOULD BE PLACED.
- (2) PLACEMENT OF MUDPUPPY AND FISH COVER STRUCTURE TO BE DETERMINED ON SITE BY WILDLIFE BIOLOGIST.
- (3) CARE SHALL BE TAKEN DURING PLACEMENT TO AVOID HIGH QUALITY AQUATIC VEGETATION.
- (4) MUDPUPPY AND FISH COVER STRUCTURES SHOULD BE PLACED IN NEARSHORE.
- 5 DO NOT STACK STONES MORE THAN 2 HIGH.



3 WORKING DAYS

1-800-482-7171

GENERAL NOTES:

1. UNDERGROUND UTILITIES: FOR PROTECTION OF UNDERGROUND UTILITIES AND IN CONFORMANCE WITH PUBLIC ACT 53, 1974, THE CONTRACTOR SHALL DIAL 1-800-482-7171 A MINIMUM OF THREE FULL WORKING DAYS, EXCLUDING SATURDAYS, SUNDAYS AND HOLIDAYS PRIOR TO BEGINNING EACH EXCAVATION IN AREAS WHERE PUBLIC UTILITIES HAVE NOT BEEN PREVIOUSLY LOCATED. MEMBERS WILL THUS BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING OWNERS WHO MAY NOT BE A PART OF THE "MISS DIG" ALERT SYSTEM.

2. SURVEY DATA PRESENTED IN THESE DRAWINGS WAS PROVIDED BY:

SMITHGROUP JJR 201 DEPOT STREET, SECOND FLOOR ANN ARBOR, MICHIGAN 48104 (734) 662-4457 (PH) (734) 662-7520 (FX)

DATE OF SURVEY: DECEMBER, 2013

SURVEY DATUM: NAVD 88 3. STORAGE OF EQUIPMENT AND CONSTRUCTION MATERIALS SHALL BE RESTRICTED TO DESIGNATED STAGING AREAS AS INDICATED ON THE PLANS, UNLESS OTHERWISE APPROVED BY ENGINEER.

4. ALL UTILITIES, CULVERTS AND BENCHMARKS SHALL BE PRESERVED DURING CONSTRUCTION ACTIVITIES UNLESS OTHERWISE SHOWN ON THE DRAWINGS. CONTRACTOR TO REPLACE DAMAGED UTILITIES, CULVERTS OR BENCHMARKS AT OWN EXPENSE

5. ALL CONSTRUCTION ACTIVITIES SHALL BE LIMITED TO LOCATIONS SHOWN ON THE DRAWINGS. WORK BEYOND THESE LIMITS SHALL BE AS DIRECTED BY ENGINEER

6. TRANSPORTATION OF EQUIPMENT AND MATERIALS TO/FROM THE SITE ON STATE HIGHWAYS AND TRUNK LINES SHALL CONFORM TO ALL LOCAL AND STATE TRAFFIC LAWS. CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS PERTAINING TO DELIVERY OF EQUIPMENT AND MATERIALS TO/FROM THE SITE. COSTS OF OBTAINING NECESSARY PERMITS IS INCIDENTAL TO THE WORK.

7. ALL WORK SHALL BE COMPLETED BETWEEN THE HOURS OF 7:00AM AND 7:00PM. ALL WORK SHALL BE COMPLETED MONDAY THROUGH SATURDAY.

8. CONSTRUCTION ACCESS TO THE SITES FOR ALL ACTIVITIES WILL BE AS INDICATED ON THE SITE PREPARATION PLAN. NO OTHER ACCESS IS ALLOWED WITHOUT WRITTEN PERMISSION FROM THE OWNER.

9. ALL MATERIALS REMOVED, EXCEPT WHERE OTHERWISE INDICATED ON THE PLANS, SHALL BE LEGALLY DISPOSED OF OFF SITE. 10. ALL WORK SHALL BE DONE TO MEET THE REQUIRMENTS OF THE MDEQ AND USACE PERMITS ISSUED FOR THIS PROJECT.

EXISTING SITE CONDITIONS:

1. CONTRACTOR SHALL BECOME FAMILIAR WITH ALL EXISTING SITE CONDITIONS PRIOR TO STARTING WORK. 2. THE CONTRACTOR UNDERSTANDS AND ACKNOWLEDGES THAT THE PERFORMANCE OF THE WORK IS REQUIRED WITHIN A RIVER

SYSTEM AND FLOODPLAIN.

3. THE CONTRACTOR SHALL BE FULLY AWARE OF THE DETROIT RIVER HYDROLOGY AND CURRENT WEATHER CONDITIONS SO THAT WORK IN PROGRESS CAN BE SECURED AND PROTECTED, SO THAT SAFE JOB SITE WORKING CONDITIONS ARE MAINTAINED, AND SO THAT SOIL EROSION IS MINIMIZED DURING AND FOLLOWING A RAIN EVENT.

4. THE CONTRACTOR ACKNOWLEDGES THAT DELAYS IN THE START OF OR COMPLETION OF WORK DUE TO TYPICAL SEASONAL RAINFALL AND DUE TO TYPICAL PERIODIC HIGH FLOWS IN MILLERS CREEK SHALL NOT CONSTITUTE A BASIS FOR ANY EXTENSION OF TIME OR DAMAGES. IF THE CONTRACTOR SHALL BE UNAVOIDABLY DELAYED IN BEGINNING OR FULFILLING THIS CONTRACT BY REASONS OF EXCESSIVE STORM OR FLOODS THE CONTRACTOR SHALL HAVE NO VALID CLAIM FOR DAMAGES, BUT HE SHALL IN SUCH CASE BE ENTITLED TO AN EXTENSION OF TIME AS THE ENGINEER SHALL ADJUDGE TO BE JUST AND REASONABLE; PROVIDED THAT FORMAL CLAIM FOR AN EXTENSION OF TIME IS MADE IN WRITING BY THE CONTRACTOR WITHIN ONE WEEK OF THE ALLEGED DELAY.

MAINTENANCE AND GUARANTEE PERIOD:

1. CONTRACTOR SHALL GUARANTEE ALL MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FOLLOWING THE APPROVAL OF CONSTRUCTION INSPECTION AT SUBSTANTIAL COMPLETION. THE CONTRACTOR SHALL RESPOND WITHIN TWO WEEKS OF WRITTEN REQUESTS BY THE OWNER FOR REPLACEMENT/REPAIR. IF THE CONTRACTOR FAILS TO RESPOND WITHIN THIS TIME, THE OWNER MAY PROCEED WITH REPLACEMENT WORK AND BILL THE CONTRACTOR.

2. NOTIFY THE OWNER PRIOR TO AND FOLLOWING ANY MAINTENANCE ACTIVITY.

3. FINAL ACCEPTANCE OF WORK WILL BE SUBJECT TO ACCEPTANCE BY PROJECT MANAGER AND OWNER AT THE END OF GUARANTEE PERIOD.

MATERIAL NOTES

1. ALL MATERIALS SHALL CONFORM TO DETAILS AND SPECIFICATIONS IN THE DRAWINGS.

SUBMITTALS

1. SUBMITTALS FOR APPROVAL BY ENGINEER ARE REQUIRED FOR ALL MATERIALS PRIOR TO MOBILIZATION. ALL EXPENSES INCURRED BY CONTRACTOR PRIOR TO ENGINEER'S APPROVAL SHALL NOT BE PAID BY OWNER.

AS-BUILT DOCUMENTS:

1. CONTRACTOR IS RESPONSIBLE FOR PROVIDING AS BUILT DOCUMENTS AT THE COMPLETION OF THE WORK. AS-BUILT DRAWINGS SHALL INCLUDE 1 COPY OF MARKED UP FIELD PLANS AND 3 COPIES OF CERTIFIED AS-BUILT DRAWINGS AND 1 DIGITAL FILE CONTAINING AUTOCAD AS-BUILT INFORMATION. THE BASE SURVEY DRAWING WILL BE PROVIDED TO THE CONTRACTOR.

SITE RESTORATION AND CLEAN-UP:

1. IMMEDIATELY CLEAN UP EXCESS SOIL, MULCH, OR OTHER DEBRIS AND PROPERLY DISPOSE OF DELETERIOUS MATERIALS LEGALLY OFF-SITE IN A MANNER CONSISTENT WITH LOCAL LAWS. TAKE NECESSARY PRECAUTIONS TO PREVENT CONTAMINATION OF CLEAN AREAS AS A RESULT OF CLEANING OPERATIONS.

2. PROMPTLY REMOVE EQUIPMENT AND UNUSED MATERIALS AT COMPLETION OF ACTIVITIES.

3. RETURN STOCKPILE AND STORAGE AREAS TO THEIR ORIGINAL GRADE AND RESTORE GROUND SURFACES AFTER STORED MATERIAL HAS BEEN REMOVED.

4. CONTRACTOR SHALL REPAIR DAMAGED VEGETATION AND AERATE SOIL OVER ROOT ZONE OF NEGATIVELY IMPACTED VEGETATION. RE-SEED ALL DISTURBED AREAS TO PRE-EXISTING CONDITIONS OR AS SPECIFIED.

LANDSCAPE MAINTENANCE & GUARANTEE

1. PRELIMINARY INSPECTION: UPON COMPLETION OF ALL PLANTING AND ALL CLEANUP WORK, THE CONTRACTOR SHALL REQUEST A PRELIMINARY INSPECTION. COMPLETION OF ALL CORRECTIVE WORK AND INSPECTION AND APPROVAL OF IT SHALL ESTABLISH THE BEGINNING OF THE GUARANTEE/MAINTENANCE PERIOD. NO PARTIAL APPROVALS SHALL BE GIVEN. OWNER/ENGINEER SHALL FURNISH THE WRITTEN NOTICE OF ITEMS TO BE ADJUSTED, REPAIRED, REPLACED, ETC. WITHIN 3 BUSINESS DAYS OF THE PRELIMINARY INSPECTION.

2. GUARANTEE: THE CONTRACTOR SHALL GUARANTEE ALL LANDSCAPING SPECIFIED HEREIN FOR ONE (1) GROWING SEASON (MAY THROUGH NOVEMBER) FOLLOWING APPROVAL OF PRELIMINARY INSPECTION. THE CONTRACTOR SHALL RESPOND WITHIN TWO (2) WEEKS OF WRITTEN REQUESTS BY THE OWNER FOR REPLACEMENT/REPAIR. IF THE CONTRACTOR FAILS TO RESPOND WITHIN THIS TIME, THE OWNER MAY PROCEED WITH REPLACEMENT WORK AND BILL THE CONTRACTOR.

3. REPLACE DEAD OR UNHEALTHY PLANTS WITH PLANTS OF SAME SIZE AND SPECIES AS SPECIFIED AND PLANT THEM IN NEXT GROWING SEASON AND SUBJECT THEM TO MAINTENANCE EFFORTS TO ASSURE THEIR SURVIVAL AT NO ADDITIONAL COST TO OWNER. PATCHY OR BARE AREAS (IN EXCESS OF 4 SQUARE FEET) WHERE SEED MIX FAILED TO CREATE SUFFICIENT DENSITY OF COVER SHALL BE RESEEDED BY HAND AT THE RECOMMENDED APPLICATION RATE AT NO ADDITIONAL COST TO OWNER.

4. MAINTENANCE DURING THE GUARANTEE PERIOD SHALL INCLUDE BUT NOT BE LIMITED TO: 1. WATERING OF ALL WOODY AND HERBACEOUS PLANT MATERIALS AND SEEDED AREAS. FOR OPTIMUM PLANT GROWTH, PLANT STOCK SHOULD BE KEPT MOIST (1" OF TOTAL WATER PER WEEK, INCLUDING RAINFALL) DURING THE ESTABLISHMENT PERIOD. 2. WEEDING.

3. CONTROL OF UNDESIRABLE PLANTS BY APPROVED METHODS, INCLUDING BUT NOT LIMITED TO: COMMON BUCKTHORN (RHAMNUS CARTHATICA), GLOSSY BUCKTHORN (RHAMNUS FRANGULA), POISON IVY (TOXICODENDRON RADICANS), TATARIAN HONEYSUCKLE (LONICERA TATARICA) AND PURPLE LOOSESTRIFE (LYTHRUM SALICARIA).

4. CONTROL OF UNDESIRABLE INSECTS, AND PLANT DISEASE. 5. REMOVAL OF ANY STAKING, GUYING, AND TREE TAGS/LABELS AT END OF GUARANTEE PERIOD. ALL DEBRIS SHALL BE LEGALLY DISPOSED OF OFF-SITE.

5. NOTIFY THE OWNER PRIOR TO AND FOLLOWING ANY MAINTENANCE ACTIVITY.

6. FINAL ACCEPTANCE OF WORK WILL BE SUBJECT TO ACCEPTANCE BY PROJECT MANAGER AND OWNER AT THE END OF THE GUARANTEE PERIOD.

1. TREES, SHRUBS, AND PLUGS SHALL BE OF NATIVE PLANT MATERIAL OF GENOTYPES FROM THE NORTH CENTRAL STATES ONLY (IL, IN, IA, MI, OH), AND FROM A RECOGNIZED NURSERY OF THIS REGION. MICHIGAN SOURCES FOR TREE, SHRUBS, AND PLUGS SHALL BE LOCATED BEFORE BRANCHING OUT TO OTHER NORTH CENTRAL STATES. 2. PLANTS SHALL BE NURSERY GROWN IN ACCORDANCE WITH GOOD HORTICULTURAL PRACTICES. PLANTS SHALL BE SOUND, HEALTHY AND VIGOROUS, WELL BRANCHED AND DENSELY FOLIATED WHEN IN LEAF. PLANTS SHALL BE FREE OF DISEASE, INSECT PESTS, EGGS, OR LARVAE. PLANTS SHALL BE FREE OF KINKED, CIRCLING OR GIRDLING TRUNK SURFACE AND CENTER ROOTS, AND SHALL NOT BE ROOT-BOUND. RESPECT MAXIMUM STORAGE TIMES FOR PLANT STOCK. 3. NATIVE PLANTING AREAS SHALL BE INSTALLED AFTER MAY 15 (WHEN SOIL IS FREE OF FROST AND IN WORKABLE CONDITION), BUT BEFORE JUNE 30 OR AFTER SEPT. 1 BUT BEFORE OCTOBER 30 OR AS APPROVED BY THE ENGINEER. 4. FURNISH PLANT SPECIES AND SIZES AS INDICATED ON THE PLANS. PLANT STOCK SHALL BE TRUE TO THEIR NAME (GENUS AND SPECIES), AS SPECIFIED. CULTIVARS AND SPECIMENS SHALL NOT BE USED WITHOUT PRIOR APPROVAL BY CONSULTANT. 5. NATIVE PLANTINGS TO BE INSTALLED PER DETAILS. 6. PLUGS, CONTAINERIZED PLANTS, AND ROOTSTOCK WHICH ARE TO BE PLACED IN SATURATED OR FLOODED SOIL CONDITIONS SHALL BE PRE-CONDITIONED FOR THIS PLACEMENT BY BEING HELD UNDER SIMILAR CONDITIONS IN A WET ENVIRONMENT AT THE NURSERY PRIOR TO SHIPMENT TO THE SITE. 7. REMOVE ALL CONTAINERS AND PACKAGING MATERIAL AND DISPOSE OF LEGALLY OFF-SITE. 8. WATER PLANT STOCK IMMEDIATELY AFTER PLANTING SUCH THAT ROOT ZONE IS THOROUGHLY SOAKED. CONTRACTOR SHALL BE RESPONSIBLE TO KEEP PLUGS ADEQUATELY WATERED, IF NECESSARY, TO ENSURE THEIR SURVIVAL. 9. IF EROSION CONTROL BLANKET IS NEEDED IN AREAS OF NATIVE PLANTINGS, INSTALL EROSION CONTROL BLANKET AFTER SEEDING, BUT PRIOR TO PLANTING. EROSION CONTROL BLANKET SHALL BE INSTALLED WHERE THE CONTRACTOR FEELS IT NECESSARY TO STABILIZE THE SITE AT NO ADDITIONAL

COST TO THE OWNER. ONE YEAR AND UNIFORM IN COLOR AND TEXTURE.

AQUATIC PLANTING:

NATIVE PLANTINGS:

1. STOCK SHALL NOT BE SHIPPED UNTIL THE PLANTING PREPARATIONS HAVE BEEN COMPLETED. SHIPPING SHALL BE SCHEDULED TO RESULT IN A DELIVERY AND STORAGE TIME OF NO MORE THAN 24 HOURS PRIOR TO INSTALLATION. 2. TUBERS, ROOTSTOCK, OR HERBACEOUS SEEDLINGS SHALL BE INDIVIDUALLY LABELED OR LABELED IN BUNDLES.

REFRIGERATION SHALL NOT BE PERMITTED AFTER MAY 15TH. WETLAND CONSULTANT.

8. COMPLETE ALL AQUATIC PLANTINGS BETWEEN MAY 15 AND JUNE 30.

FOR EACH SPECIES.

B. TUBERS SHALL BE WEIGHTED AND INSTALLED FIRMLY IN THE UPPER 3 INCHES OF SOIL C. REPLANT ANY AQUATIC TUBERS AND ROOTSTOCK THAT BECOME DISLODGED OR FLOAT AFTER PLANTING. THE CONTRACTOR SHALL INSPECT THE PLANTING AT LEAST ONCE EVERY OTHER DAY DURING THE FIRST 10 DAYS AFTER AQUATIC PLANTING INSTALLATION.

SEEDING:

1. SEED SHALL BE FRESH, CLEAN, NEW SEED OF NATIVE PLANT MATERIAL OF GENOTYPES FROM THE NORTH CENTRAL STATES ONLY (IL, IN, IA, MI, OH), AND FROM A RECOGNIZED NURSERY OF THIS REGION. 2. NATIVE SEED AREAS SHALL BE SEEDED AFTER MAY 1, (WHEN SOIL IS FREE OF FROST AND IN WORKABLE CONDITION), BUT BEFORE JUNE 30 OR AFTER OCTOBER 1, BUT BEFORE NOVEMBER 30 (OR PRIOR TO FREEZE-UP) OR AS APPROVED BY THE ENGINEER. 3. SEED BED PREPARATION: CUT ANY EXISTING VEGETATION TO A MAXIMUM 3" HEIGHT. ROOTS, LITTER. AND ANY FOREIGN MATTER SHOULD BE RAKED AND REMOVED. SOILS SHALL NOT BE COMPACTED. 4. SOW NATIVE SEED USING A SEED DRILL CALIBRATED FOR NATIVE SEED AT A SPECIES RATE PER ACRE AS INDICATED ON THE DRAWING. LIGHTLY RAKE TO PROVIDE ADEQUATE SEED SOIL CONTACT. DO NOT COVER SEED MORE THAN 1/4" DEEP WITH SOIL. 5. AREAS THAT ARE NOT ADEQUATELY COVERED WITH EXISTING VEGETATION/THATCH SHALL BE MULCHED WITH A 1" MAXIMUM THICK STRAW MULCH LAYER OR WILL HAVE EROSION CONTROL MAT INSTALLED ON SLOPES 3:1 OR STEEPER. 6. SEEDING METHOD SHALL ENSURE COMPLETE COVERAGE OF DESIGNATED AREA. RE-SEED AREAS WITH GAPS IN SEEDING AT NO ADDITIONAL COST TO OWNER. 7. DO NOT SOW SEED WHERE STANDING WATER IS PRESENT. 8. CONTRACTOR SHALL REPAIR DAMAGED VEGETATION AND AERATE SOIL OVER ROOT ZONE OF NEGATIVELY IMPACTED VEGETATION. RE-SEED ALL DISTURBED AREAS TO PRE-EXISTING CONDITIONS. 9. SUBSTITUTIONS ARE ALLOWED WITH PRIOR APPROVAL BUT ONLY NATIVE SPECIES WILL BE ALLOWED.

INSPECTIONS

1. ALL PLANT MATERIALS SHALL BE INSPECTED AND APPROVED BY OWNER/ENGINEER PRIOR TO INSTALLATION ON-SITE. THE OWNER/ENGINEER SHALL RESERVE THE RIGHT TO REFUSE ANY PLANT MATERIAL THAT IS UNACCEPTABLE UPON DELIVERY TO SITE.

SUBSTITUTIONS:

PRIOR TO APPROVAL FOR CONSTRUCTION.

10. FIELD ADJUST PLANTINGS TO DIVERSIFY SPECIES ACROSS THE PLANTING AREAS AND TO MEET PLANTING REQUIREMENTS FOR SPECIES BASED ON DEPTH. ANY ADJUSTMENTS WILL BE SHOWN ON AN AS-BUILT PLAN AND SUBMITTED TO THE CONSULTANT UPON COMPLETION.

11. MULCH FOR TREES AND SHRUBS SHALL BE COARSE GRADE OAK OR MAPLE BARK AGED AT LEAST

3. IF DELAYS BEYOND THE CONTRACTOR'S CONTROL OCCUR AFTER DELIVERY, PLANTS SHALL BE STORED TO ENSURE VIABILITY. STORAGE PROCEDURES MAY INCLUDE OPENING OF PLANT CONTAINERS, STORAGE OF TUBERS AND ROOTSTOCK IN WATER AND/OR REFRIGERATION.

4. ALL PLANTS SHALL BE HEALTHY AND FREE FROM FUNGAL AND BACTERIAL DISCOLORATION, DEORMITIES AND ROTTING. PLANTS APPEARING OTHERWISE WILL BE SUBJECT TO REJECTION BY THE

5. PLUGS, CONTAINERIZED PLANTS AND ROOTSTOCK WHICH ARE TO BE PLACED IN SATURATED OR FLOODED SOIL CONDITIONS SHALL BE PRE-CONDITIONED FOR THIS PLACEMENT BY BEING HELD UNDER SIMILAR CONDITIONS IN A WET ENVIRONMENT AT THE NURSERY PRIOR TO SHIPMENT TO THE SITE 6. PRIOR TO LAYOUT AND INSTALLATION OF AQUATIC PLANTINGS, THE SOIL CONDITIONS MUST BE SATURATED AT THE SURFACE TO SUPPORT AQUATIC PLANTING SURVIVAL.

7. PRIOR TO PLANTING, THE CONTRACTOR SHALL NOTIFY THE WETLAND CONSULTANT TO ASSIST IN THE LAYOUT OF ALL AQUATIC PLANTS. NOTIFY THE WETLAND CONSULTANT OF THE EXPECTED DATE OF AQUATIC PLANT DELIVERY AT LEAST SEVEN DAYS PRIOR TO THAT DATE.

9. AQUATIC PLANTINGS SHALL BE INSTALLED IN WATER IN THE FOLLOWING MANNER:

A. INSTALL ALL AQUATIC PLANTS FIRMLY INTO THE MUD AT THE APPROPRIATE WATER DEPTH

1. ALL SUBSTITUTIONS, MATERIALS OR EXECUTION, SHALL BE APPROVED BY THE OWNER/ENGINEER, IN WRITING, A MINIMUM OF 1 MONTH PRIOR TO CONSTRUCTION. THE

OWNER/ENGINEER RESERVES THE RIGHT TO REQUIRE A SAMPLE OF SUBSTITUTED MATERIAL(S)

SUBMITTALS:

1. SUBMITTALS FOR APPROVAL BY ENGINEER ARE REQUIRED FOR ALL MATERIALS PRIOR TO MOBILIZATION. ALL EXPENSES INCURRED BY CONTRACTOR PRIOR TO ENGINEER'S APPROVAL SHALL NOT BE PAID BY OWNER.

2. PLANT STOCK SUPPLIERS: SUBMIT PLANT STOCK CERTIFICATES FROM WOODY AND HERBACEOUS PLANT STOCK SUPPLIERS FOR INSPECTION BY OWNER/ENGINEER A MINIMUM OF 1 WEEK PRIOR TO TIME OF PLANTING.

- 1. PLANT STOCK CERTIFICATES FROM SUPPLIERS SHALL INCLUDE: A. BOTANICAL NAME, INCLUDING CULTIVAR, AND COMMON NAME.
 - B. QUANTITY.
 - C. SIZE.
 - D. TYPE (B&B, CONTAINER, BARE ROOT...ETC.)
 - E. ORIGIN (LOCATION GROWN). F. NAME, ADDRESS, AND PHONE NUMBER OF SUPPLIER.

3. SEED STOCK: SUBMIT SEED CERTIFICATES FOR INSPECTION BY OWNER/ENGINEER A MINIMUM OF 1 WEEK PRIOR TO INITIATION OF WORK.

- 1. SEED MIXTURE CERTIFICATES FROM SEED SUPPLIERS SHALL INCLUDE:
 - A. BOTANICAL NAMES AND COMMON NAMES.
 - B. NET WEIGHT. C. PERCENTAGE OF SEEDS BY WEIGHT.
 - D. PURITY OF SEED.
 - E. GERMINATION PERCENTAGE.
 - F. AMOUNT OF UNDESIRABLE PLANT SEEDS PRESENT IN MIXTURE.
 - G. DATE OF PRODUCTION.
 - H. DATE OF PACKAGING.
 - I. LOCATION OF PACKAGING. J. NAME, ADDRESS, AND PHONE NUMBER OF SUPPLIER.

4. EROSION CONTROL BLANKET: SUBMIT FOR APPROVAL A CERTIFICATE STATING THE NAME OF THE MANUFACTURER, PRODUCT NAME, STYLE NUMBER, AND OTHER PERTINENT INFORMATION TO FULLY DESCRIBE EACH TYPE OF EROSION CONTROL BLANKET. THE CERTIFICATION SHALL BE ATTESTED TO BY A PERSON HAVING LEGAL AUTHORITY TO BIND THE MANUFACTURER.

5. MULCH: SUBMIT FOR APPROVAL THE NAME AND ADDRESS OF MULCH SUPPLIER(S) AND A SMALL PHYSICAL SAMPLE OF THE MATERIAL TO BE USED, MINIMUM 1 MONTH PRIOR TO BEGINNING INSTALLATION. THIS INCLUDES MULCH TO BE USED FOR SEEDING, AND TREE, SHRUB AND HERBACEOUS PLANTING.

SOIL EROSION AND SEDIMENT CONTROL NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A SOIL EROSION AND SEDIMENT CONTROL PERMIT 2. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING ALL SESC MEASURES NECESSARY TO COMPLY WITH SESC RULES AND THE MDEQ AND USACE PERMITS.

3. ALL ASPECTS OF THE SOIL EROSION AND SEDIMENT CONTROL PERMIT SHALL BE ADHERED TO THROUGHOUT THE DURATION OF THE PROJECT. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED BY THE CONTRACTOR AND INSPECTED BY THE ENGINEER PRIOR TO THE BEGINNING OF EARTHWORK.

4. DESIGN, CONSTRUCT, AND COMPLETE THE EARTH CHANGE IN A MANNER THAT LIMITS THE EXPOSED AREA OF DISTURBED LAND FOR THE SHORTEST PERIOD OF TIME.

5. TEMPORARY OR PERMANENT CONTROL MEASURES SHALL BE DESIGNED AND INSTALLED TO CONVEY WATER AROUND, THROUGH OR FROM THE EARTH CHANGE AT A NON-EROSIVE VELOCITY, INCLUDING FLOW WITHIN THE DETROIT RIVER AS NECESSARY 6. REMOVE SEDIMENT CAUSED BY ACCELERATED SOIL EROSION FROM RUNOFF WATER BEFORE IT LEAVES THE SITE OF THE EARTH CHANGE OR ENTERS A WATERBODY OR WETLAND.

7. INSTALL TEMPORARY SOIL EROSION AND SEDIMENTATION CONTROL MEASURES BEFORE COMMENCEMENT OF THE EARTH CHANGE ACTIVITY AND MAINTAIN THE MEASURES ON A DAILY BASIS. REMOVE TEMPORARY SOIL EROSION AND SEDIMENTATION CONTROL MEASURES AFTER PERMANENT SOIL EROSION MEASURES ARE IN PLACE AND THE AREA IS STABILIZED. ("STABILIZED" MEANS THE ESTABLISHMENT OF VEGETATION OR THE PROPER PLACEMENT, GRADING OR COVERING OF SOIL TO ENSURE ITS RESISTANCE TO SOIL EROSION, SLIDING, OR OTHER EARTH MOVEMENT.)

8. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING SITE DRAINAGE INCLUDING FLOW IN THE DETROIT RIVER. 9. CONTRACTOR IS RESPONSIBLE TO PROTECT ADJACENT WATER COURSES FROM THE DISCHARGE OF SEDIMENT DURING CONSTRUCTION.

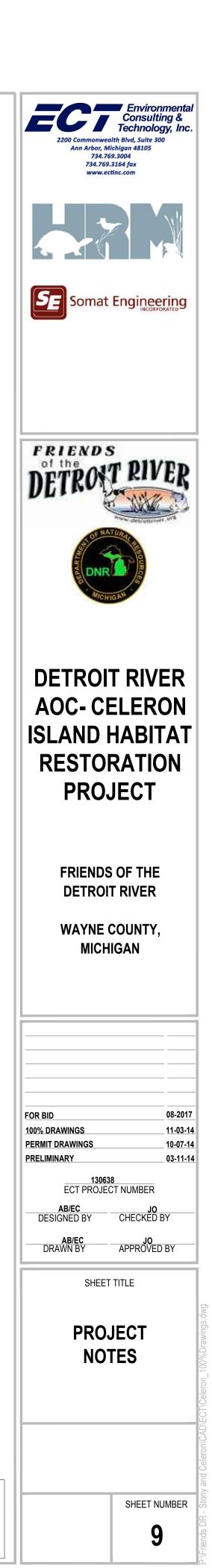
10. INSTALL PERMANENT EROSION CONTROL MEASURES WITHIN 5 DAYS OF COMPLETING FINAL GRADING OR MAINTAIN TEMPORARY MEASURES UNTIL PERMANENT MEASURES ARE INSTALLED.

11. INSTALL TEMPORARY INLET FILTERS AT ALL ADJACENT AND DOWN-GRADIENT STORM WATER INLETS. CATCH BASINS AND MANHOLES AS NEEDED BASED ON SITE CONDITIONS. CATCH BASIN INLET FILTERS SHALL BE MAINTAINED CLEAN AT ALL TIMES THROUGHOUT THE CONSTRUCTION PERIOD. IF A FILTER HAS HOLES OR IS INUNDATED WITH SEDIMENT, THE FILTER WILL REQUIRE REPLACEMENT.

12. THE USE OF HEAVY EQUIPMENT WILL BE MINIMAL TO CONTROL SEDIMENT TRACK-OUT. ANY MUD/SILT_TRACKED ONTO PAVED SURFACES SHALL BE IMMEDIATELY REMOVED.

13. TEMPORARY SESC MEASURES SUCH AS STRAW WATTLES, COIR LOGS, STRAW BALES OR SILT FENCE SHALL BE INSTALLED ALONG SENSITIVE AREAS AS NECESSARY. MEASURES WILL BE MAINTAINED AT ALL TIMES THROUGHOUT THE CONSTRUCTION PERIOD. IF REPAIR OR REPLACEMENT IS NECESSARY, IT SHALL BE PERFORMED ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS. MAINTENANCE INCLUDES THE REMOVING OF BUILT-UP SEDIMENT THAT ACCUMULATES TO ½ THE HEIGHT OF WATTLES OR SILT FENCE. CONTRACTOR SHALL REMOVE. REPLACE. RETRENCH. OR RE-BACKFILL WATTLES OR FENCE IF IT FAILS. ADDITIONALLY. THE CONTRACTOR SHALL REINSTALL ANY PORTION OF THE WATTLES OR FENCING DAMAGED BY CONSTRUCTION MACHINERY. 14. PLACE STOCKPILES AND OTHER SPOIL PILES AWAY FROM THE DRAINAGE SYSTEM TO MINIMIZE SEDIMENT TRANSPORT. IF THE STOCKPILE AND/OR SPOIL PILE MUST REMAIN ON-SITE OVERNIGHT, OR IF THE WEATHER CONDITIONS INDICATE THE CHANCE FOR PRECIPITATION, A) COVER THE PILE WITH WATER REPELLENT MATERIAL TO PREVENT EROSION AND/OR B) INSTALL SILT FENCING AROUND THE BASE OF THE PILE TO PREVENT TRANSPORT OF SEDIMENT TO THE STORM WATER SYSTEM, OR APPLY OTHER CONTROL METHODS APPROPRIATE TO THE SITE. CONTROL MEASURES TO GUARD AGAINST WIND EROSION MUST ALSO BE EMPLOYED, SUCH AS WETTING OR COVERING THE STOCKPILES. KEEP AS FEW STOCKPILES AS POSSIBLE DURING THE COURSE OF THE PROJECT 15. SEEDING OR OTHER STABILIZATION SHALL BE REQUIRED IMMEDIATELY TO AREAS WHICH HAVE BEEN DAMAGED BY RUNOFF. 16. CONTRACTOR SHALL MAINTAIN DUST CONTROL ON THE SITE THROUGHOUT THE DURATION OF THE CONSTRUCTION PROCESS. 17 VEGETATED BUFFERS WILL BE USED IN THE PREDOMINANTLY UPLAND AREAS, AS APPROPRIATE. 18. SILT FENCE SHALL BE 3' HIGH PRE-ASSEMBLED FILTER FENCE. FABRIC SHALL ALLOW WATER TO PASS THROUGH WHILE RETAINING SEDIMENT AND DEBRIS. STAKES SHALL BE HARDWOOD AND SHALL BE ON 8'4" CENTERS. FABRIC SHALL BE DOUBLE STAPLED TO TOP OF STAKE TO ENSURE DURABILITY.

19. IN THE EVENT OF CONSTRUCTION RELATED DEBRIS ON LOCAL ROADS, CONTRACTOR SHALL CLEAN AND MAINTAIN THE ROAD. 20. CONTROL OF SEDIMENTATION DURING RIVER OPERATIONS IS REQUIRED (USING SILT CURTAIN OR OTHER CONTROL MEASURES) 21. CONTRACTOR SHALL CONTROL ALL SURFACE WATER IN A MANNER THAT PREVENTS THE EROSION AND TRANSPORT OF SEDIMENT / SOIL DISTURBED DURING CONSTRUCTION. SURFACE WATER INCLUDES FLOW WITHIN THE RIVER RAISIN CHANNEL



3 WORKING DAYS

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