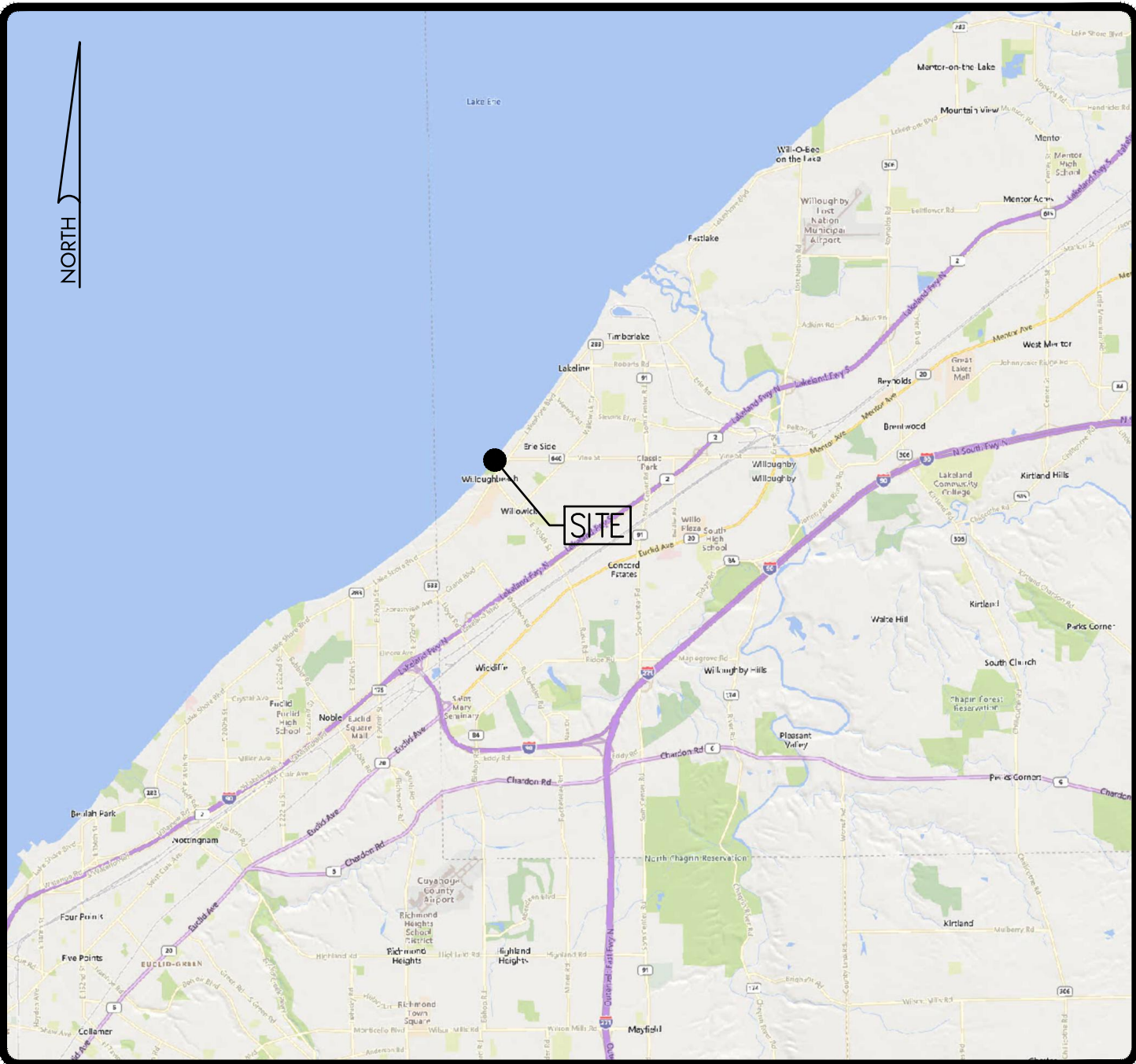


SHORE STRUCTURE IMPROVEMENT DRAWINGS

WILLOUGHBEACH LIMITED PARTNERSHIP

30707 LAKESHORE BOULEVARD, WILLOWICK, OHIO 44095
LAKE COUNTY, OHIO



MAP: VICINITY MAP SCALE: 1" = 10,000'



LOCATION MAP SCALE: 1" = 500'

SHEET INDEX	
SHEET TITLE	SHEET NO.
TITLE SHEET	C1.0
EXISTING & PRE-CONSTRUCTION SITE PLAN	C2.0
PROPOSED SITE PLAN	C3.0
CROSS SECTIONS	C4.0

PRE-CONSTRUCTION NOTICE

THESE PLANS HAVE BEEN PREPARED USING THE PRESENTLY AVAILABLE DATA AT THE TIME OF PREPARATION. FIELD CONDITIONS MAY BE ENCOUNTERED DURING CONSTRUCTION THAT COULD NOT BE ANTICIPATED, AND AS SUCH, THESE PLANS SHOULD BE USED ONLY AS A CONSTRUCTION CONTROL REFERENCE, (I.E., NOT A PRECISE CONSTRUCTION DOCUMENT). MODIFICATIONS TO THE DESIGN AS SHOWN MAY BE REQUIRED BASED ON FIELD CONDITIONS AT THE TIME OF CONSTRUCTION. IN ANY EVENT, THE ENGINEERING OBJECTIVES OF THE DESIGN SHALL BE MET. IF MODIFICATIONS TO THE PLAN ARE NEEDED DUE TO SITE CONDITIONS ENCOUNTERED, THE OWNER AND ENGINEER SHALL BE CONSULTED PRIOR TO IMPLEMENTATION OF ANY CHANGES.



4 HEMISPHERE WAY
BEDFORD, OH 44144-4216
TEL 440.232.9945
FAX 614.560.0023

V:\Seals\PAH\Stamp 2022.jpg

6/15/2022

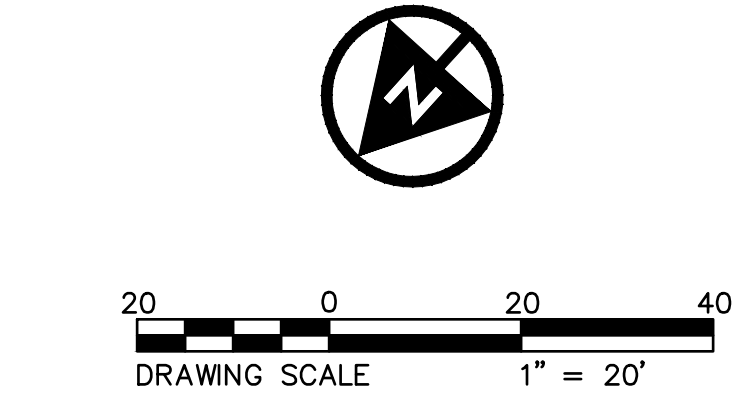
DESIGNED BY: gjc
DRAWN BY: gjc
CHECKED BY: PAH
PROJECT NO: 15318

CHK'D BY DATE	REVISION
	PRELIMINARY
	NOT FOR CONSTRUCTION

30707 LAKESHORE BOULEVARD, WILLOWICK, OHIO
SHORE STRUCTURE PERMIT
WILLOUGHBEACH LIMITED PARTNERSHIP
TITLE SHEET

APPLICATION NO.
DATE: 9/15/2022
SCALE: AS NOTED
SHEET: C1.0

z:\project files\15000\15318 Working\Design\cadd\sheets and plans\shore structure permit\15318-proposed site plan.dwg



LEGEND	
	EXISTING PARCEL LINE
	EXISTING MAJOR CONTOUR (SEE NOTE 5)
	EXISTING MINOR CONTOUR
	ORDINARY HIGH WATER MARK ELEVATION
	1993 NATURAL SHORELINE
	WATER'S EDGE 08/01/2022
	EXISTING STORM SEWER PIPE
	EXISTING STORM SEWER UNDER DRAIN
	EXISTING UNDERGROUND ELECTRIC
	EXISTING GAS LINE
	EXISTING WATER MAIN
	EXISTING STORM SEWER INLET
	EXISTING STORM SEWER CLEANOUT
	BOREHOLE LOCATION (SEE NOTE 12)
	EXISTING BUILDING
	EXISTING WALL
	EXISTING EDGE OF ASPHALT
	EXISTING CURB
	EXISTING SIDEWALK
	PROPOSED MAJOR CONTOUR (SEE NOTE 6)
	PROPOSED MINOR CONTOUR
	PROPOSED SHORELINE PROTECTION AREA
	EXISTING CONCRETE
	EXISTING GRAVEL
	EXISTING RIPRAP/CRUSHED AGGREGATE (APPROX.)
	PROPOSED REVETMENT (SEE NOTE 6)
	SUBMERGED LAND LEASE AREA

NOTES:

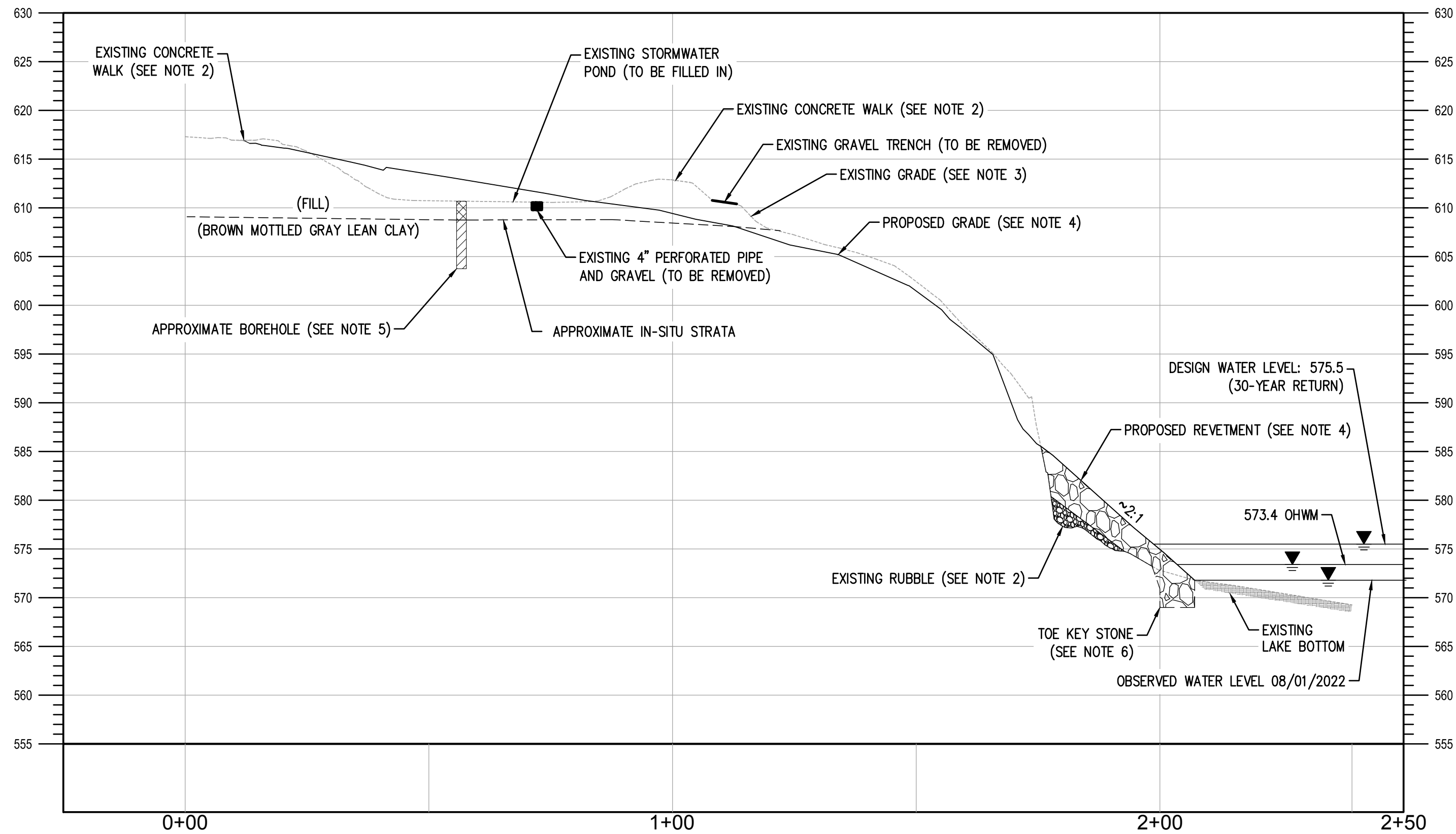
1. THE INTENT OF THIS SITE PLAN IS TO REFLECT THE WORK THAT WAS COMPLETED UNDER THE TEMPORARY SHORE STRUCTURE PERMIT 19-TLAK-18.
2. BASEMAP PROVIDED BY ATWELL, LLC. 06/07/16 AND 08/12/22.
3. VERTICAL DATUM: IGLD85.
4. THE RADIAL METHOD WAS USED TO PROJECT THE EASTERLY AND WESTERLY LITTORAL RIGHTS PARTITION LINES FROM THE INTERSECTION OF THE UPLAND PROPERTY LINE AND THE 1993 NATURAL SHORELINE. THE GENERAL ORIENTATION OF THE SHORELINE WAS DETERMINED BY EXAMINING LAKE COUNTY GIS PARCEL DATA AND AERIAL IMAGERY FOR A REACH OF 0.6 KILOMETERS. THE ORIENTATION OF THE EASTERLY AND WESTERLY LITTORAL RIGHTS PARTITION LINE WAS DETERMINED BY PROJECTING RADIALLY FROM THE GENERAL ALIGNMENT OF THE 0.6 KILOMETER REACH OF THE SHORELINE.
5. EXISTING TOPOGRAPHIC CONTOURS SHOWN ARE 2019 LIDAR DATA PROVIDED BY THE OHIO GEOGRAPHICALLY REFERENCED INFORMATION SYSTEM (OGRIP) DATABASE. THE BATHYMETRY CONTOURS SHOWN ARE FROM ATWELL, LLC. BATHYMETRIC SURVEY 08-11-2022. THE WATER'S EDGE LEVEL AND LOCATION WERE OBSERVED BY ATWELL, LLC. ON 08-01-2022.
6. PROPOSED GRADES SHOWN AND THE LIMITS OF THE PROPOSED REVETMENT ARE BASED ON THE AS-BUILT INFORMATION FROM ATWELL, LLC. TOPOGRAPHIC SURVEY 08-01-2022.
7. THE EXISTING RUBBLE FILL, WHICH CONSISTS OF ROCK, CONCRETE SLABS, AND MISCELLANEOUS DEBRIS, MAY REMAIN BENEATH THE PROPOSED ARMOR STONE REVETMENT. SEE SHEET C4.0 FOR MORE DETAIL.
8. THE PROPOSED STORMWATER IMPROVEMENTS, INCLUDING REGRADING AND REVEGETATION AT THE TOP OF THE SLOPE, SHALL BE IMPLEMENTED CONCURRENT WITH OR IMMEDIATELY FOLLOWING THE SIDE SLOPE/ShORELINE IMPROVEMENT WORK.
9. THE EXISTING SIDE SLOPE SHALL BE REGRADED TO A MAXIMUM 1.5:1 (HORIZONTAL TO VERTICAL) SLOPE IN PREPARATION FOR PLACEMENT OF THE PROPOSED REVETMENT THAT WILL CONSIST OF ARMOR STONE. SEE SHEET C4.0 FOR MORE DETAIL.
10. SIDE CAST ALL EXCAVATED GRANULAR MATERIAL INTO THE LITTORAL DRIFT AREA.
11. THE SHORELINE PROTECTION TO EXTEND NO MORE THAN 15 FEET LAKEWARD OF THE EXISTING TOE OF SLOPE. SEE SHEET C4.0 FOR MORE DETAIL.
12. APPROXIMATE LOCATIONS OF BOREHOLES PROVIDED BY THE SUBSURFACE EXPLORATION AND GEOTECHNICAL ENGINEERING REPORT, PREPARED BY GEOTECHNICAL CONSULTANTS, INC. (GCI). SEE SHEET C4.0 FOR MORE DETAIL.
13. THE NATURAL SHORELINE SHOWN HEREON IS A COMPOSITE SHORELINE DEPRIVED BY ATWELL, LLC. USING A COMBINATION OF SHORELINES. THE EASTERLY PORTION IS BASED ON AS SURVEYED LOCATIONS FROM ATWELL, LLC. SURVEY ON 08-01-2022, AND THE WESTERLY IS BASED ON 1993 HISTORICAL AERIAL IMAGERY.

30707 LAKESHORE BOULEVARD, WILLOWICK, OHIO
SHORE STRUCTURE PERMIT
WILLOUGHBEACH LIMITED PARTNERSHIP
PROPOSED SITE PLAN

APPLICATION NO.
DATE: 9/15/2022
SCALE: AS NOTED
SHEET: C3.0

DESIGNED BY: GJC	DRAWN BY: GJC	CHECKED BY: PAH	PROJECT NO.: 15318
CHK'D BY: DATE	REVISION	PRELIMINARY NOT FOR CONSTRUCTION	
No.			

z:\project files\15000\15318\working\design\cdd\sheets and plans\shore structure permit\15318-cross sections.dwg



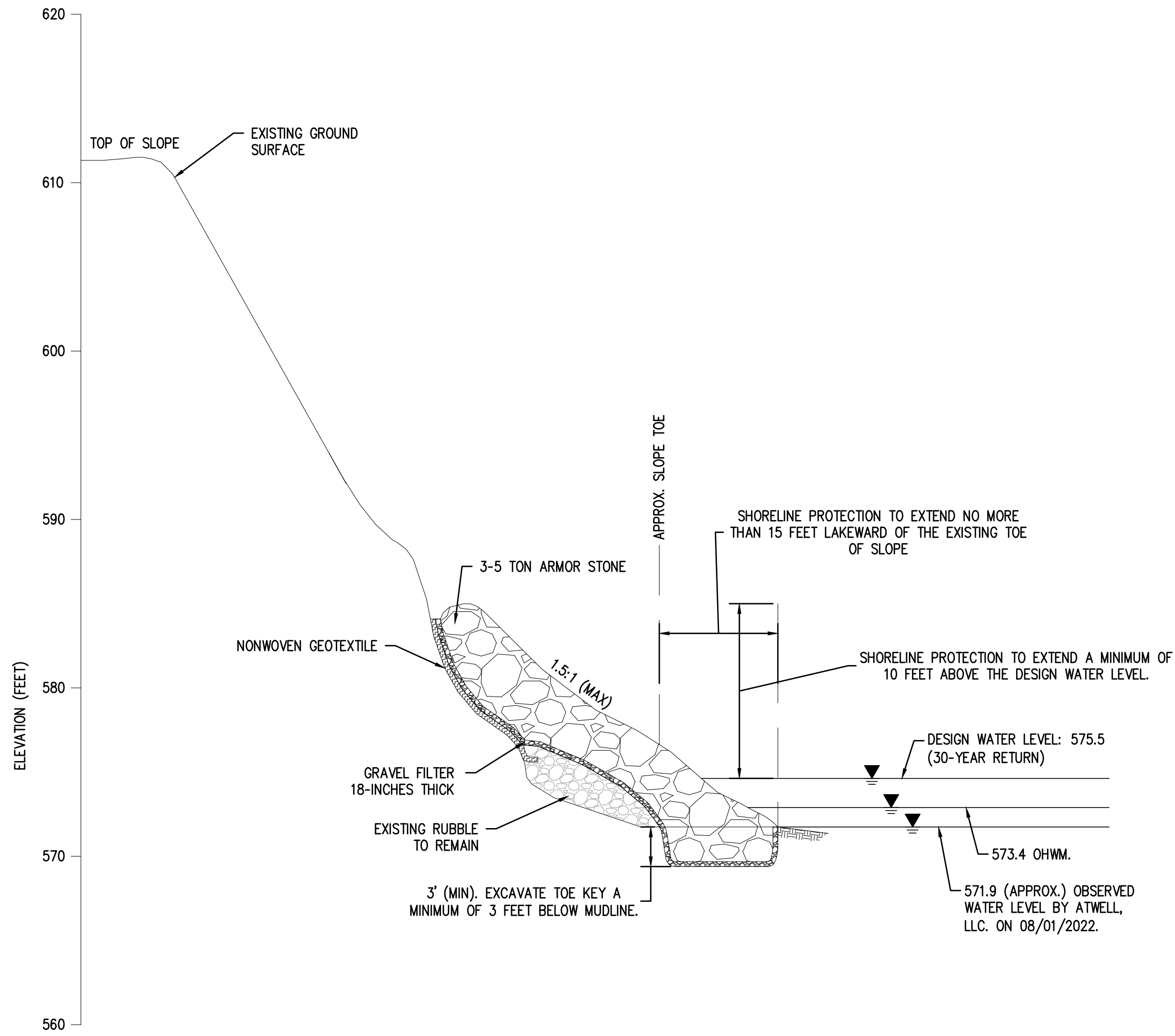
PROPOSED SHORE STRUCTURE IMPROVEMENT TYPICAL CROSS SECTION

NOTES:

1. VERTICAL DATUM: IGLD85.
2. THE EXISTING RUBBLE FILL, WHICH CONSISTS OF ROCK, CONCRETE SLABS, AND MISCELLANEOUS DEBRIS MAY REMAIN BENEATH THE PROPOSED ARMOR STONE REVETMENT. THE EXISTING CONCRETE SIDEWALK WILL BE REMOVED, BROKEN UP, AND ADDED TO EXISTING RUBBLE FILL BENEATH THE PROPOSED ARMOR STONE.
3. EXISTING TOPOGRAPHIC CONTOURS SHOWN ARE 2019 LIDAR DATA PROVIDED BY THE OHIO GEOGRAPHICALLY REFERENCED INFORMATION SYSTEM (OCRIP) DATABASE. THE BATHYMETRY CONTOURS SHOWN ARE FROM ATWELL, LLC. BATHYMETRIC SURVEY 08-11-2022. THE WATER'S EDGE AND LEVEL WERE OBSERVED BY ATWELL, LLC. ON 08-01-2022.
4. PROPOSED GRADES ARE BASED ON THE AS-BUILT INFORMATION FROM ATWELL, LLC. TOPOGRAPHIC SURVEY 08-01-2022.
5. THE SUBSURFACE EXPLORATION AND GEOTECHNICAL ENGINEERING REPORT PREPARED BY GEOTECHNICAL CONSULTANTS, INC. (GCI) IN 2014 FOUND THAT THE SUBSURFACE STRATA WAS PRIMARILY COMPOSED OF FILL MATERIAL (STAINED BROWN MOTTLED GRAY LEAN CLAY WITH TRACE RUBBLE) AND UNDERLAIN BY BROWN MOTTLED GRAY LEAN CLAY.
6. BASED ON DISCUSSIONS WITH THE CONSTRUCTION CONTRACTOR (HUFFMAN EQUIPMENT RENTAL & CONTRACTING, INC.), THE TOE KEY WAS CONSTRUCTED DOWN TO APPROXIMATELY THE LOW WATER DATUM ELEVATION (569.2).

LEGEND

- PROPOSED REVETMENT
- EXISTING RUBBLE FILL (SEE NOTE 2)
- EXISTING FILL (SEE NOTE 4)
- EXISTING CLAY (SEE NOTE 4)



PROPOSED SHORE STRUCTURE IMPROVEMENT TYPICAL DETAIL

SCALE: N.T.S.

SCOPE OF WORK AND MATERIAL SPECIFICATIONS:

NONWOVEN GEOTEXTILE

SHOULD CONSIST OF MIRAFI 180N OR SIMILAR (MINIMUM 8.0 OZ/SY WEIGHT).

GRAVEL FILTER

LAYERS SHOULD CONSIST OF CLEAN CRUSHED (ANGULAR) GRAVEL GENERALLY MEETING THE SPECIFICATION FOR CRUSHED AGGREGATE SLOPE PROTECTION AND FILTER AGGREGATE FOR DUMP ROCK (ODOT 703.19 A).

SITE PREPARATION

CLEARING AND GRUBBING SHOULD BE KEPT TO THE MINIMUM; CLEAR SLOPE REPAIR AREA OF BRUSH, TREES, STUMPS OR OTHER OBJECTIONABLE MATERIALS AND MINOR GRADE TO A SMOOTH UNIFORM SURFACE. LOOSE, SOFT OR SPONGY MATERIAL, AND LARGE ROCKS PROJECTING THROUGH THE SLOPE SHOULD BE REMOVED AND RESULTING MINOR POTHoles OR HOLLOWs BACKFILLED AND COMPACTED. EXISTING RUBBLE ON SHORELINE MAY REMAIN.

EXCAVATE TOE KEY A MINIMUM OF 3 FEET BELOW THE MUDLINE AS SHOWN.

PLACING FILTER LAYERS AND ARMOR STONE

NONWOVEN GEOTEXTILE SHOULD BE PLACED ON THE PREPARED SLOPE AND EXTENDED BENEATH THE RIPRAP TOE WHERE PRACTICAL. WHERE GEOTEXTILE TERMINATES MID-SLOPE (I.E. AT THE EXISTING RUBBLE) THE GEOTEXTILE SHOULD BE WRAPPED AROUND THE STONE AT THE BOTTOM. THE GEOTEXTILE SHOULD BE LAID IN ROWS UP-DOWN THE SLOPE WITH MINIMUM OVERLAP OF 2 FEET BETWEEN SHEETS. SECURING PINS MAY BE PLACED AT REGULAR INTERVALS ALONG THE MID-POINT OF THE OVERLAPS. FOLDS MAY BE LEFT IN THE SHEETS TO PREVENT STRETCHING AND TENSION FROM PLACEMENT AND SUBSEQUENT SETTling OF THE ARMOR STONE.

THE GRAVEL FILTER LAYERS SHOULD BE SPREAD EVENLY ON THE PREPARED SLOPE/GEOTEXTILE TO A MINIMUM THICKNESS OF 18 INCHES. FILTER GRAVEL LAYERS SHOULD BE PLACED BY TECHNIQUES THAT DO NOT RESULT IN SEGREGATION OF THE ROCK MASS. COMPACTING IS NOT REQUIRED BUT THE SURFACE SHOULD BE REASONABLY SMOOTH WHEN COMPLETE.

PLACE ARMOR STONE IN A STABLE CONDITION, APPROXIMATELY 1.5H:1V (HORIZONTAL TO VERTICAL) OR FLATTER. ARMOR STONE SHOULD BE PLACED A MINIMUM OF TWO STONE THICKNESS ON THE SLOPE.



4 HEMISPHERE WAY
BEDFORD, OH 44144-4216
TEL 440.232.9945
FAX 614.360.0023

V:\seals\PAH\Stamp 2022.jpg

6/15/2022

DESIGNED BY:	gjc
DRAWN BY:	gjc
CHECKED BY:	PAH
PROJECT NO.	15318
CHK'D BY:	
DATE:	
REVISION	
No.	

PRELIMINARY
NOT FOR
CONSTRUCTION

30707 LAKESHORE BOULEVARD, WILLOWICK, OHIO
SHORE STRUCTURE PERMIT
WILLOUGHBEACH LIMITED
PARTNERSHIP
CROSS SECTIONS

APPLICATION NO.

DATE:
9/15/2022

SCALE:
AS NOTED

SHEET:
C4.0