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DETROIT RIVER AOC- CELERON ISLAND HABITAT RESTORATION PROJECT

CELERON ISLAND



GREAT LAKES RESTORATION INITIATIVE (GLRI)
PROJECT # NA16NMF4630342

FOR BID - AUGUST 2017

PREPARED FOR FRIENDS
OF THE DETROIT RIVER BY:

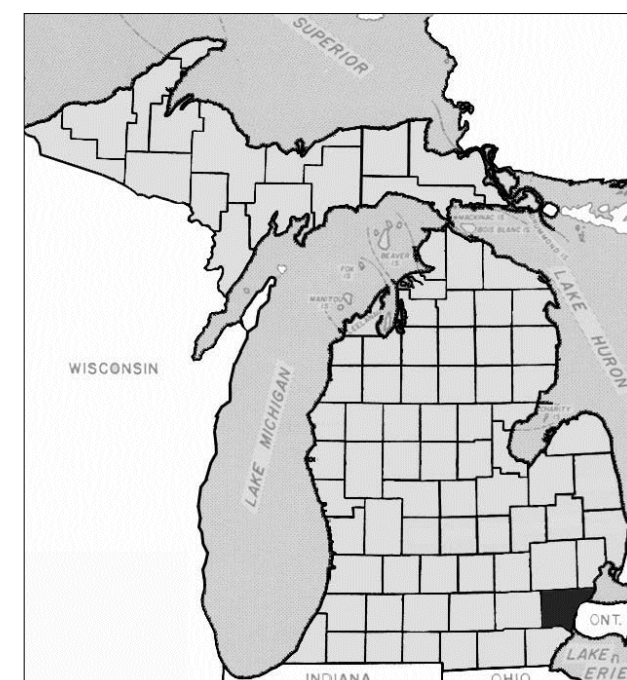


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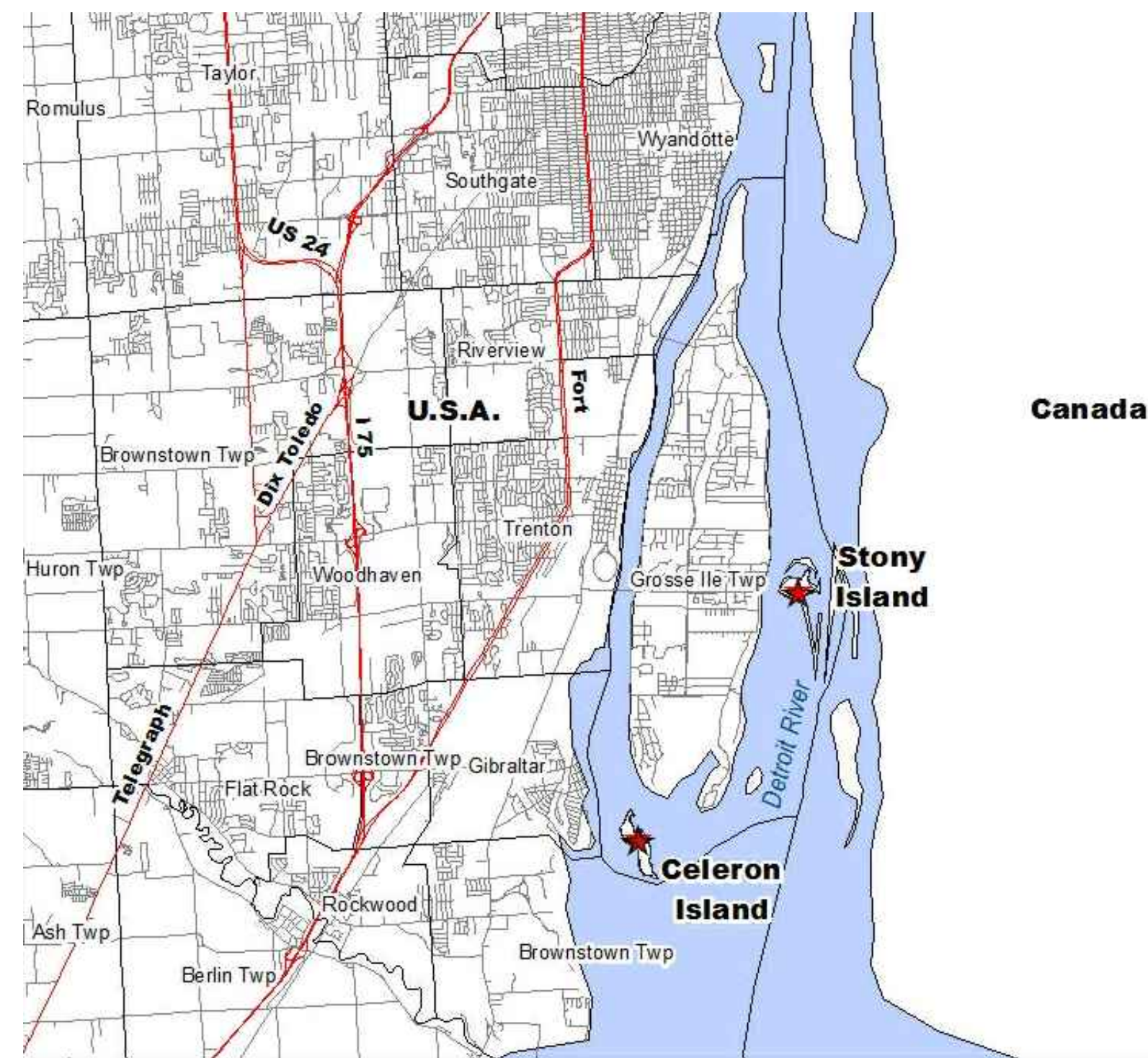
WITH:



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



DETROIT RIVER
WAYNE COUNTY, MI
NOT TO SCALE



PROJECT VICINITY MAP
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DRAWING INDEX

1. COVER SHEET
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SURVEY PROVIDED BY SMITHGROUP JR,
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.
3. 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.



AERIAL PHOTO OF CELERON ISLAND

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. SMITHGROUPJRR 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# D16435);
HEIGHT MODERNIZATION STATION ALUMINUM DISC, SET FLUSH ON A 16"
DIAMETER CONC. CYLINDAR, FLUSH WITH THE GROUND.

NORTHING = 223952.3878
EASTING = 13446899.6702
ELEVATION = 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 = 219063.3065
EASTING = 13442499.9723
ELEVATION = 581.68 FEET (NAVD88)

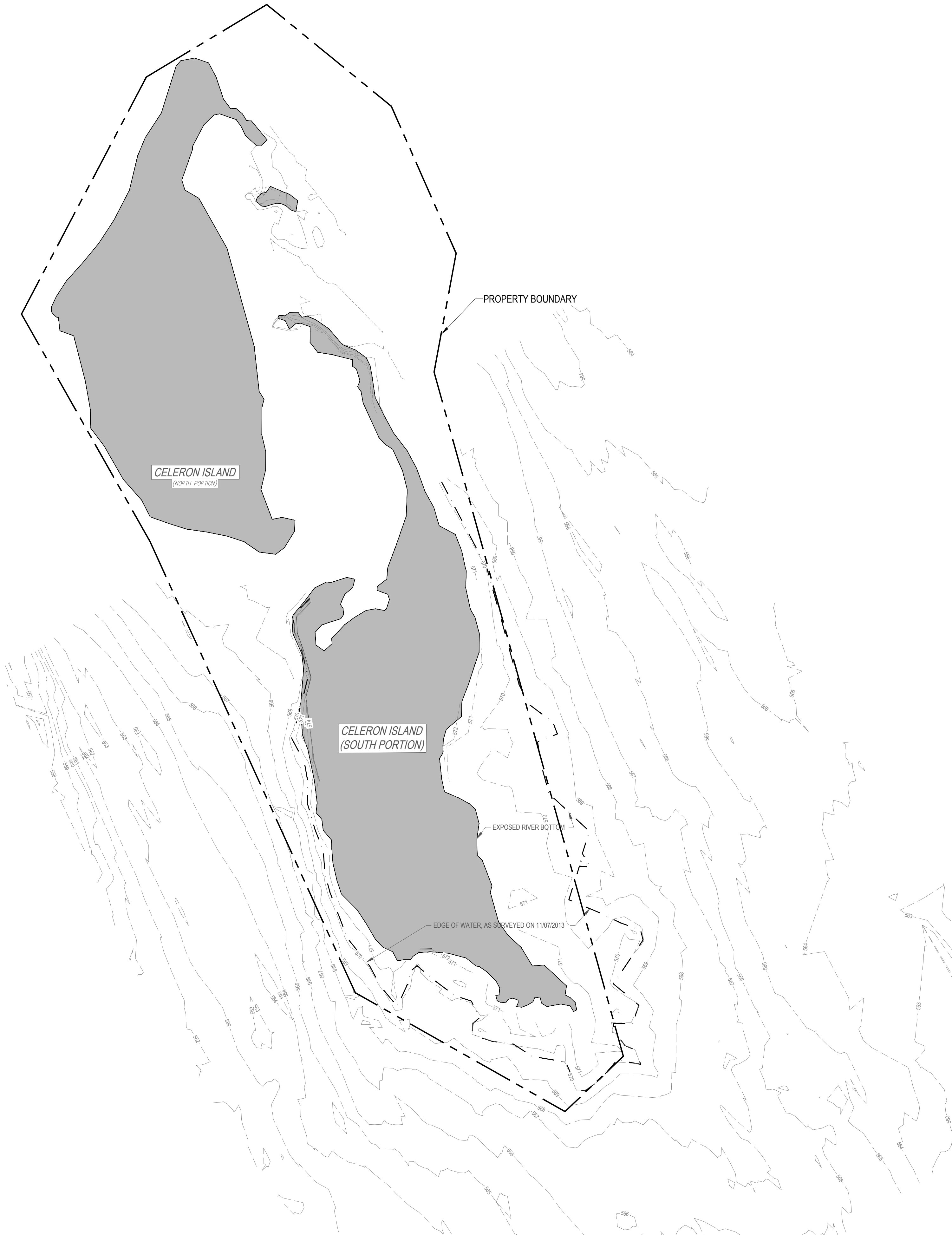
DATUM CONVERSIONS:

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.



SURVEY LEGEND

- 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.

ECT Environmental Consulting & Technology, Inc.
2200 Commonwealth Blvd, Suite 300
Ann Arbor, Michigan 48105
734.769.3004
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**DETROIT RIVER
AOC- CELERON
ISLAND HABITAT
RESTORATION
PROJECT**

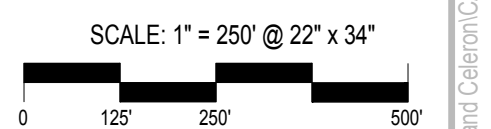
**FRIENDS OF THE
DETROIT RIVER**

**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 DESIGNED BY	JO CHECKED BY
AB/EC DRAWN BY	JO APPROVED BY

SHEET TITLE
**EXISTING
CONDITIONS**



NORTH

SHEET NUMBER
2

**3 WORKING DAYS
BEFORE YOU DIG
CALL MISS DIG
1-800-482-7171**

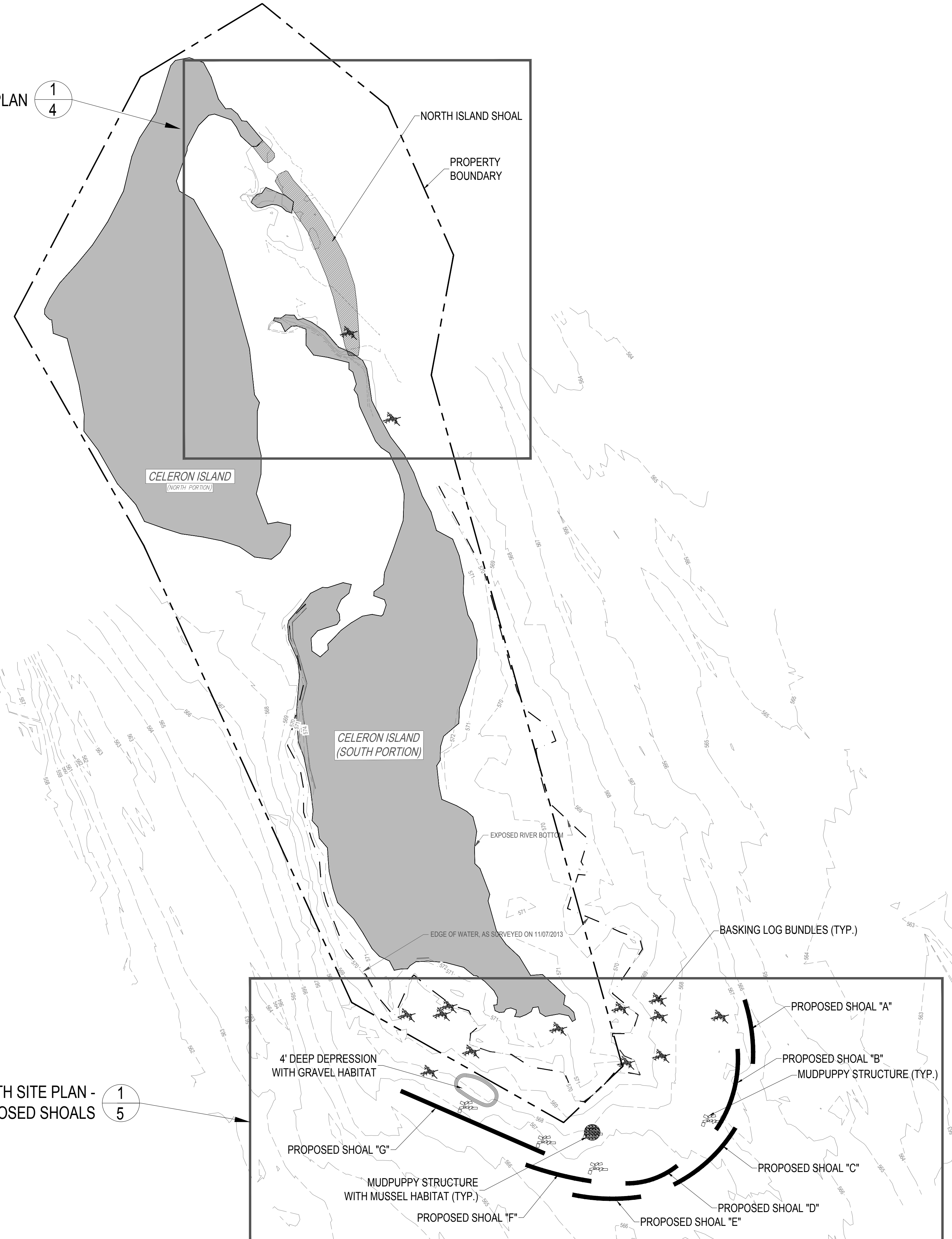
GENERAL NOTES
 1. ALL WORK TO BE PERFORMED IN ACCORDANCE WITH THE MDEQ AND USACE PERMITS, AND ALL OTHER PERMITS ISSUED FOR THIS PROJECT.

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.

NORTH SITE PLAN

1
4



SOUTH SITE PLAN - PROPOSED SHOALS

1
5

LEGEND

- EDGE OF WATER
- EX. TOPO CONTOUR
- PROPERTY LINE
- PROPOSED SHOAL
- MUDPUPPY STRUCTURE
- MUDPUPPY STRUCTURE WITH MUSSEL HABITAT
- BASKING LOG BUNDLES

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FRIENDS OF THE DETROIT RIVER

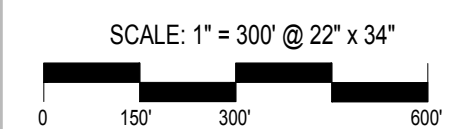
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SHEET TITLE

SITE PLAN OVERVIEW

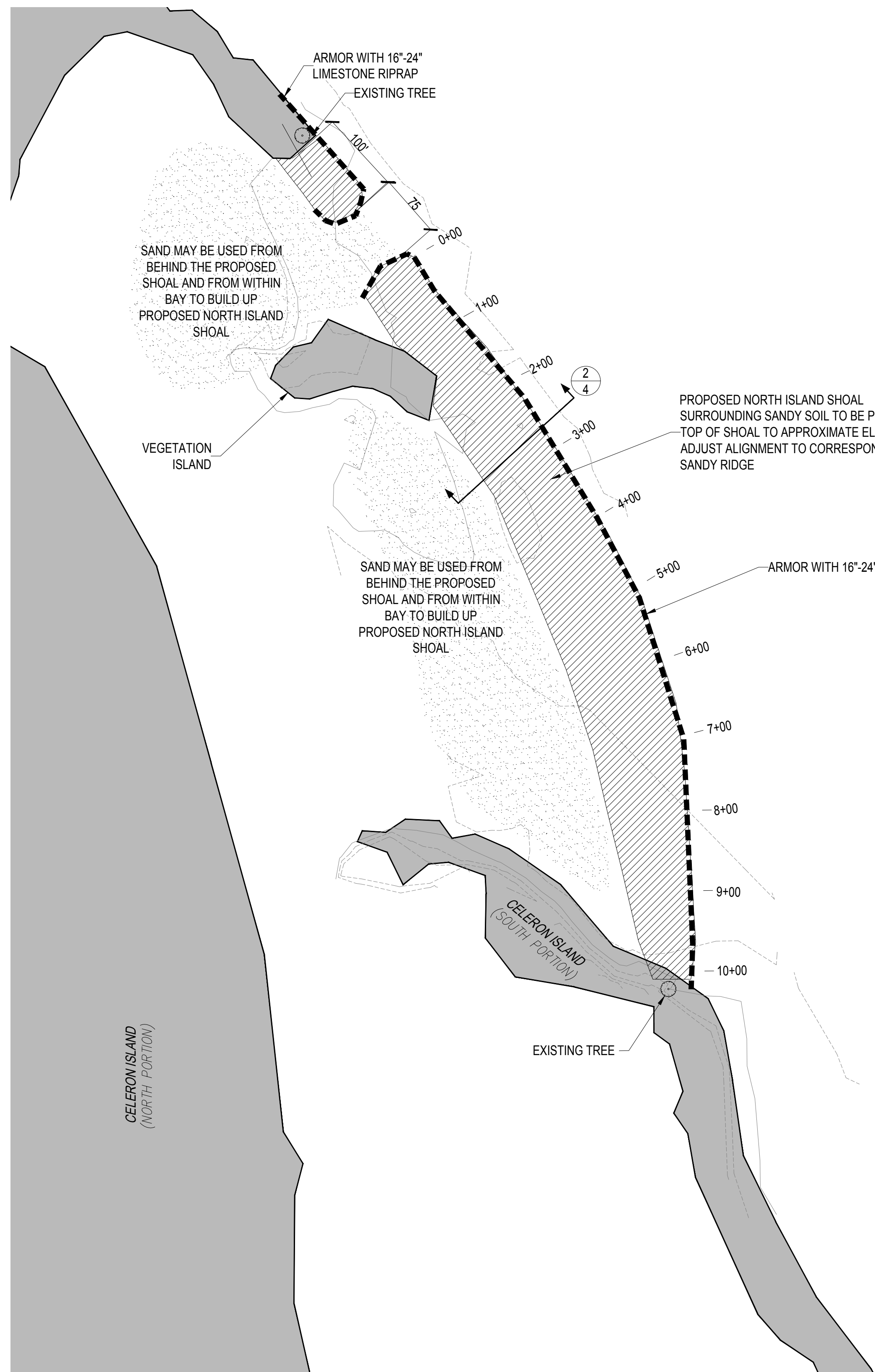


NORTH

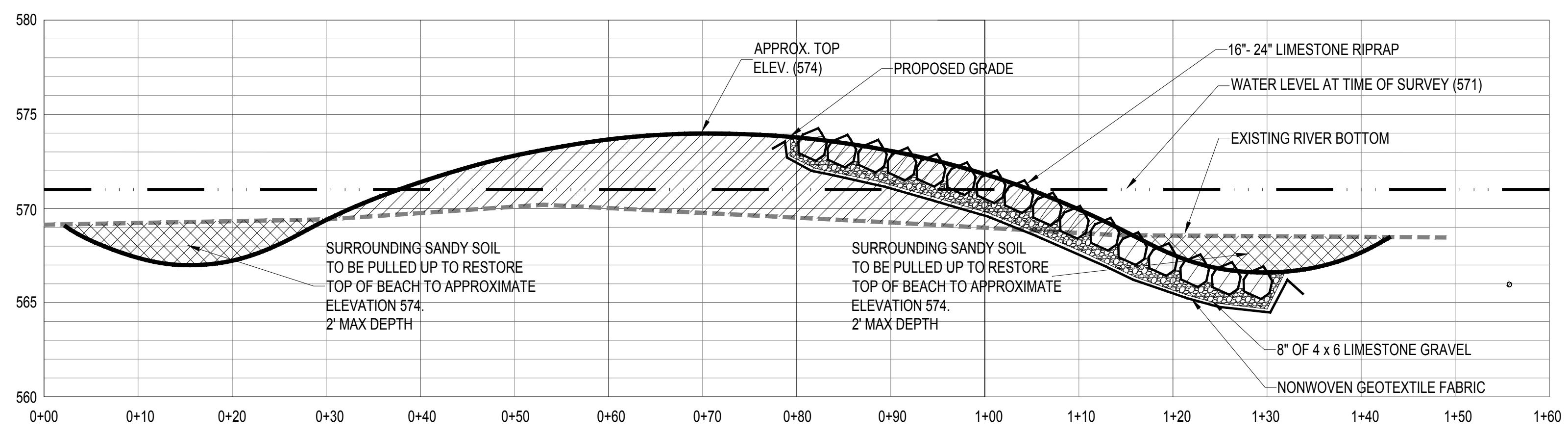
SHEET NUMBER **3**

SURVEY PROVIDED BY SMITHGROUP JJR, JANUARY 2014

3 WORKING DAYS BEFORE YOU DIG
 CALL MISS DIG
 1-800-482-7171



1
4 NORTH SITE PLAN



2
4 TYPICAL NORTH ISLAND SHOAL SECTION

HORIZONTAL SCALE: 1" = 10' @ 22" x 34"
VERTICAL SCALE: 1" = 5' @ 22" x 34"

LEGEND

- EDGE OF WATER
- - - EX. TOPO CONTOUR
- PROPERTY LINE
- PROPOSED SHOAL
- ARMOR
- WATER LEVEL

SCALE: 1" = 100' @ 22" x 34"

SURVEY PROVIDED BY SMITHGROUP JJR,
JANUARY 2014

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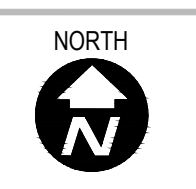
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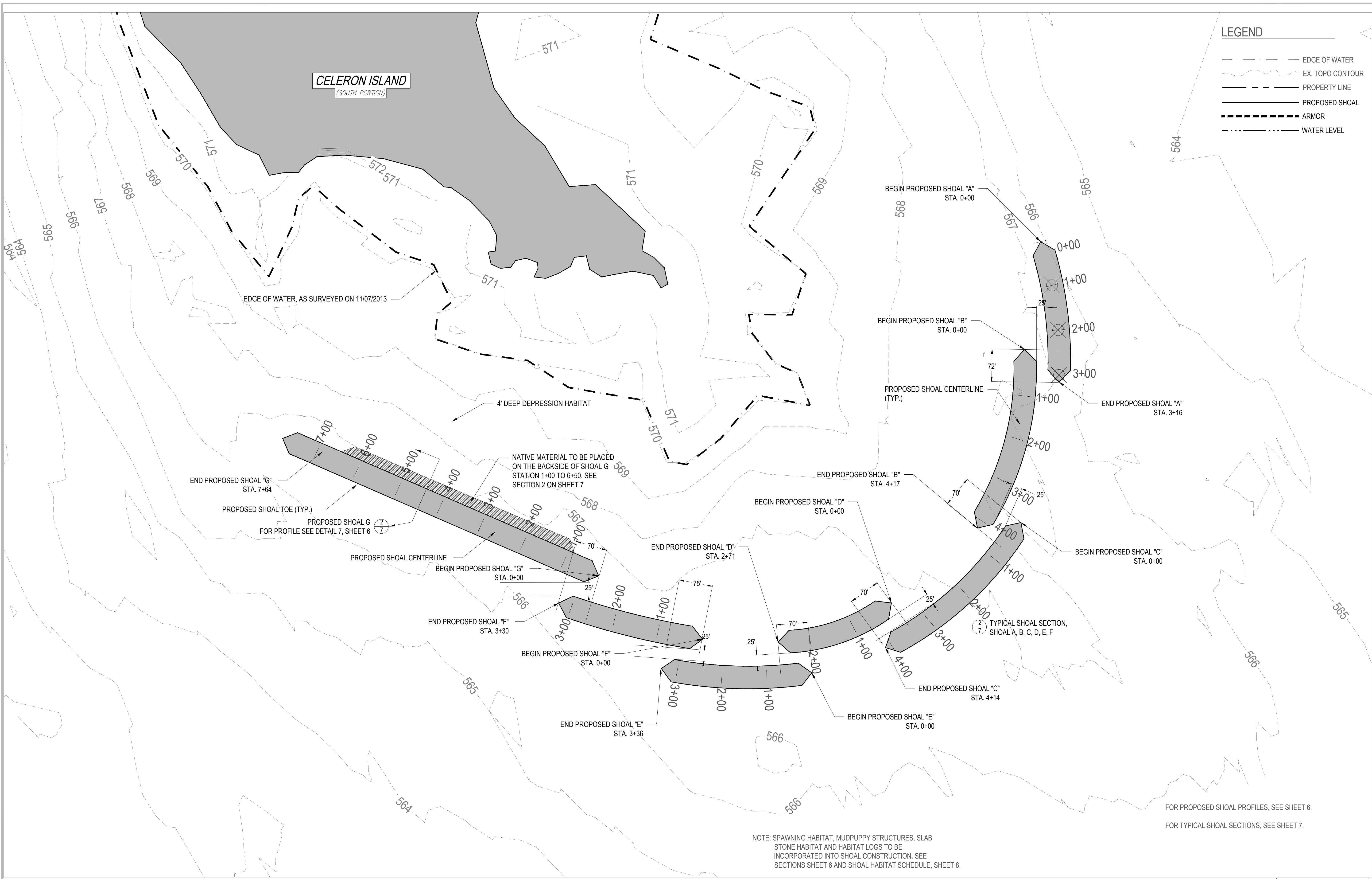
SHEET TITLE

**NORTH
SITE PLAN**

SCALE: AS SHOWN



SHEET NUMBER
4



LEGEND

- EDGE OF WATER
- - - EX. TOPO CONTOUR
- PROPERTY LINE
- PROPOSED SHOAL
- ARMOR
- WATER LEVEL

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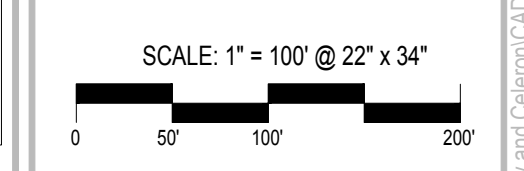
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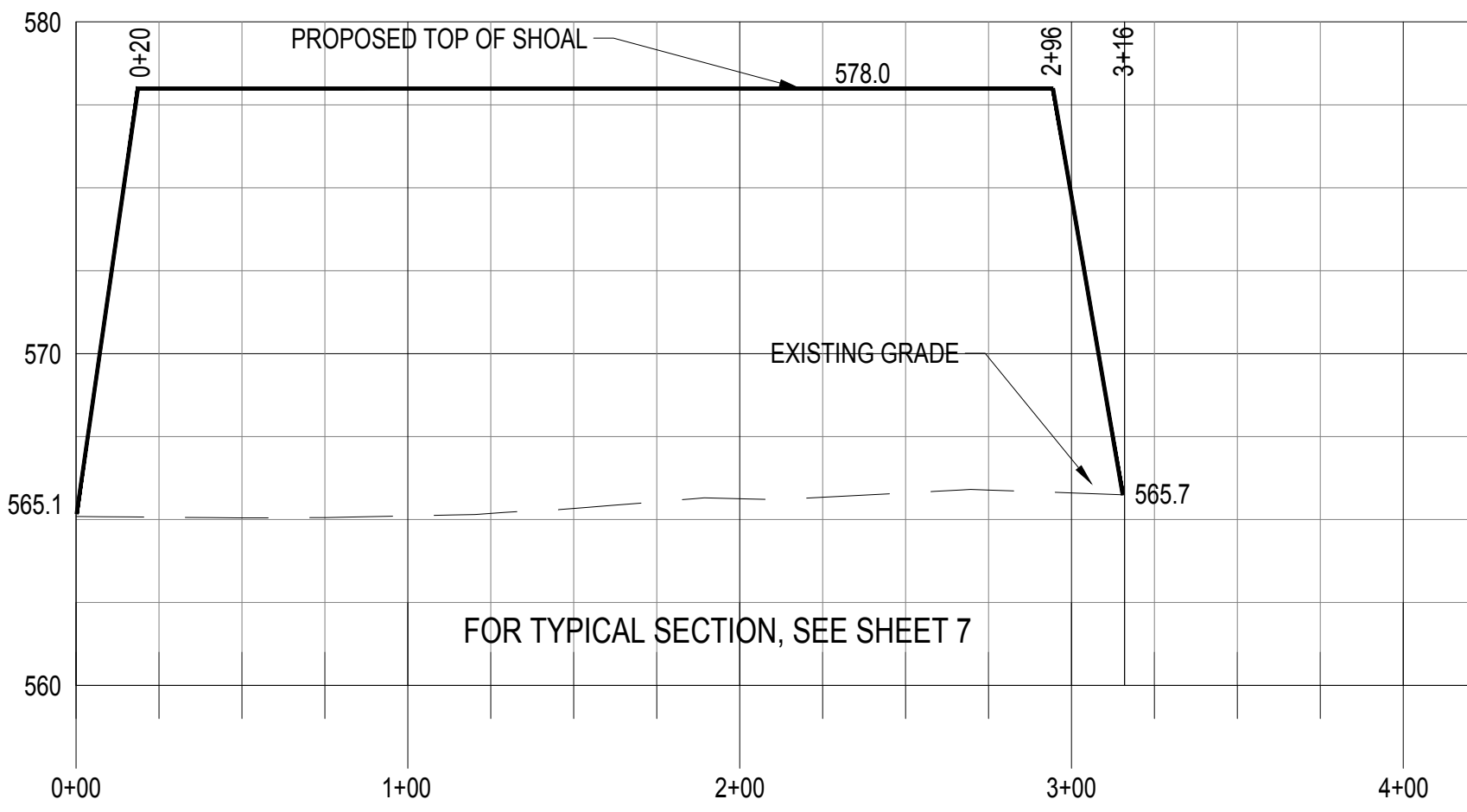
SHEET TITLE
**SOUTH
 SITE PLAN**



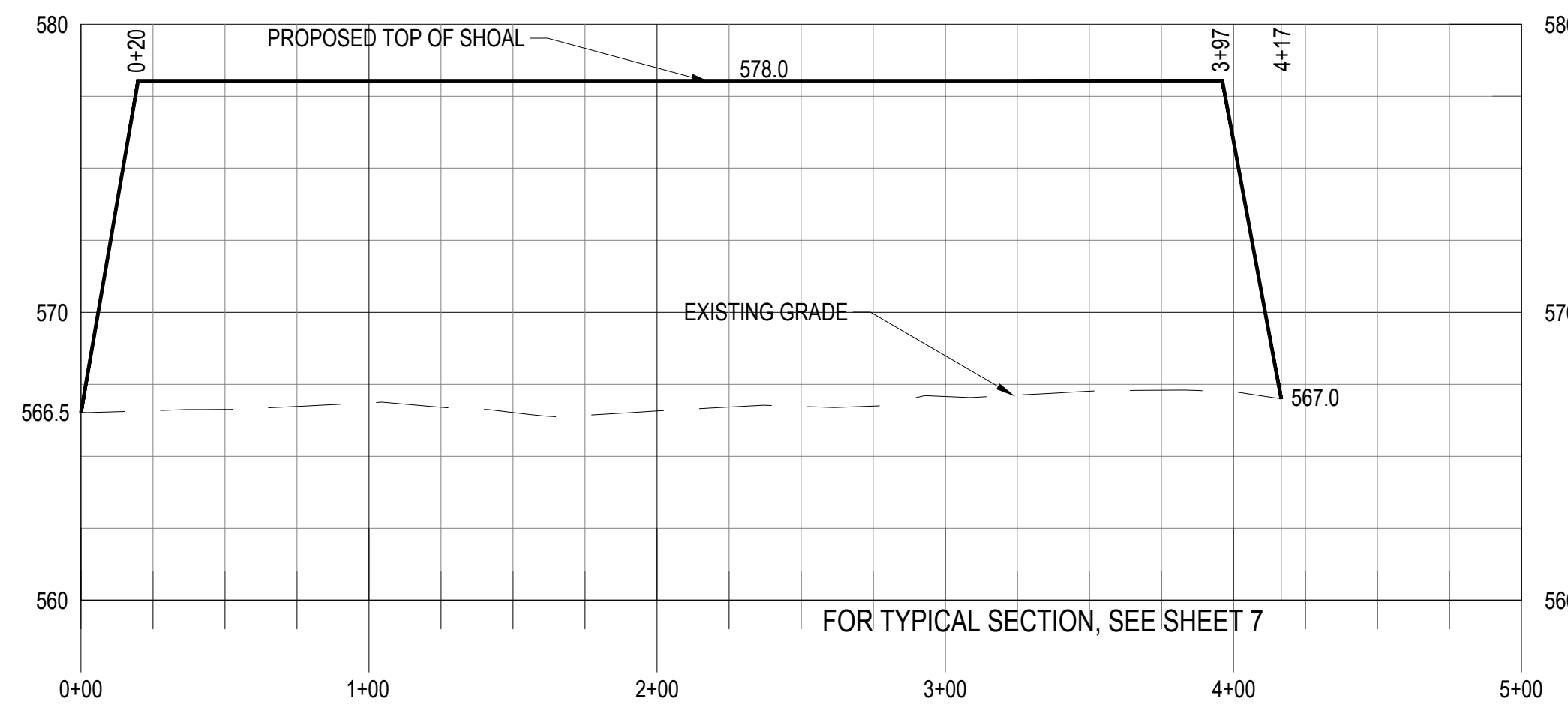
NORTH

 SHEET NUMBER
5

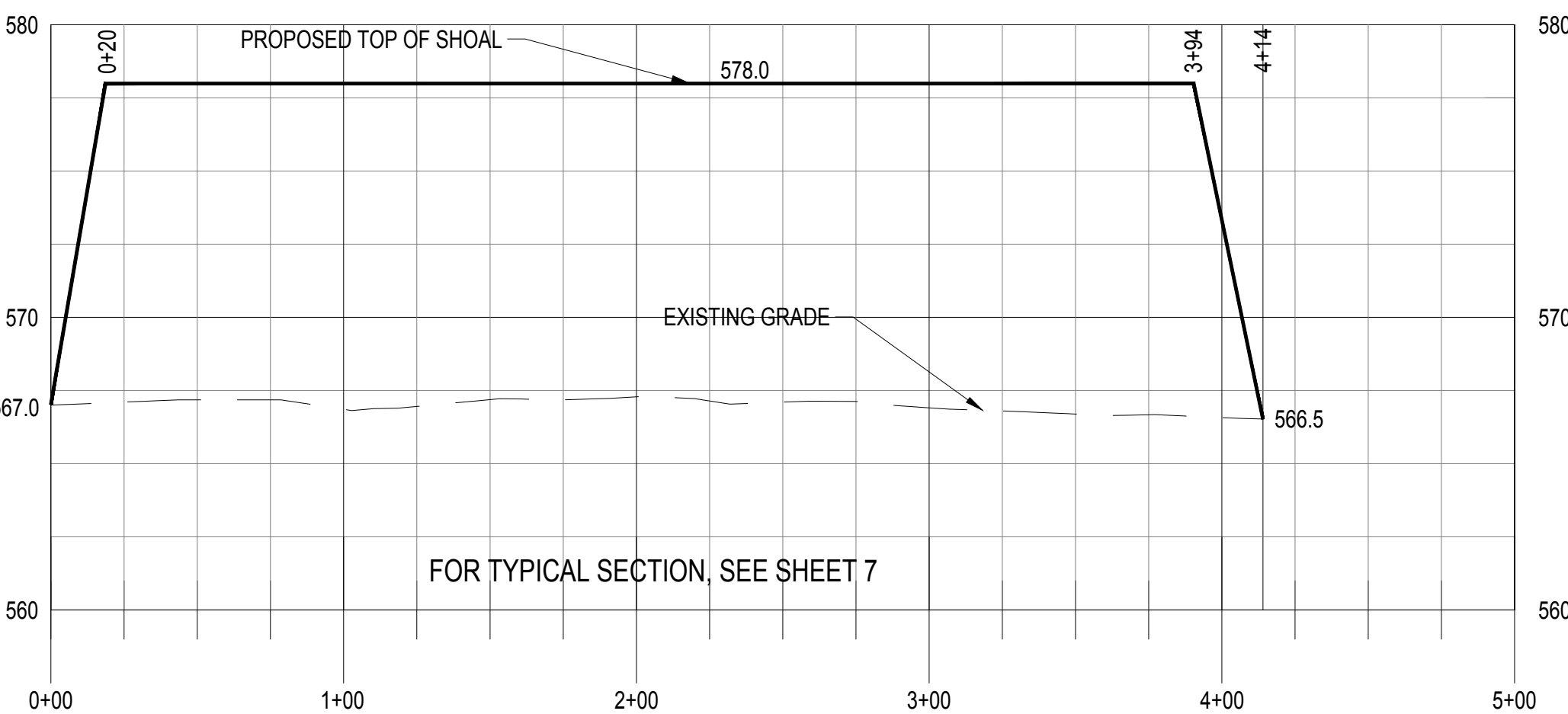
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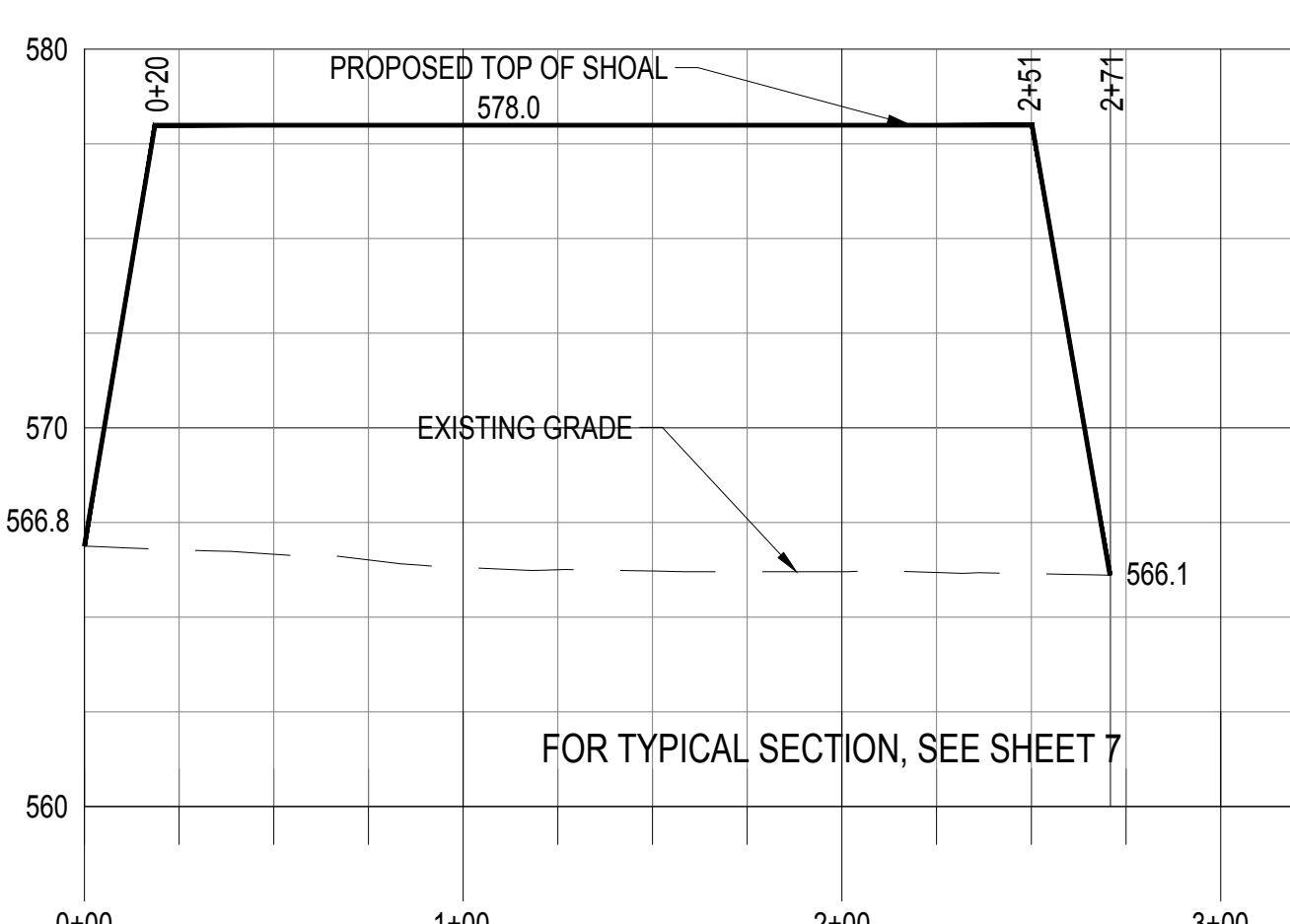
1 PROPOSED SHOAL "A" - PROFILE
6 SCALE: 1" = 50' HORIZONTAL, 1" = 5' VERTICAL



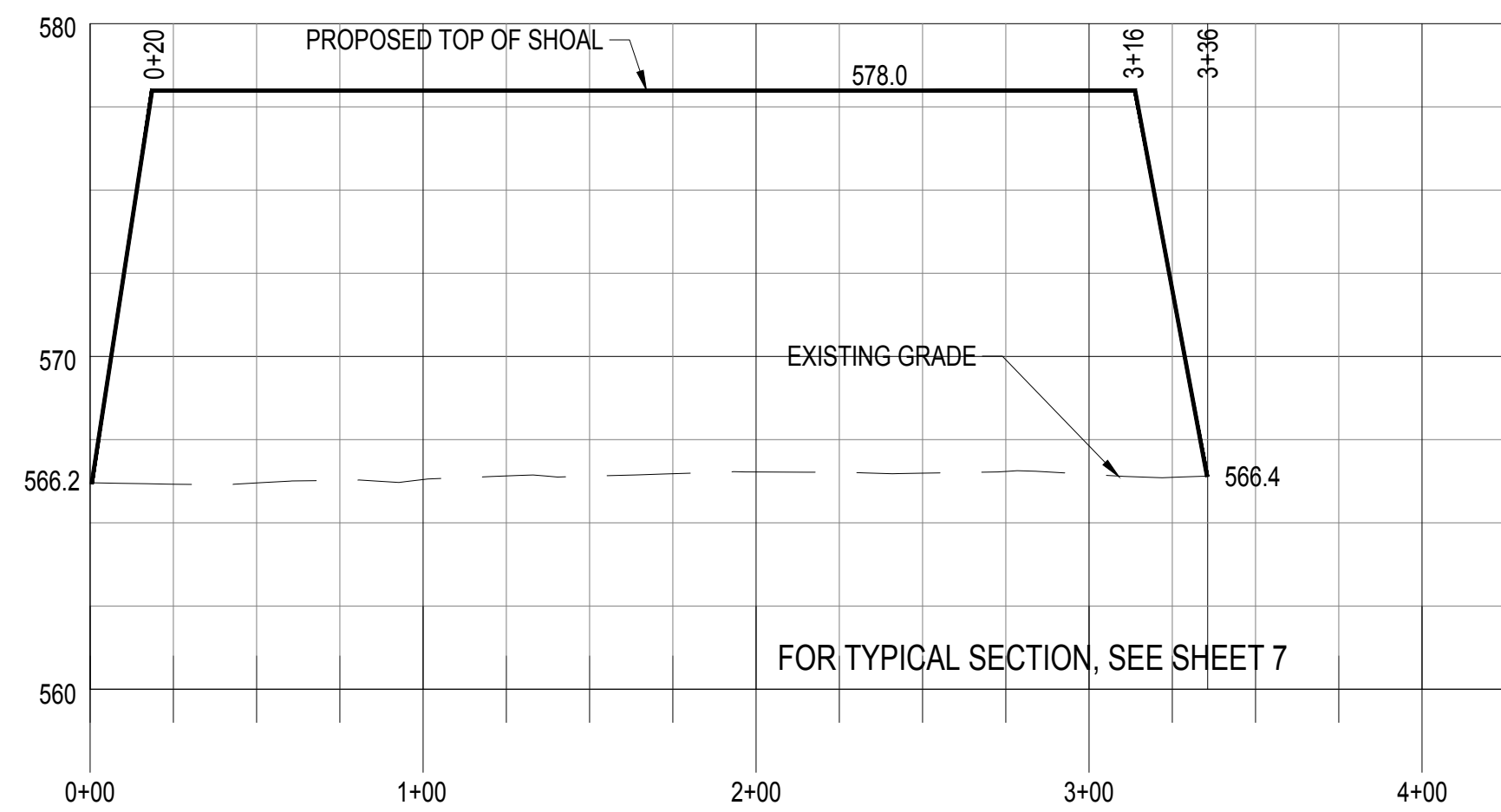
2 PROPOSED SHOAL "B" - PROFILE
6 SCALE: 1" = 50' HORIZONTAL, 1" = 5' VERTICAL



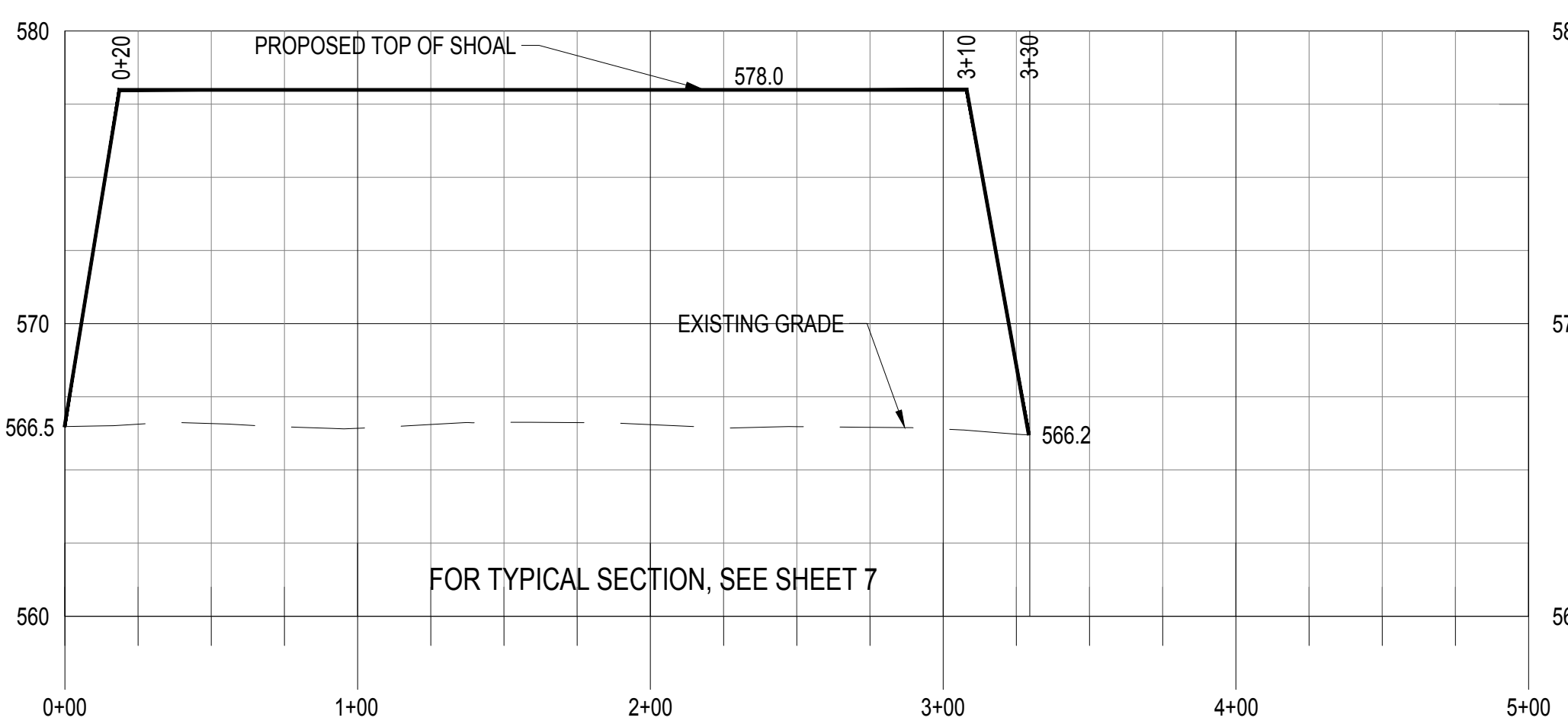
3 PROPOSED SHOAL "C" - PROFILE
6 SCALE: 1" = 50' HORIZONTAL, 1" = 5' VERTICAL



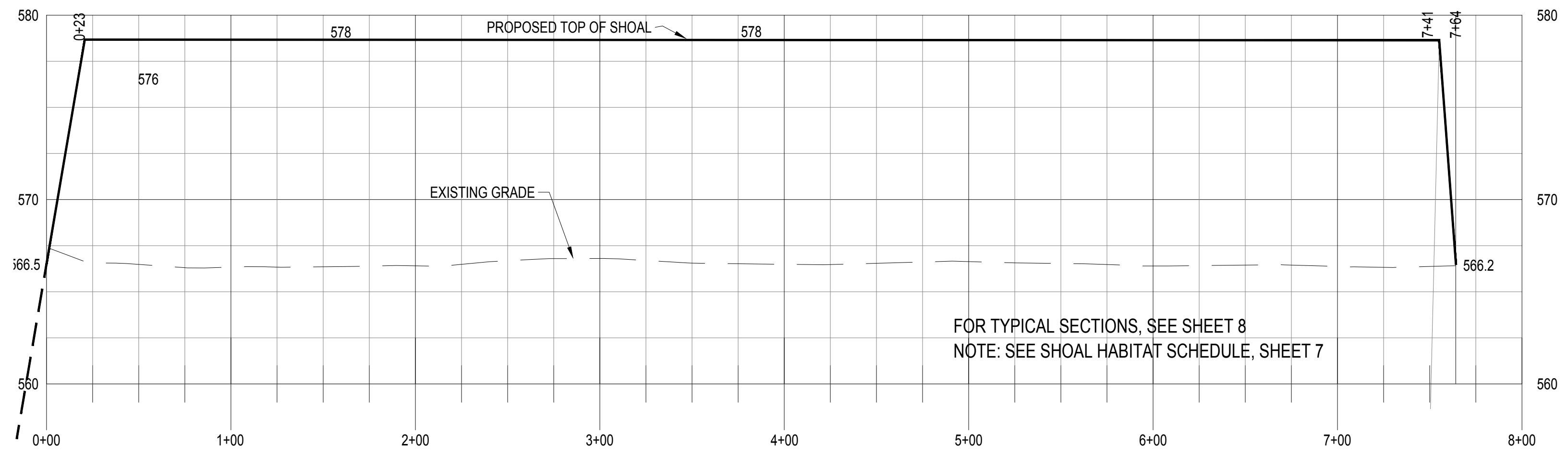
4 PROPOSED SHOAL "D" - PROFILE
6 SCALE: 1" = 50' HORIZONTAL, 1" = 5' VERTICAL



5 PROPOSED SHOAL "E" - PROFILE
6 SCALE: 1" = 50' HORIZONTAL, 1" = 5' VERTICAL



6 PROPOSED SHOAL "F" - PROFILE
6 SCALE: 1" = 50' HORIZONTAL, 1" = 5' VERTICAL



7 PROPOSED SHOAL "G" - PROFILE
6 SCALE: 1" = 50' HORIZONTAL, 1" = 5' VERTICAL

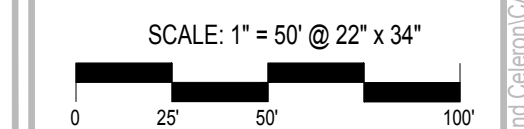
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**FRIENDS OF THE
DETROIT RIVER**
**WAYNE COUNTY,
MICHIGAN**

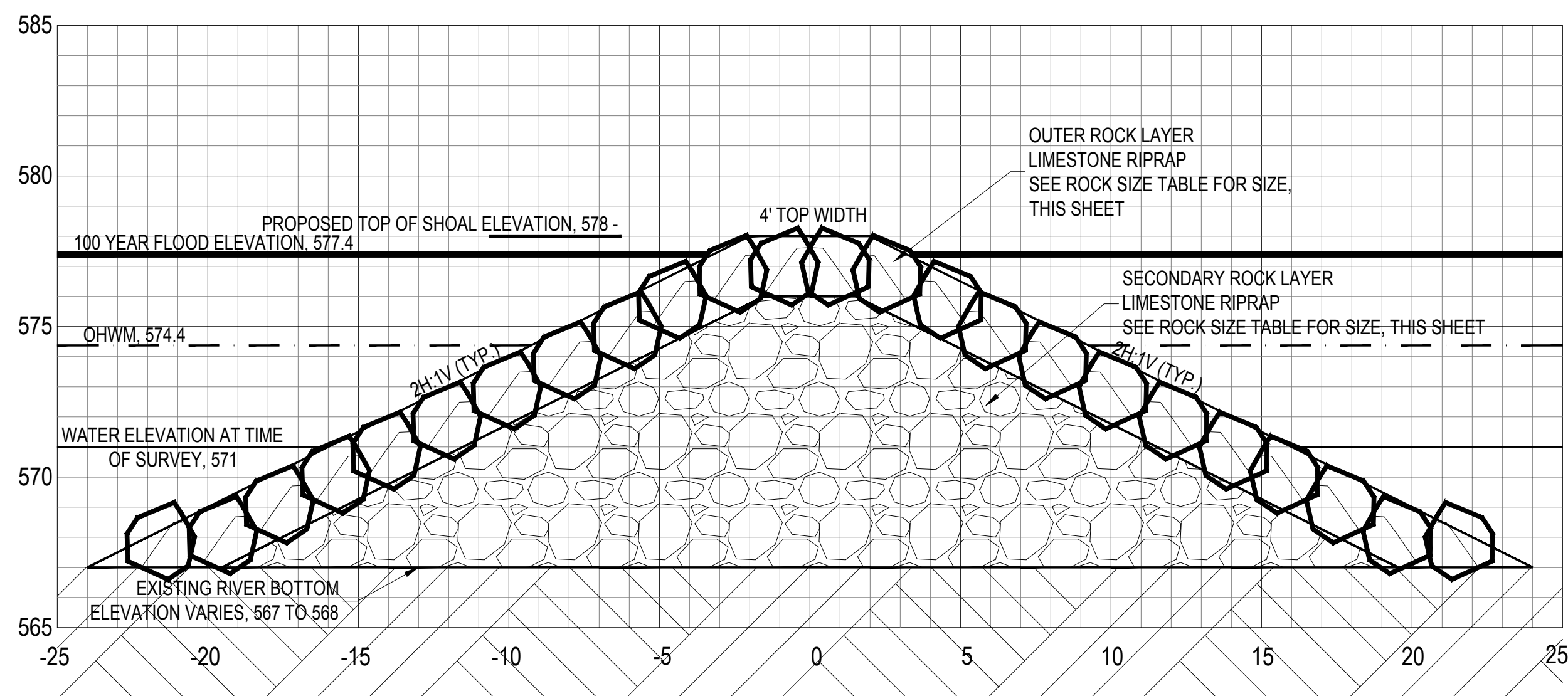
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SHEET TITLE
**SHOAL
PROFILES**



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1 TYPICAL SHOAL SECTION - SHOAL A, B, C, D, E AND F

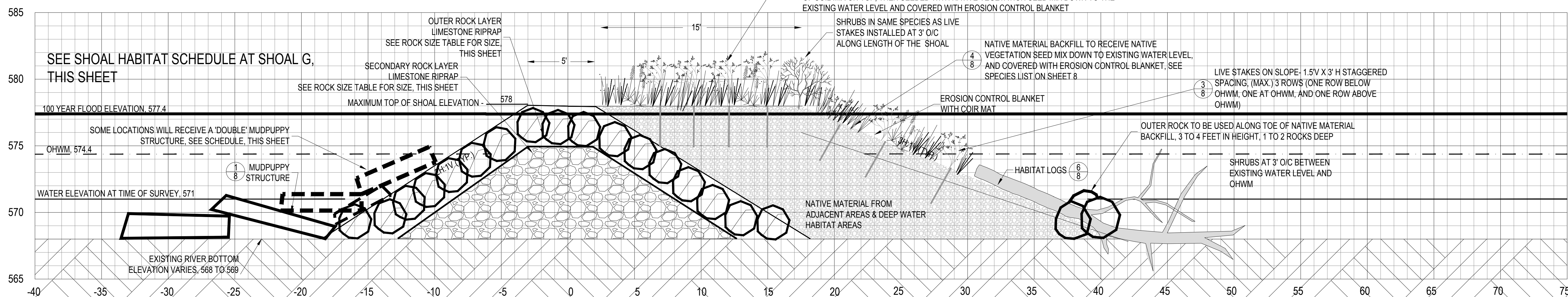
NOTES:

1. SHOAL RIP RAP MATERIALS TO BE VIBRATED INTO PLACE DURING CONSTRUCTION WITH A VIBRATING IMPACT COMPACTOR, SUCH AS A HOE-PAK TYPE PIECE OF EQUIPMENT, OR SEATED INTO PLACE BY MECHANICAL PUSH WITH AN EXCAVATOR BUCKET.
2. EROSION CONTROL BLANKET TO BE NORTH AMERICAN GREEN C125BN OR APPROVED EQUAL. ALL EROSION CONTROL BLANKET TO BE COVERED WITH COIR MAT, ROLANKA COIR MAT 60, OR APPROVED EQUAL. BOTH PRODUCTS TO BE STAKED TOGETHER.
3. 4 X 6 LIMESTONE WILL BE PLACED ON SHOAL AT LOCATIONS DESIGNATED BY ENGINEER IN THE FIELD.

ROCK SIZE TABLE

SHOAL	OUTER ROCK		SECONDARY ROCK	
	RIPRAP SIZE	D50	RIPRAP SIZE	D50
A, B, C, D, E, F, G	32"-40"	34 "	16"-24"	20 "

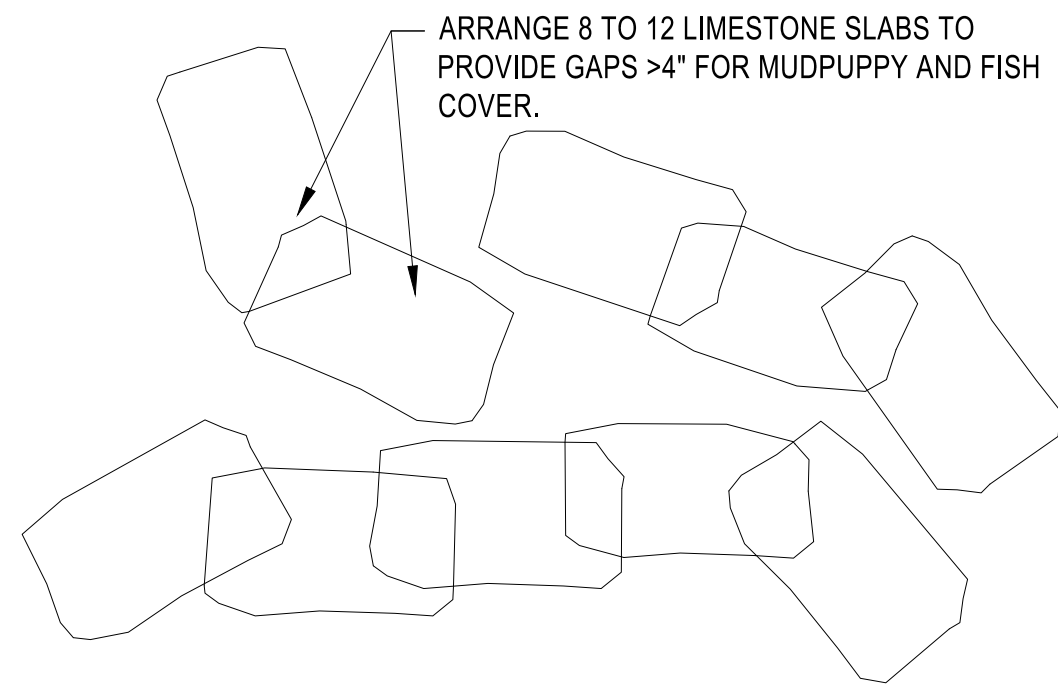
* ROCK TOLERANCE: NO MORE THAN 10% OF THE RIPRAP QUANTITY SHALL EXCEED THE MAXIMUM RIPRAP SIZE AND NO MORE THAN 10% OF THE RIPRAP QUANTITY SHALL BE SMALLER THAN THE MINIMUM RIPRAP SIZE. THE LARGEST ROCK DIMENSION SHALL BE NO MORE THAN 1.5 TIMES THE SPECIFIED D50.



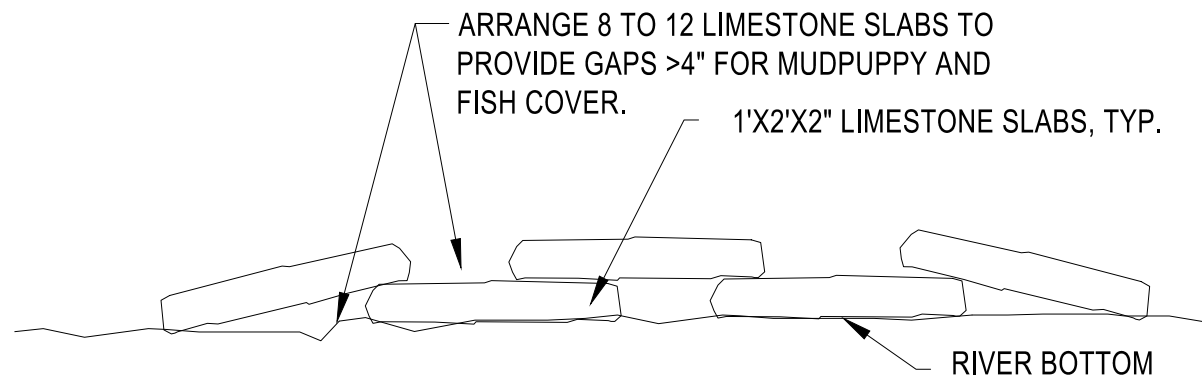
2 TYPICAL SHOAL SECTION - SHOAL G

SHOAL HABITAT SCHEDULE AT SHOAL G

	HABITAT LOGS AT SHOAL	SINGLE MUDPUPPY STRUCTURE AT SHOAL	DOUBLE MUDPUPPY STRUCTURE AT SHOAL
PROPOSED SHOAL G	0+50	0+40	0+90
	1+00	1+40	1+90
	1+50	2+40	2+90
	2+00	3+40	3+90
	2+50	4+40	4+90
	3+00	5+40	5+90
	3+50	6+40	6+90
	4+00	7+40	
	4+50		
	5+00		
5+50			
6+00			
6+50			
7+00			
7+50			



PLAN VIEW

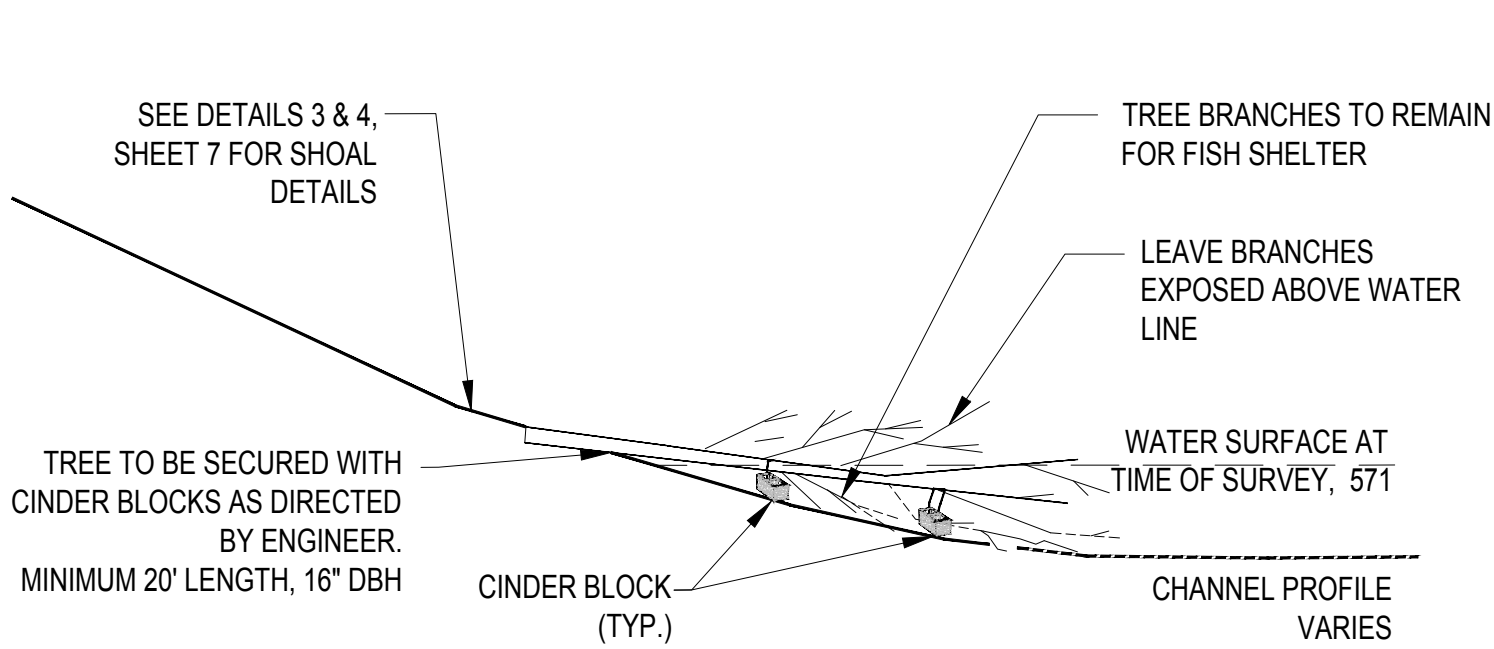


SECTION VIEW

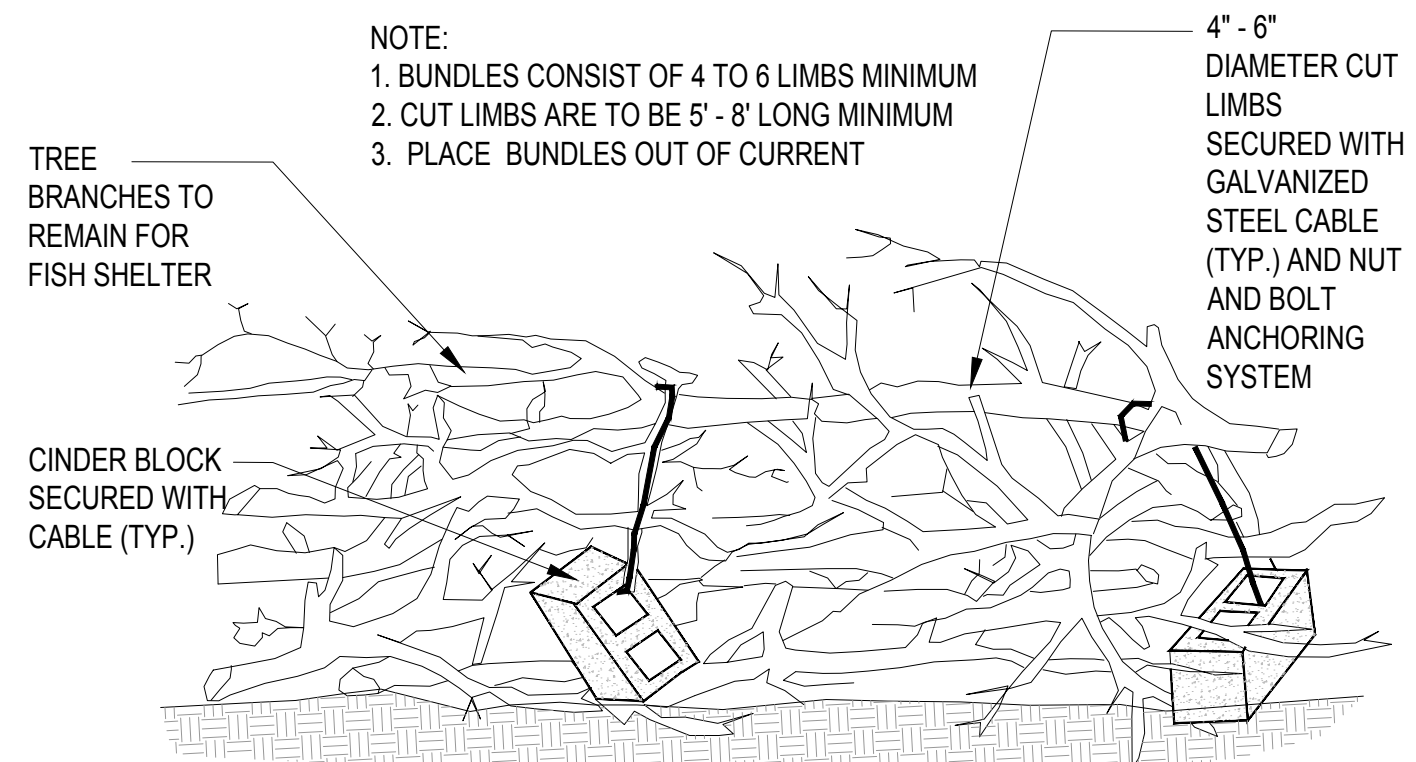
NOTES

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.

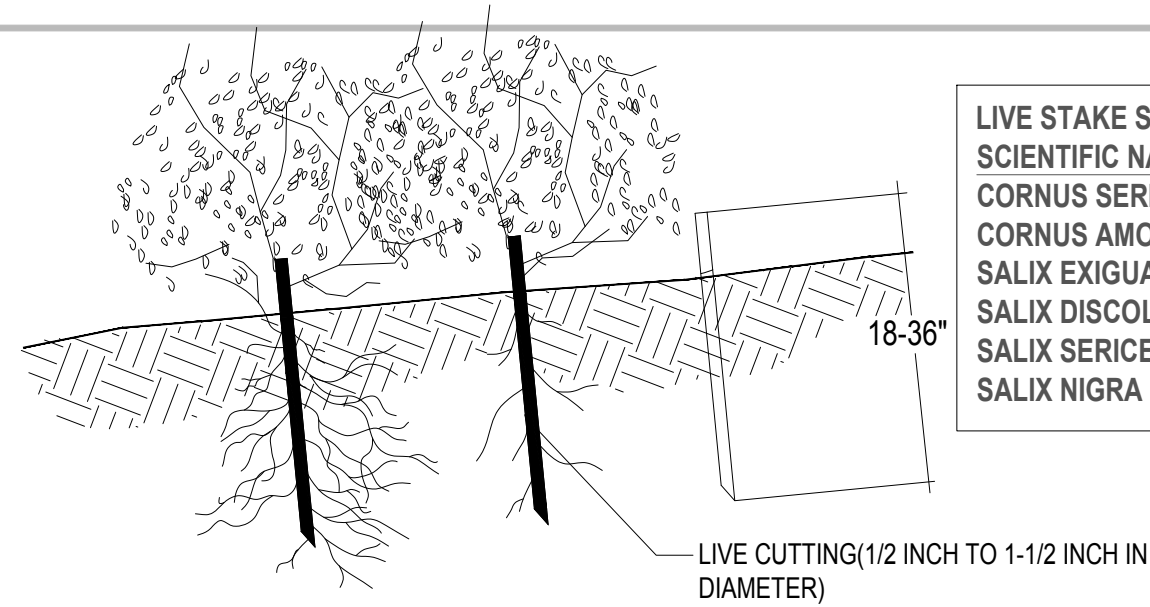
1
8 MUDPUPPY STRUCTURE DETAIL
NOT TO SCALE



5
8 BASKING LOGS DETAIL
NOT TO SCALE



6
8 BASKING LOG BUNDLE DETAIL
NOT TO SCALE



LIVE STAKE SPECIES LIST:

SCIENTIFIC NAME	COMMON NAME
CORNUS SERICEA	RED-OSIER DOGWOOD
CORNUS AMOMUM	SILKY DOGWOOD
SALIX EXIGUA	SANDBAR WILLOW
SALIX DISCOLOR	PUSSY WILLOW
SALIX SERICEA	SILKY WILLOW
SALIX NIGRA	BLACK WILLOW

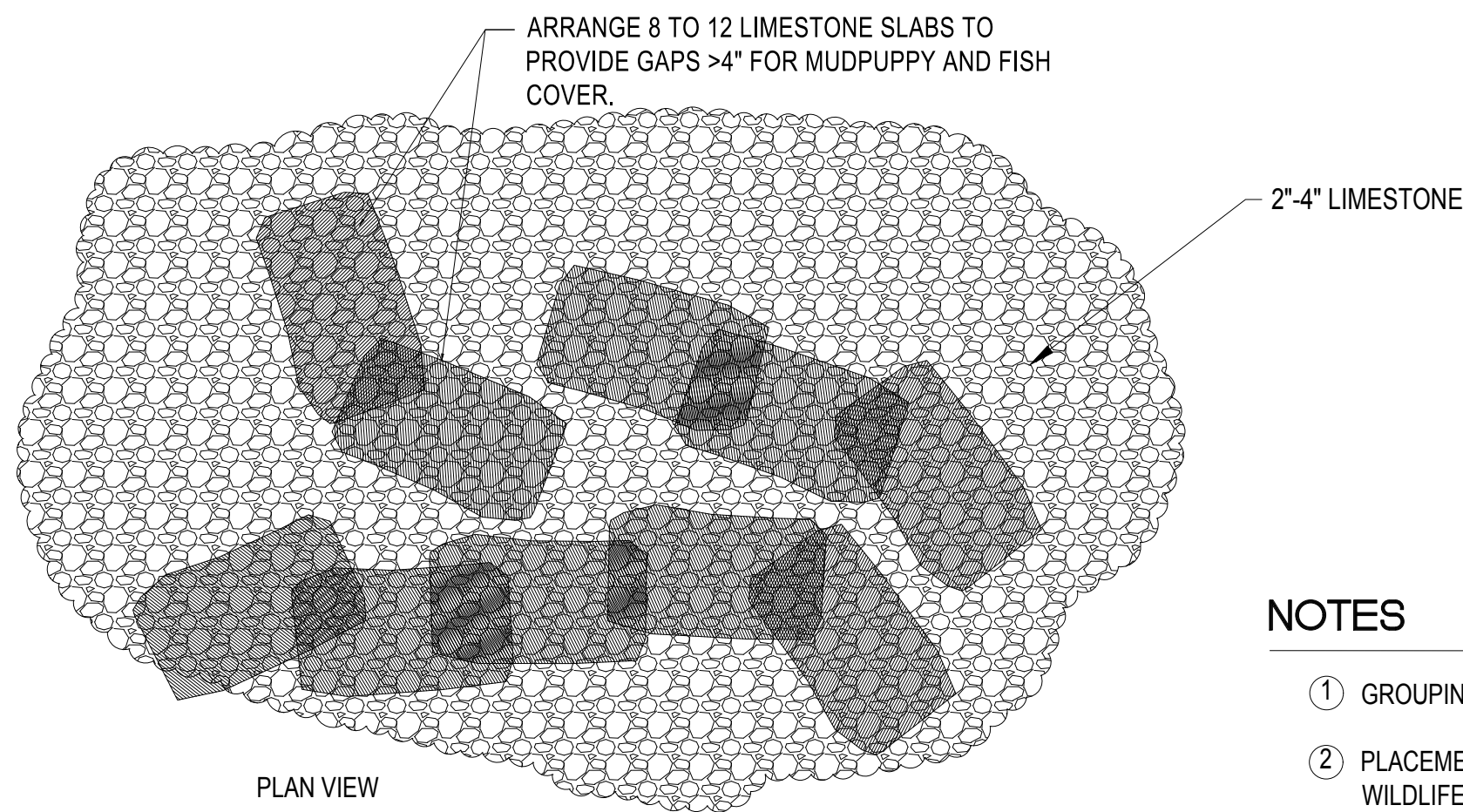
NOTES:

1. INSTALL AS DIRECTED BY LANDSCAPE ECOLOGIST, DURING FIRST DORMANT SEASON FOLLOWING SEEDING
2. ROOTED/LEAFED CONDITION OF THE LIVING PLANT MATERIAL IS NOT REPRESENTED AT THE TIME OF INSTALLATION.
3. INSTALL LIVE STAKES AT RIGHT ANGLES PUSH INTO THE GROUND BY HAND. USE DEAD BLOW HAMMER AS NEEDED.
4. BURY FOUR-FIFTHS OF THE STAKE IN THE GROUND, AND FIRMLY PACK SOIL AROUND IT. ORIENT THE BUDS UP.
5. INSTALL STAKE ROWS 1.5' APART AND INSTALL LIVE STAKES AT 3' SPACING ALONG ROWS. STAGGER ROWS TO CREATE TRIANGULAR SPACING PATTERN.
6. SPECIES LIST ON THIS SHEET

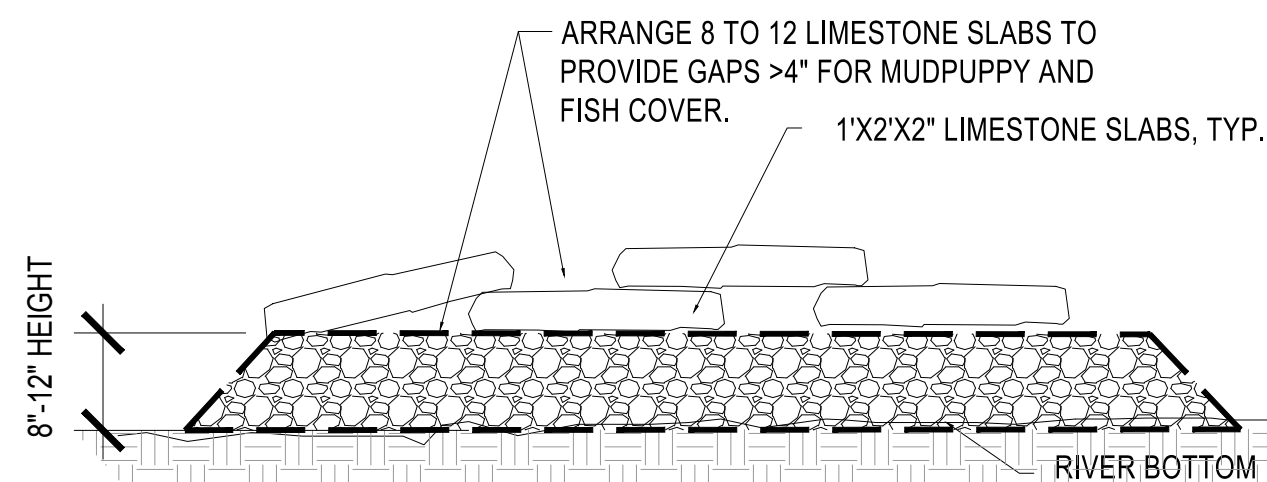
3
8 LIVE STAKE DETAIL
NOT TO SCALE

SCIENTIFIC NAME	COMMON NAME	LBS/AC
ANDROPOGON GERARDII	BIG BLUESTEM	5.000
ANDROPOGON SCOPARIUS	LITTLE BLUESTEM	5.000
BOUTELOUA CURTIPENDULA	SIDEOATS GRAMMA	5.000
ELYMUS CANADENSIS	CANADA WILD RYE	8.000
ELYMUS VIRGINICUS	VIRGINIA WILD RYE	8.000
GLYCERIA STRIATA	FOWL MANNA GRASS	1.000
PANICUM VIRGATUM	SWITCH GRASS	1.000
SORGHASTRUM NUTANS	INDIAN GRASS	10.00
SPARTINA PECTINATA	PRAIRIE CORD GRASS	0.500
SPOROBOLUS HETEROLEPIS	DROPSIED	0.500
AVENA SATIVA	SEED OATS	20.00
LOLIUM MULTIFLORUM	ANNUAL RYE	5.000
TOTAL		69.00

4
8 NATIVE VEGETATION SEED MIX
NOT TO SCALE



PLAN VIEW



SECTION VIEW

7
8 MUDPUPPY STRUCTURE WITH MUSSEL HABITAT DETAIL
NOT TO SCALE

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
BEFORE YOU DIG
CALL MISS DIG
1-800-482-7171

FOR BID	08-2017
100% DRAWINGS	11-03-14
PERMIT DRAWINGS	10-07-14
PRELIMINARY	03-11-14

130638 ECT PROJECT NUMBER	
AB/EC DESIGNED BY	JO CHECKED BY
AB/EC DRAWN BY	JO APPROVED BY

SHEET TITLE

**HABITAT
STRUCTURE
DETAILS**

