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HOWARD MARSH CELL 2

LUCAS COUNTY

Metro Parks



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DUCKS UNLIMITED
7322 NEWMAN BOULEVARD, BUILDING 1
DEXTER, MICHIGAN 48130
(734) 623-2000 www.ducks.org



COVER SHEET
HOWARD MARSH CELL 2
WETLAND ENHANCEMENT
TOLEDO, OHIO
LUCAS COUNTY

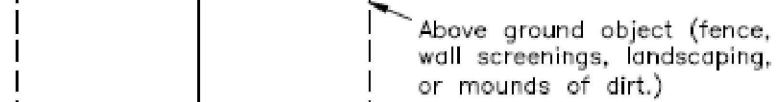
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CAD FILE: OH-38-5_CS & QTYs
DESIGNED BY: BN
DRAWN BY: PML
CHECKED BY: GB
LOGIST: RT
DATE: NOV. 2018
PROJECT NUMBER: US-OH-038-5
LARO-XX0-000-000

ESTIMATED QUANTITIES

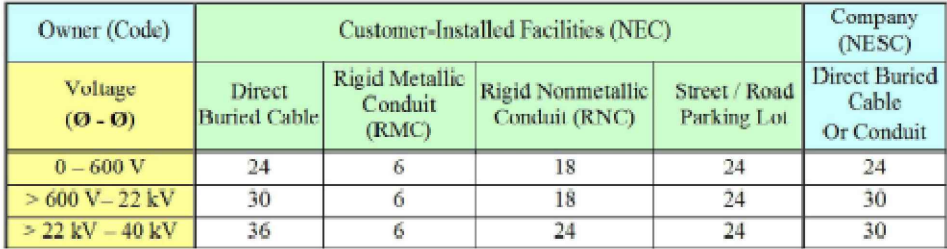


TYPICAL TRENCHING DETAILS FOR INSTALLATION OF
SECONDARY/SERVICE LATERAL & PRIMARY CONDUCTORS
(DIRECT BURIED OR CONDUIT)

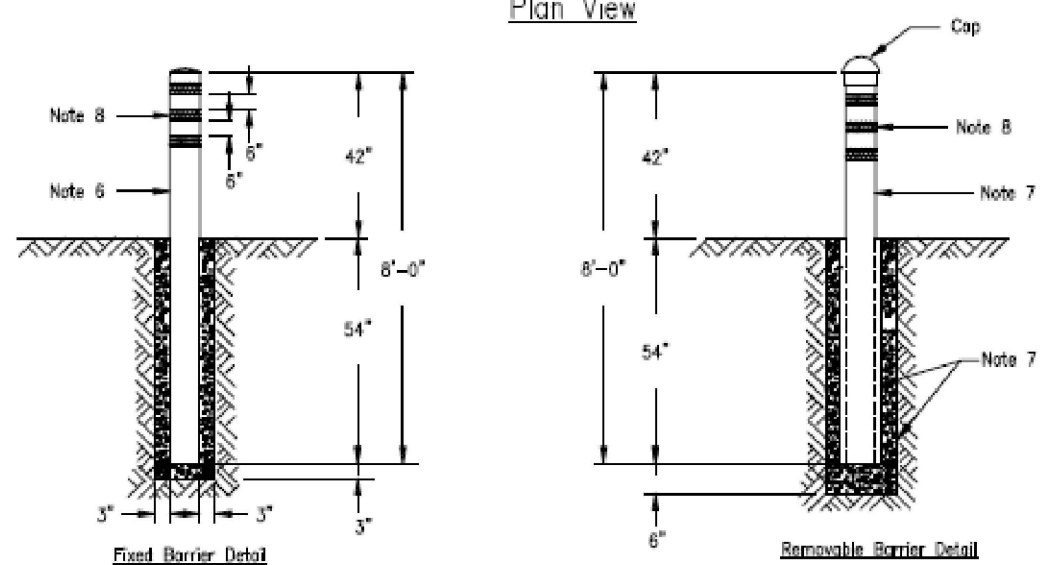


1. **Warning:** Pad-mounted transformers and pad-mounted equipment have underground electric cables entering and exiting them below grade. When it is decided to install new projects, the project manager must be aware of the location of the pad-mounted equipment in Section 3.13 before digging so that underground cable locations can be marked.
2. Three (3) feet minimum clearance shall be maintained even after all plants have been removed. Minimum clearance shall be maintained for the pad-mounted equipment at least seven (7) feet from the back and side of the pad-mounted device, pedestal, or hardware. Avoid planting shrubs or setting posts directly over cables. Avoid vegetation with thorns or spines.
3. If a pad-mounted transformer or switch or other similar device with front, side, or rear doors, the minimum 3-foot clearance shall be increased to 10 feet.
4. Minimum safety clearances to gas meters shall be three (3) feet and to tanks shall be five (5) feet. Minimum clearance to electrical equipment shall be seven (15) feet.
5. For minimum clearances to buildings or structures – see Exhibit 22.
6. Company shall not be responsible for replacing shrubs, plants, fences, wall or driveway and other obstructions that need to be removed for maintenance or restoration work.

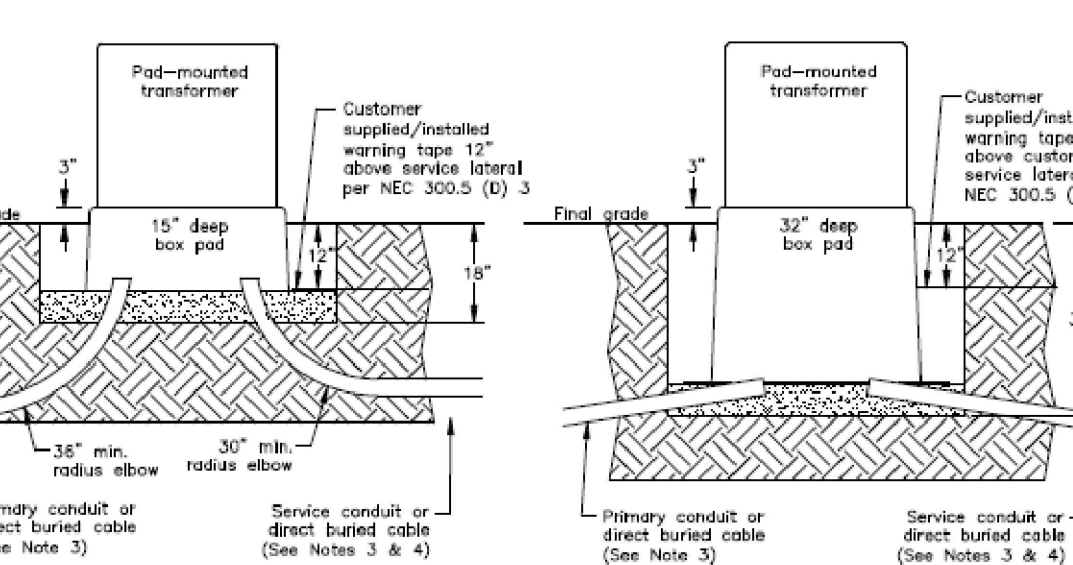
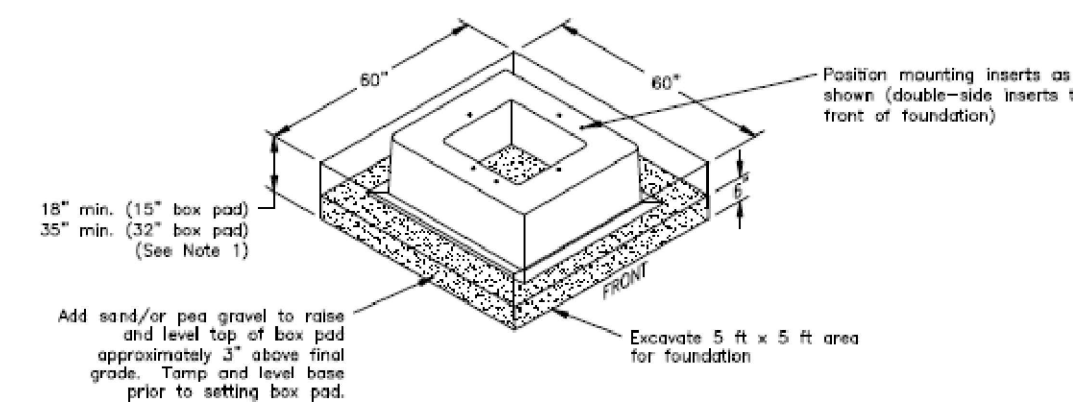
CLEARANCES OF PAD-MOUNTED EQUIPMENT, PEDESTAL HANDHOLES, OR MANHOLES FROM SHRUBS, PLANTS, FENCES, WALL SCREENINGS, & OTHER OBSTRUCTIONS



TYPICAL TRENCHING DETAILS FOR INSTALLATION OF
SECONDARY/SERVICE LATERAL & PRIMARY CONDUCTORS
(DIRECT BURIED OR CONDUIT) GENERAL NOTES



5. Use barriers to protect equipment or poles from possible damage from vehicles. Customer should contact Company for placement.
6. Provide clearance for the operation, removal, or replacement of equipment when overhead obstacles prevent removal of equipment.
7. When necessary, height of barrier above ground may be increased to prevent large vehicles from striking pole-mounted equipment.
8. Poles/barricade from equipment clearance on all sides where equipment does not lie located. Removable barriers shall not be used for this purpose.
9. With Company approved this barrier may be reduced to 24 inches provided clearances are maintained for them such as:
 - a. For fixed vehicle barrier, use 6-inch diameter rigid polyurethane solid, clear, at 8 feet and fill with concrete. Encase in 3 inches of concrete, as shown. Power installed barrier posts (minimum size: 84 inches long, 1 1/2-inch diameter, 8-truck holes) are also approved.
 - b. For removable vehicle barrier, use 6-inch diameter PVC Schedule 40 PVC, clear, at 54 inches and encase in concrete. Insert 8 trunks (minimum size: 84 inches long, 1 1/2-inch diameter, 8-truck holes) with concrete, with cap, into PVC container. Use 6 inches of compacted stone or gravel for support.
10. Vehicle barriers shall be painted yellow with three strips of 3-inch wide white reflective tape.

VEHICULAR BARRIER FOR
PAD-MOUNTED EQUIPMENT OR POLES

1. Customer shall contact Company before excavating for location and orientation of foundation. Company shall specify a 15" or a 32" deep fiberglass box pad foundation.
2. Customer shall be responsible for excavation; foundation base material (leveled and tamped); conduit installation (if required), 1/4" nylon or polypropylene pull rope, wire tape, and backfill. Company shall install box pad foundation. Remove larger rocks in spoils before backfilling. Backfill after foundation is installed.
3. See Exhibit 24 for trenching details.
4. For Company-owned services 350 kerril or less, use 3" PVC electrical grade conduit.
5. For Company-owned services follow NEC requirements.
6. Customer shall notify state One-Call agency before excavation. Refer to Sections 3.13 & 3.14.

TYPICAL SINGLE-PHASE BOX PAD FOUNDATION INSTALLATION

QUANTITIES

By						
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Date

[illegible]

Revision					
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[illegible]

15						
1						

DESIGNED BY: BN

DRAWN BY: PML

DATE:
NOV 2018

GLARO-XX0-000-001

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PRELIMINARY NOT FOR CONSTRUCTION

PRELIMINARY NOT FOR CONSTRUCTION

SHEET 20

SHEET 20

SHEET 20

SHEET 20

SHEET 203 —
SHEET 202

SHEET 203

CANOE PAT
(REFER TO DETAIL SHEET 401

CANOE PATH
(REFER TO DETAIL SHEET 401)

POTHOLE 5
±6.8 ACRES
BOTTOM ELEV. = 569

TYPICAL POTHOLE DETAIL
(REFER TO SHEET 401)

TYPICAL INTERIOR BORROW DITCH DETAIL
(REFER TO SHEET 401)

90,450 SF RIP RA
@ 2' DEPTH

CELL 2 DIKE 12' WIDE TO
@ ELEV = 579.5' WITH 3:1
INTERIOR SIDE SLOPES. 4:1
EXTERIOR SLOPES.
REFER TO TYPICAL SECTION
A-A ON SHEET 401 FOR
ADDITIONAL INFORMATION

100' MIN. SETBACK FROM CL OF S
HOWARD RD. TO THE TOE OF
PROPOSED EMBANKMENT

HOWARD BIRD








GRADING TRANSITION
BETWEEN DIKE SECTION
A-A AND SECTION B-B
REFER TO SHEET 209
ENLARGED GRADING PLAN
FOR ADDITIONAL
INFORMATION

SITE AND GRADING PLAN NOTE

1. TYPICAL EMBANKMENT SECTIONS A-A, B-B AND C-C ARE SHOWN IN DETAIL OF SHEET 401.
2. TOPSOIL DEPTHS ENCOUNTERED DURING GEOTECHNICAL FIELDWORK VARIED BETWEEN 0"-12". DURING CONSTRUCTION IN AREAS MARKED FOR TOPSOIL REMOVAL, ALL TOPSOIL MUST BE REMOVED REGARDLESS OF DEPTH. AN AVERAGE OF 6" OF TOPSOIL WAS USED FOR BID QUANTITIES.
3. INTERIOR BORROW CHANNEL WIDTH MAY VARY FROM PLANS DUE TO SHRINK SWELL AND COMPACTION OF EXCAVATED MATERIAL, BUT WILL MAINTAIN A MINIMUM WIDTH OF 75' AND A MAXIMUM WIDTH OF 100'.

CELL 2 DIKE 12' WIDE TOP WITH A
TOP ELEV = 579.5'
REFER TO TYPICAL SECTION B-B ON SHEET
401 FOR ADDITIONAL INFORMATION

LEGEND

-  APPROXIMATE PROPERTY LINE
 PROPOSED DIKE
 PROPOSED MAJOR CONTOUR
 PROPOSED MINOR CONTOUR
 SOIL BORING
 BENCHMARK
 PROPOSED CRUSHED STONE PAVEMENT

PROPOSED CRUSHED STONE
WALKING PATH

PROPOSED RIPRA

PROPOSED DIKE AND FILL GRADING

PROPOSED INTERIOR BORROW
DITCH

GRAPHIC SCALE

80 0 40 80 160 240

1 inch = 80 feet

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AFFIX SEAL: DUCKS UNLIMITED, INC.

CAD FILE:
H-38-5_201_204 Enlarged Dike P

DESIGNED BY: B

DRAWN BY: PML

SURVEYED BY: G

BIOLOGIST: RT

DATE _____

NOV. 2

PROJECT N°

GLARO-XX0-000-20

PRELIMINARY NOT FOR CONSTRUCTION

LEGEND

- APPROXIMATE PROPERTY LINE
- PROPOSED CRUSHED STONE

SITE AND GRADING PLAN NOTES

- TYPICAL EMBANKMENT SECTIONS A-A, B-B AND C-C ARE SHOWN IN DETAIL ON SHEET 401.
- TOPSOIL DEPTHS ENCOUNTERED

Diagram Labels:

- 60,450 SF RIP RAP @ 1.5' DEPTH
- 101,702 SF RIP RAP @ 2' DEPTH
- 12" PVC EXTERNAL PUMP PIPE (REFER TO SHEET 210)
- 30' MIN. SETBACK BETWEEN EXISTING BERM AND PROPOSED BERM TOE
- 710 LF DRAINAGE SWALE, 5' WIDE BOTTOM WITH 6:1 SIDE SLOPES
- CELL 2 DIKE 12' WIDE TOP @ ELEV = 579.5' WITH 3:1 SIDE SLOPES. REFER TO TYPICAL SECTION C-C ON SHEET 401 FOR ADDITIONAL INFORMATION
- SB #2
- PROPOSED EXTERNAL PUMP (REFER TO SHEET 210 & 402 FOR ADDITIONAL INFORMATION)
- PROPOSED DISTRIBUTION PUMP (REFER TO SHEET 207 & 402 FOR ADDITIONAL INFORMATION)
- 1,600 SF RIP RAP @ 2.0' DEPTH
- COOLY CANAL (RENO SIDE CUT)
- SB #1
- 3,900 SF RIP RAP @ 1.5' DEPTH
- SOUTH WEST TURN AROUND AND CONNECTION TO EXISTING DIKE (REFER TO SHEET 208 ENLARGED GRADING PLAN FOR ADDITIONAL INFORMATION)
- SLOPE 8:1
- DOONLEY CANAL/RENO SIDE CUT
- INTERIOR BORROW DITCH (REFER TO DETAIL SHEET 401)
- PROPOSED PUMP CONVEYANCE CHANNEL
- TRANSITION FROM SECTION B-B TO A-A
- GRADED TO ENSURE POSITIVE DRAINAGE 0.5% SLOPE MIN.
- SOUTH TURN AROUND (REFER TO SHEET 209 ENLARGED GRADING PLAN FOR ADDITIONAL INFORMATION)
- WALLACE ROAD (ASPHALT)
- PROPOSED SCRAPE
- 3:1 SLOPE
- 75' MIN. 100' MAX.
- 10:1 SLOPE 4:1 SLOPE
- 4:1 SLOPE
- 100'

Sheet Markings:

- SHEET 204
- SHEET 203
- SHEET 202

North Arrow:

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	APPROXIMATE PROPERTY LINE
	PROPOSED MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
	SOIL BORING
	BENCHMARK
	PROPOSED CRUSHED STONE PAVING

PROPOSED CRUSHED STONE WALKING PATH

PROPOSED RIPRAP

PROPOSED DIKE AND FILL GRADING

PROPOSED INTERIOR BORROW DITCH

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CAD FILE:
H-38-5_201_204 Enlarged Dike Plan

DESIGNED BY: BN
DRAWN BY: PML
SURVEYED BY: GB
BIOLOGIST: RT

DATE: NOV. 2018
PROJECT NUMBER: US-OH-038-5

GLARO-XX0-000-203

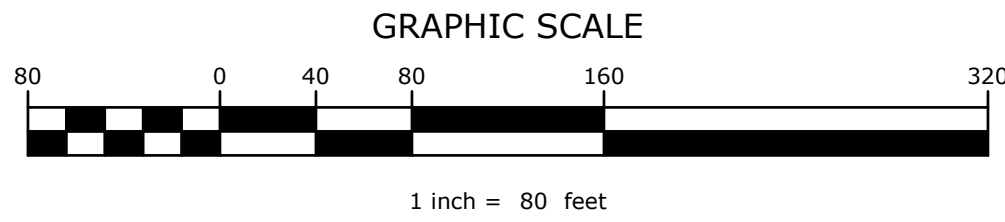
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DEXTER, MICHIGAN 48130
(734) 623-2000 www.ducks.org

ENLARGED DIKE PLAN 12+00 -
45+00
HOWARD MARSH CELL 2
WETLAND ENHANCEMENT
TOLEDO, OHIO
LUCAS COUNTY

[illegible]

C:\Users\Pydon\Documents\GLARO Engineering - Documents\OH-38-5_201_204 Enlarged Dike Plan.dwg, 11/13/2020 12:12 PM, Patrick Lydon, 204 Enlarged Dike Layout, Note

PRELIMINARY NOT FOR CONSTRUCTION

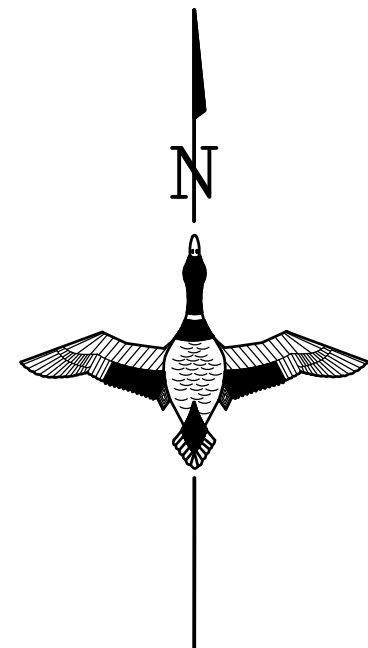


LEGEND

- APPROXIMATE PROPERTY LINE
- PROPOSED DIKE
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- SOIL BORING
- BENCHMARK
- PROPOSED CRUSHED STONE PAVING
- PROPOSED CRUSHED STONE WALKING PATH
- PROPOSED RIPRAP
- PROPOSED DIKE AND FILL GRADING
- PROPOSED INTERIOR BORROW DITCH

SITE AND GRADING PLAN NOTES

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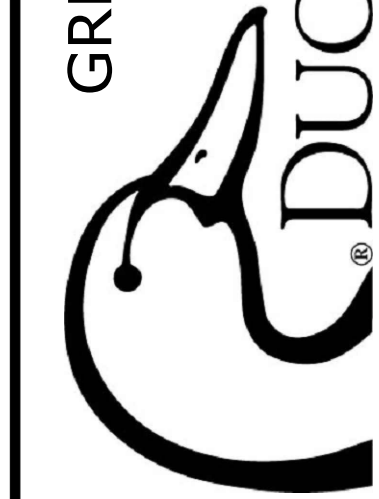
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ON:

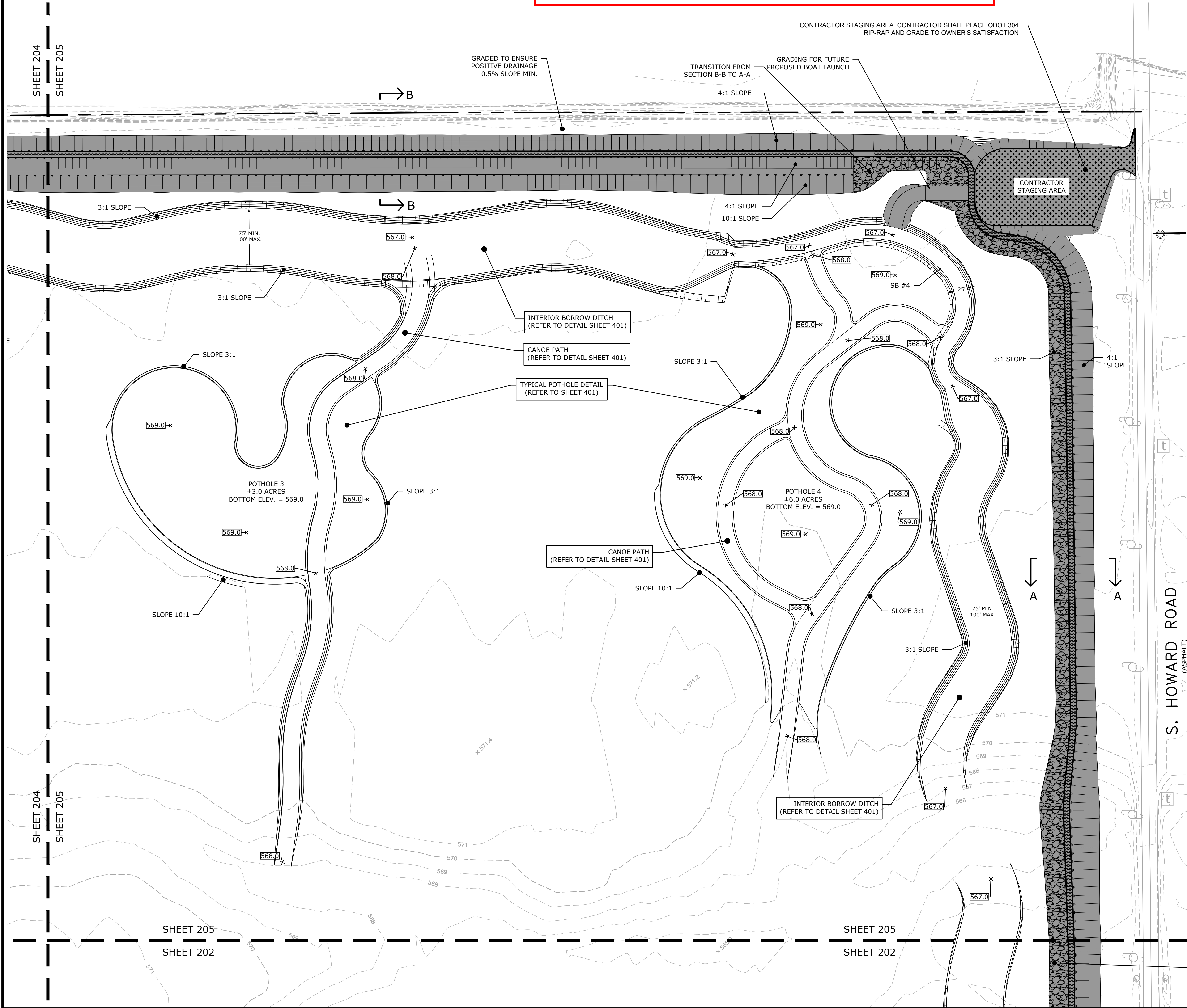
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GLARO-XXO-000-204

ENLARGED DIKE PLAN
43+00 - 75+00
HOWARD MARSH CELL 2
WETLAND ENHANCEMENT
TOLEDO, OHIO
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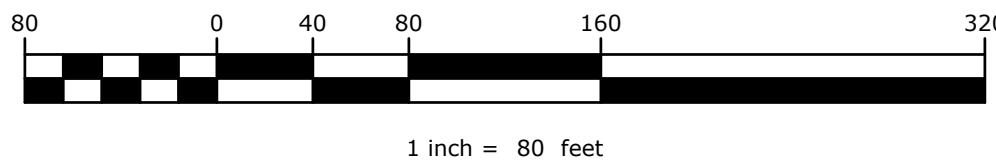
LEGEND

- APPROXIMATE PROPERTY LINE
- PROPOSED DIKE
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- SOIL BORING
- BENCHMARK
- PROPOSED CRUSHED STONE PAVING
- PROPOSED CRUSHED STONE WALKING PATH
- PROPOSED RIPRAP
- ODOT 304 RIPRAP FOR CONTRACTOR STAGING AREA
- PROPOSED DIKE AND FILL GRADING
- PROPOSED INTERIOR BORROW DITCH

SITE AND GRADING PLAN NOTES

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GRAPHIC SCALE



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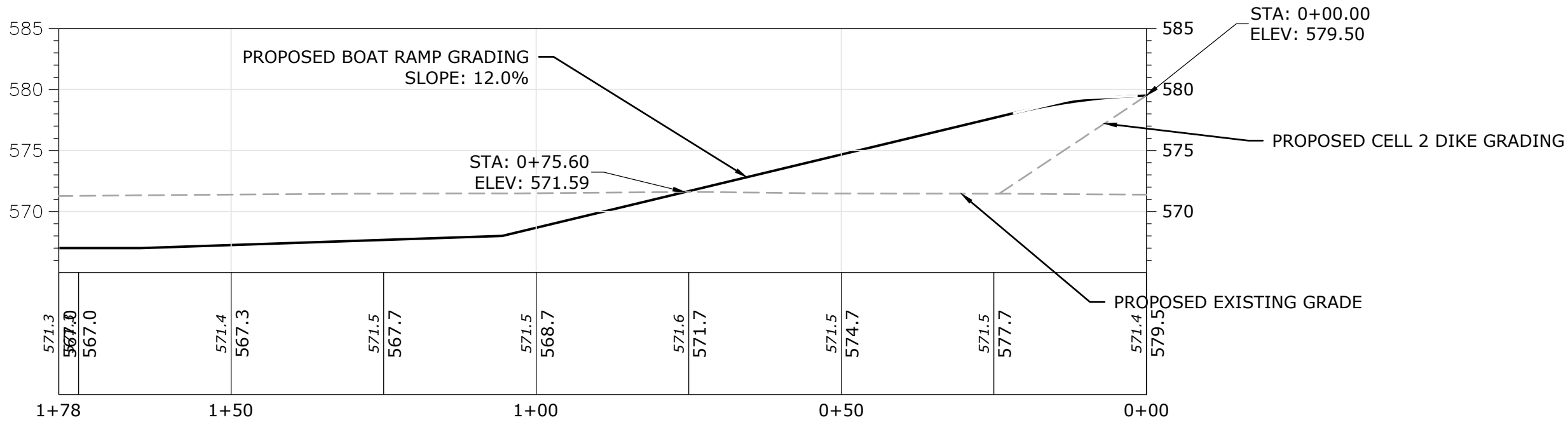
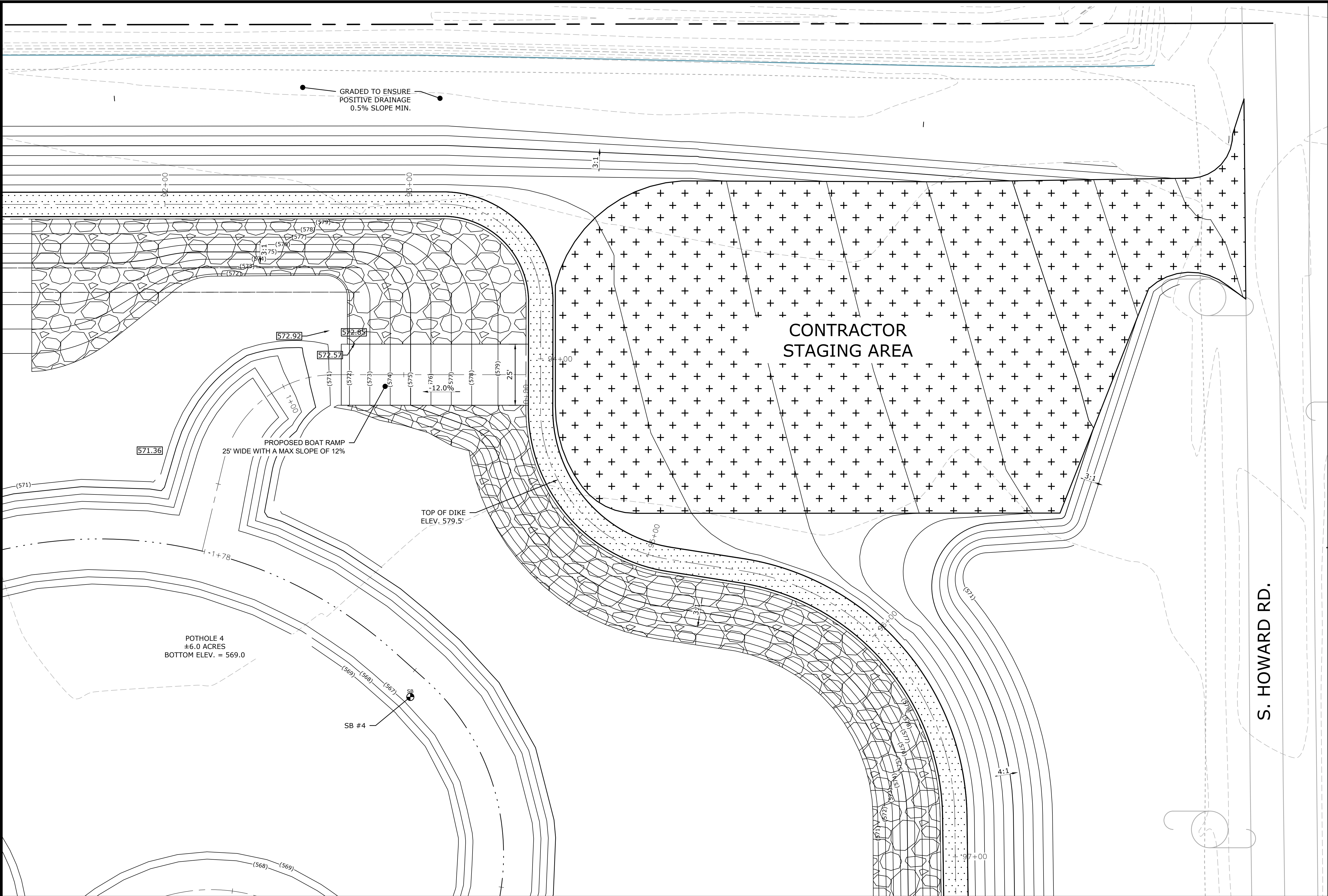
AFFIX SEAL: DUCKS UNLIMITED, INC.
ON:

CAD FILE:		H-38-5_201_204 Enlarged Dike Plan
DESIGNED BY:	BN	
DRAWN BY:	PML	
SURVEYED BY:	GB	
BIOLOGIST:	RT	
DATE:	NOV. 2018	
PROJECT NUMBER:	US-OH-038-5	
GLARO-XXO-000-205		

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7322 NEWMAN BOULEVARD, BUILDING 1
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ENLARGED DIKE PLAN
70+00 - 104+00
HOWARD MARSH CELL 2
WETLAND ENHANCEMENT
TOLEDO, OHIO
LUCAS COUNTY

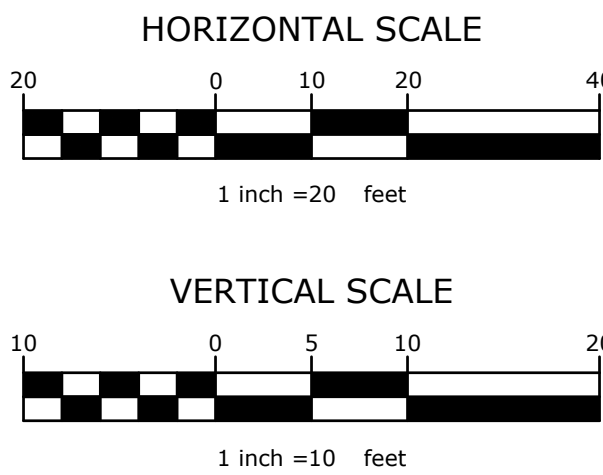
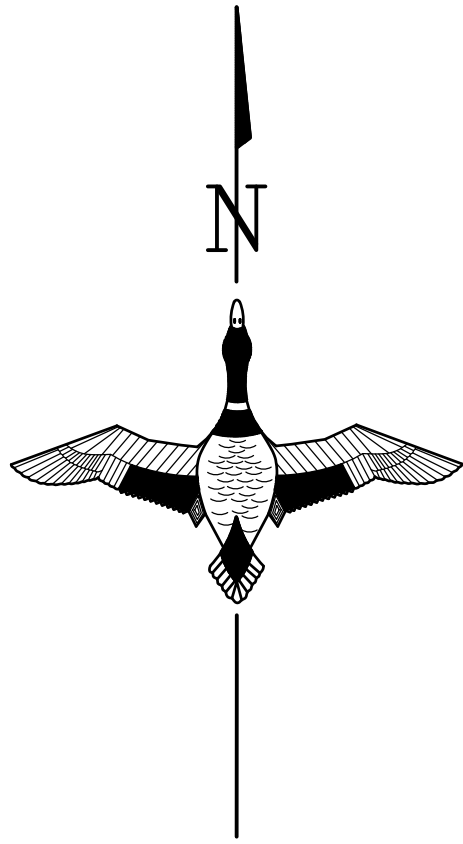
C:\Users\lydon\Documents\GLARO Engineering - Documents\OH-38-5 Howard Farms Cell 2\CAD DRAWING\OH-38-5_200 Site Plan.dwg, 11/13/2020 12:19 PM, Patrick Lydon, 205 Parking Lot Plan & Boat Ramp Profile, None



PRELIMINARY NOT FOR CONSTRUCTION

LEGEND

- APPROXIMATE PROPERTY LINE
- PROPOSED DIKE
- (000) PROPOSED MAJOR CONTOUR
- (000) PROPOSED MINOR CONTOUR
- PROPOSED EDGE OF DIKE TOP
- SOIL BORING
- PROPOSED RIPRAP
- PROPOSED CRUSHED STONE WALKING PATH
- ODOT RIP RAP FOR CONTRACTOR STAGING AREA



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ON:

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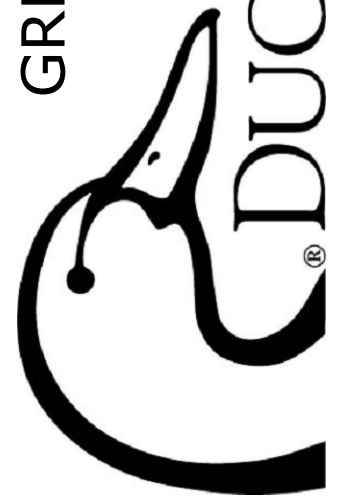
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DEXTER, MICHIGAN 48130

(734) 623-2000 www.ducks.org



ENLARGED PARKING LOT

PLAN

HOWARD MARSH CELL 2

WETLAND ENHANCEMENT

TOLEDO, OHIO

LUCAS COUNTY

By

Date

Revisions

Sheet

Revision

CAD FILE:
OH-38-5_200 Site Plan

DESIGNED BY: BN

DRAWN BY: PML

SURVEYED BY: GB

BIOLOGIST: RT

DATE:

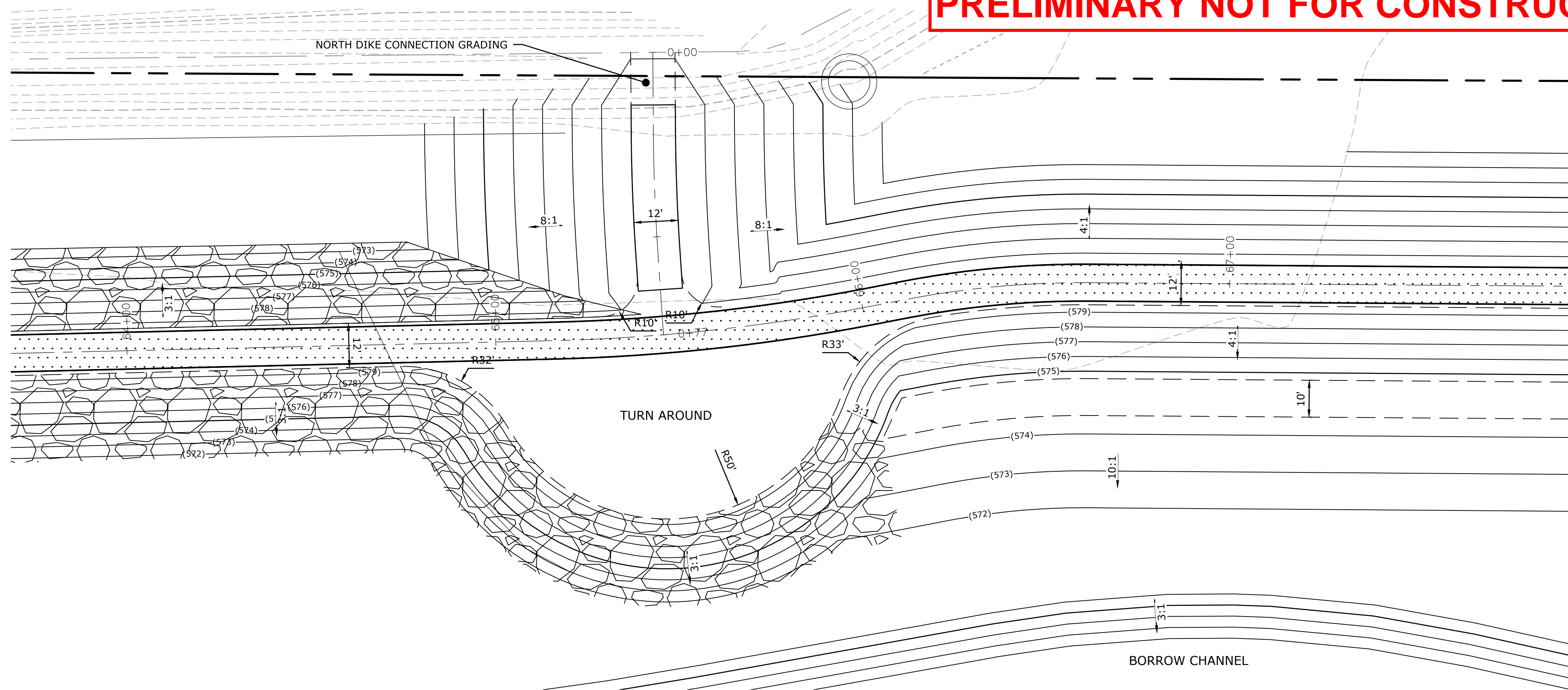
NOV. 2018

PROJECT NUMBER:

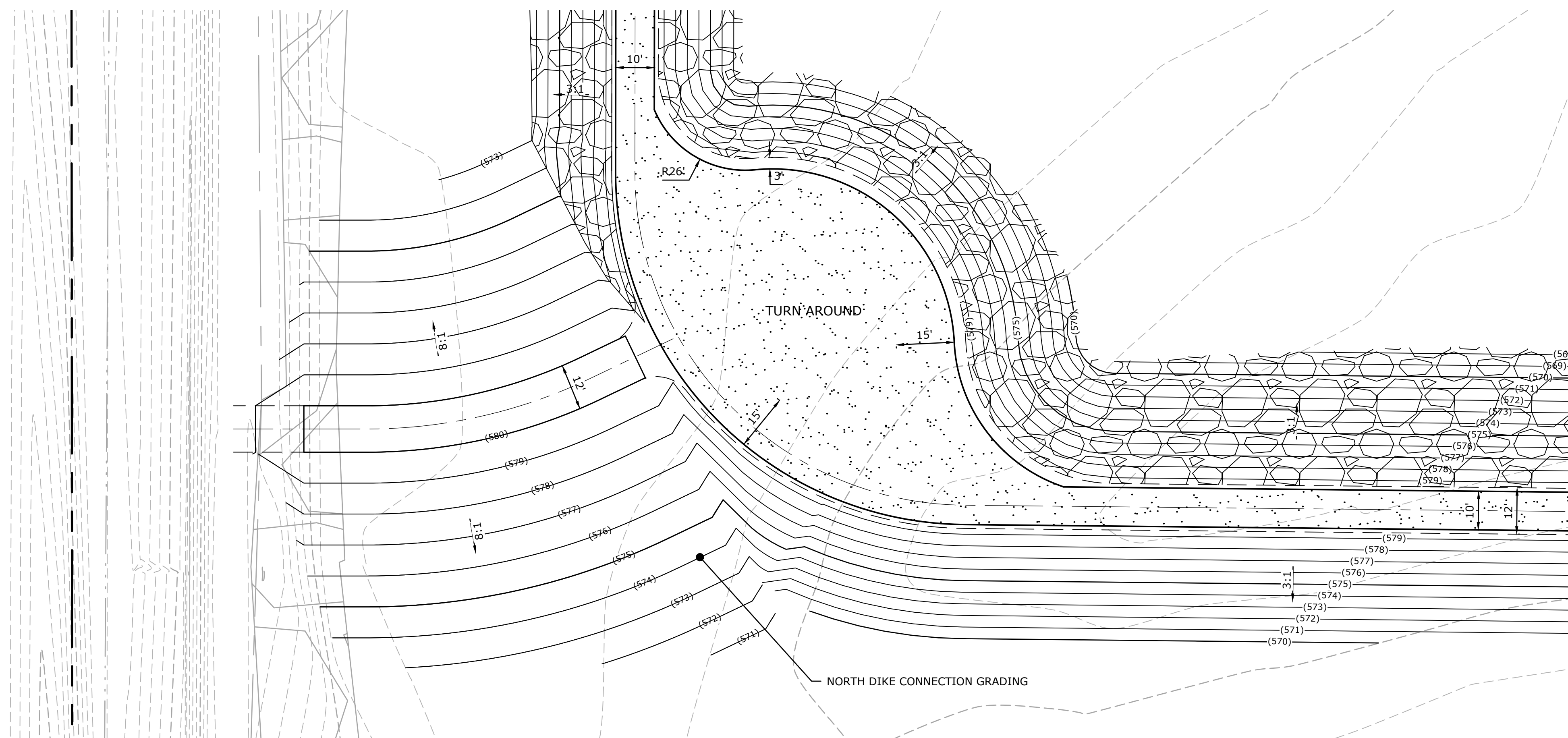
US-OH-038-5

GLARO-XX0-000-206

PRELIMINARY NOT FOR CONSTRUCTION



NORTH DIKE CONNECTOR AND TURN AROUND



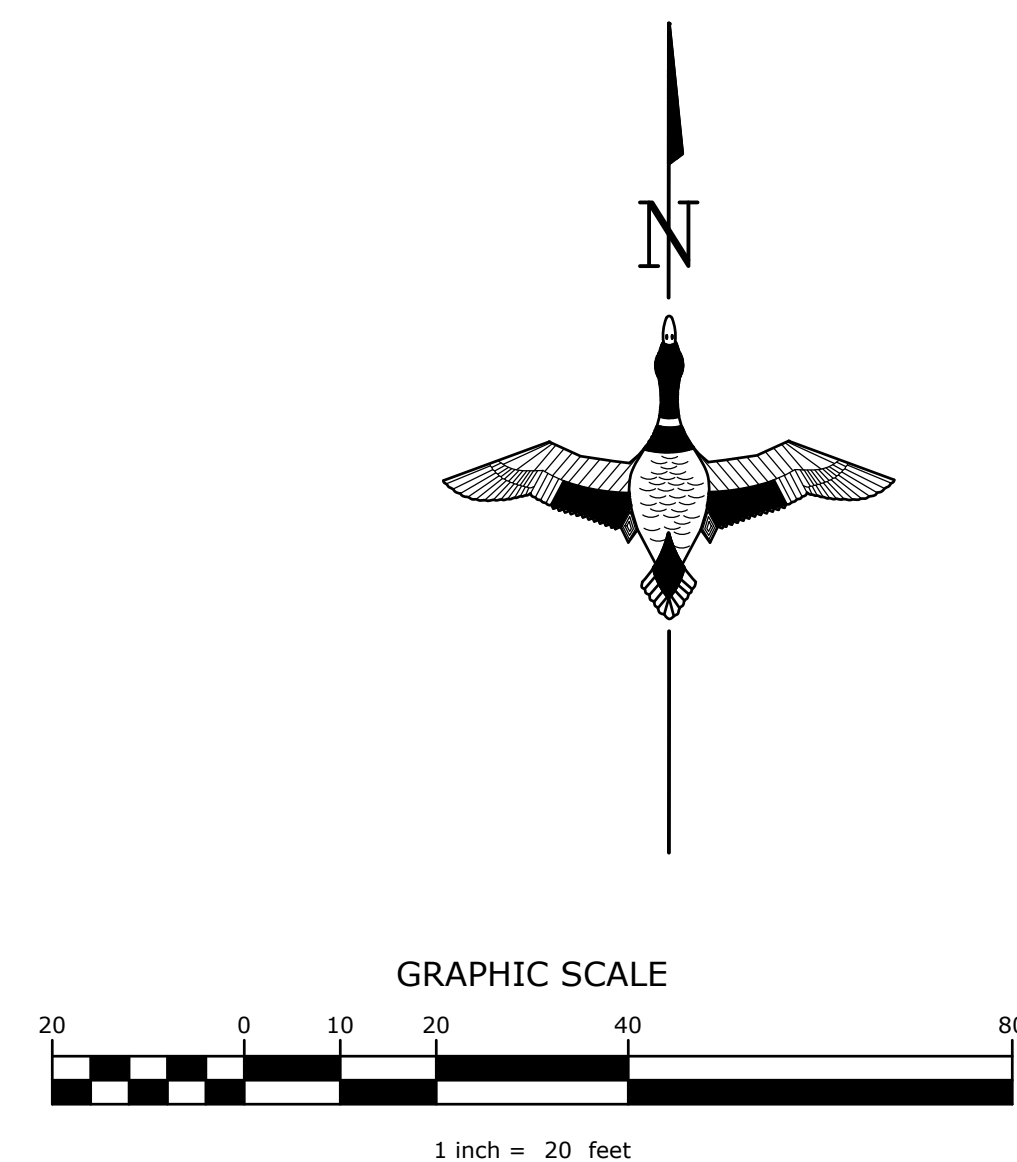
SOUTHERN DIKE CONNECTOR AND TURN AROUND



Know what's below.
Call before you dig.

LEGEND

	APPROXIMATE PROPERTY LINE
	PROPOSED DIKE
	PROPOSED CHANNEL/DITCH
	PROPOSED DIKE TOP
	PROPOSED MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
	PROPOSED CRUSHED STONE PAVING
	PROPOSED CRUSHED STONE PAVING
	PROPOSED RIP RAP














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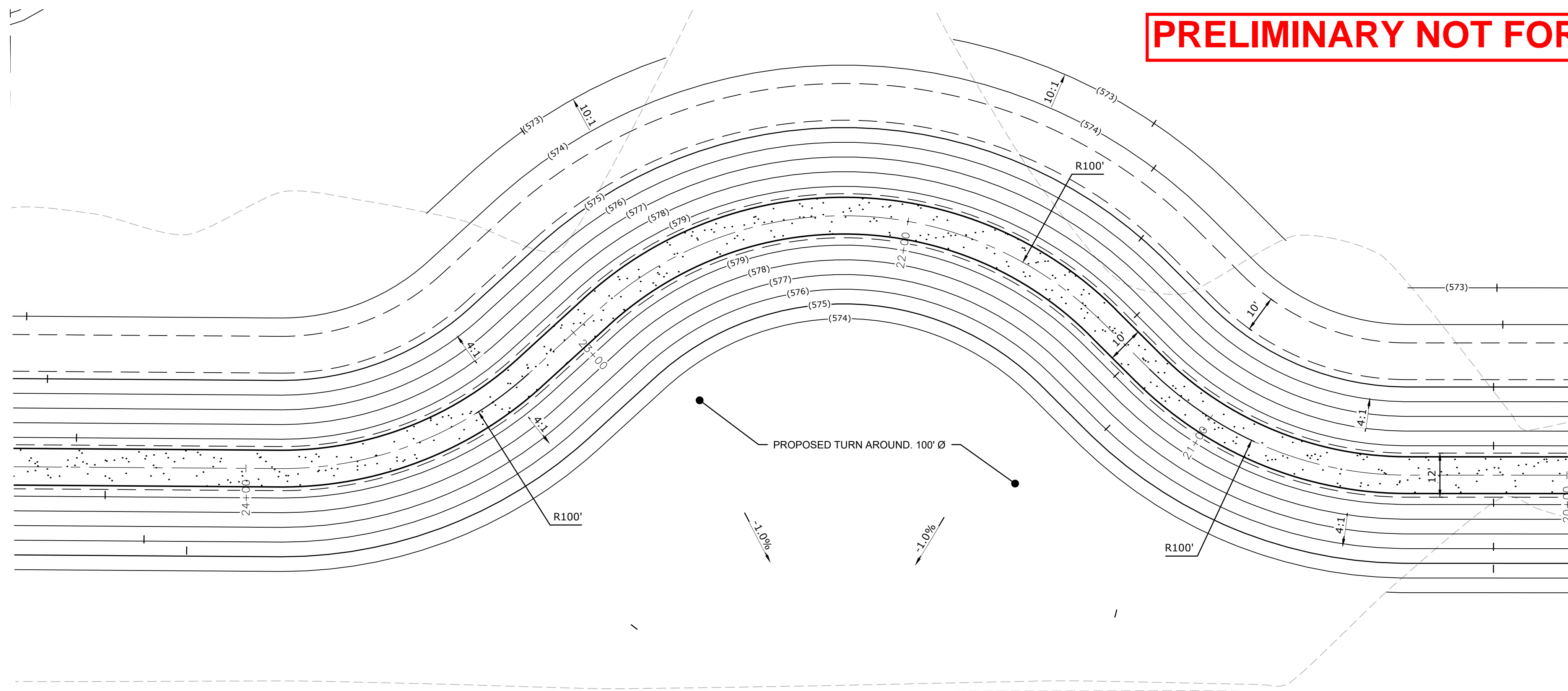
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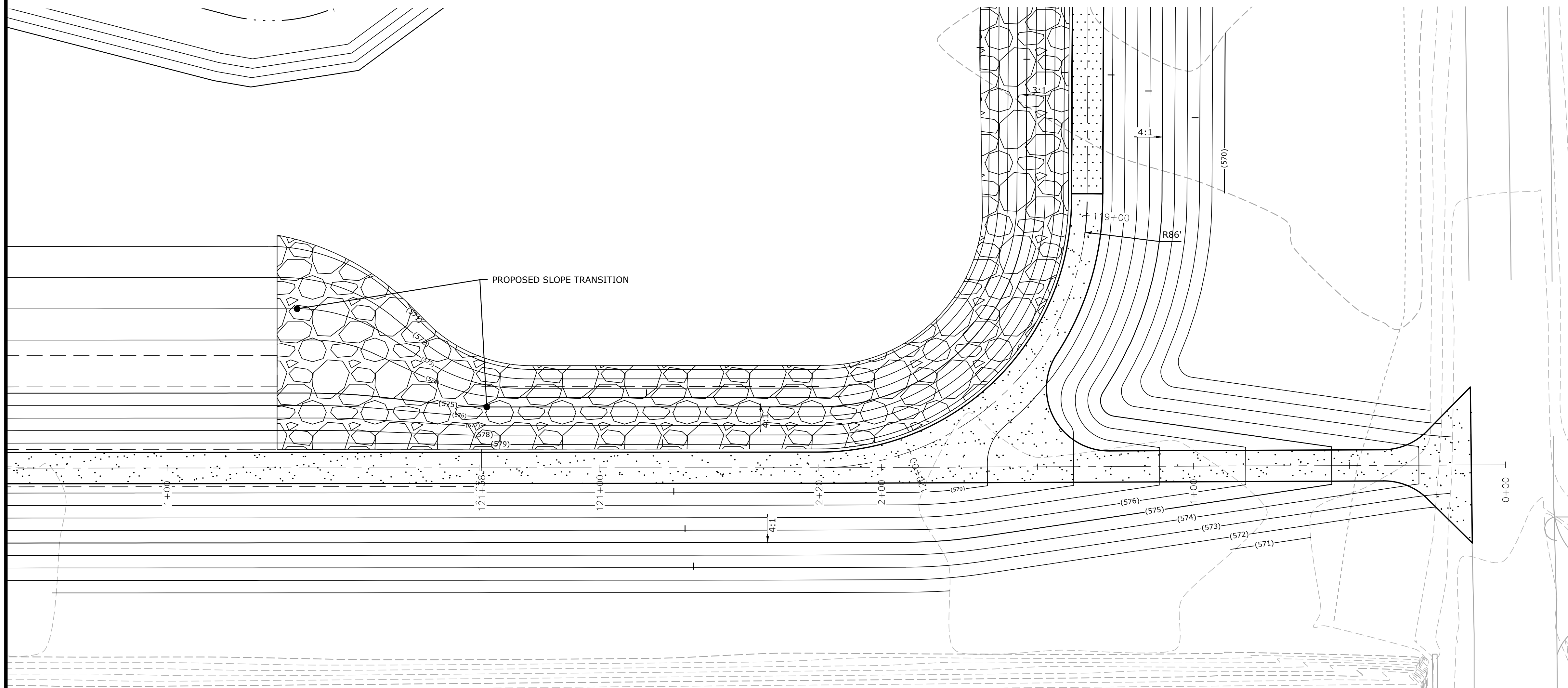
ENLARGED GRADING PLAN
HOWARD MARSH CELL 2
WETLAND ENHANCEMENT
TOLEDO, OHIO
LUCAS COUNTY

																																																																																																	
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PRELIMINARY NOT FOR CONSTRUCTION








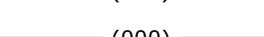



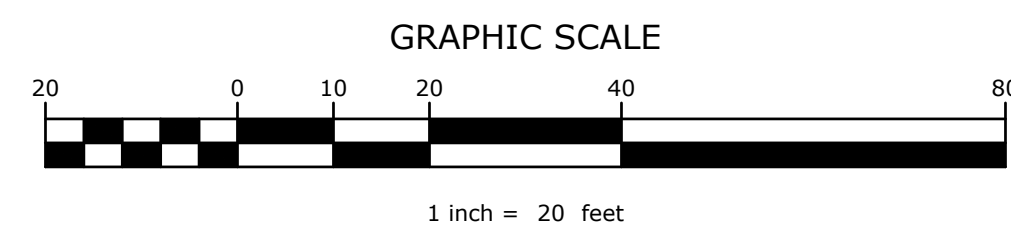
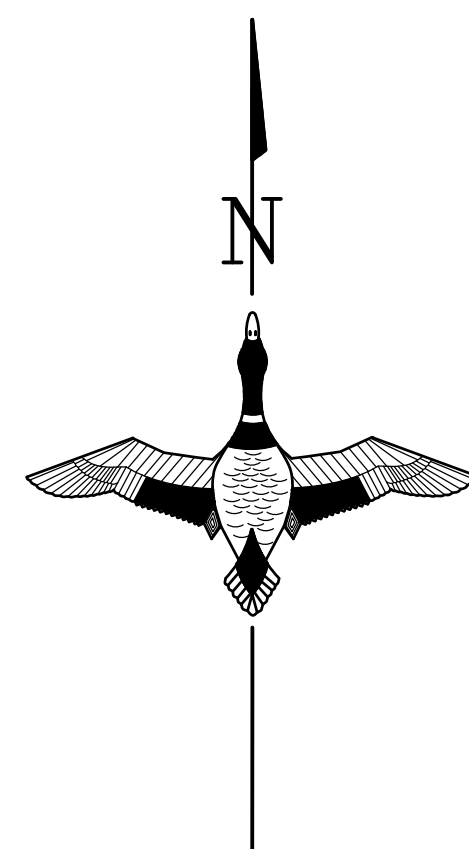
SOUTH DIKE TURN AROUND



SOUTHERN DIKE TRANSITION GRADING

LEGEND

- | | |
|---|-------------------------------------|
|  | APPROXIMATE PROPERTY LINE |
|  | PROPOSED DIKE |
|  | PROPOSED CHANNEL/DITCH |
|  | PROPOSED DIKE TOP |
|  | PROPOSED MAJOR CONTOUR |
|  | PROPOSED MINOR CONTOUR |
|  | PROPOSED CRUSHED STONE PAVING |
|  | PROPOSED CRUSHED STONE WALKING PATH |
|  | PROPOSED RIPRAP |



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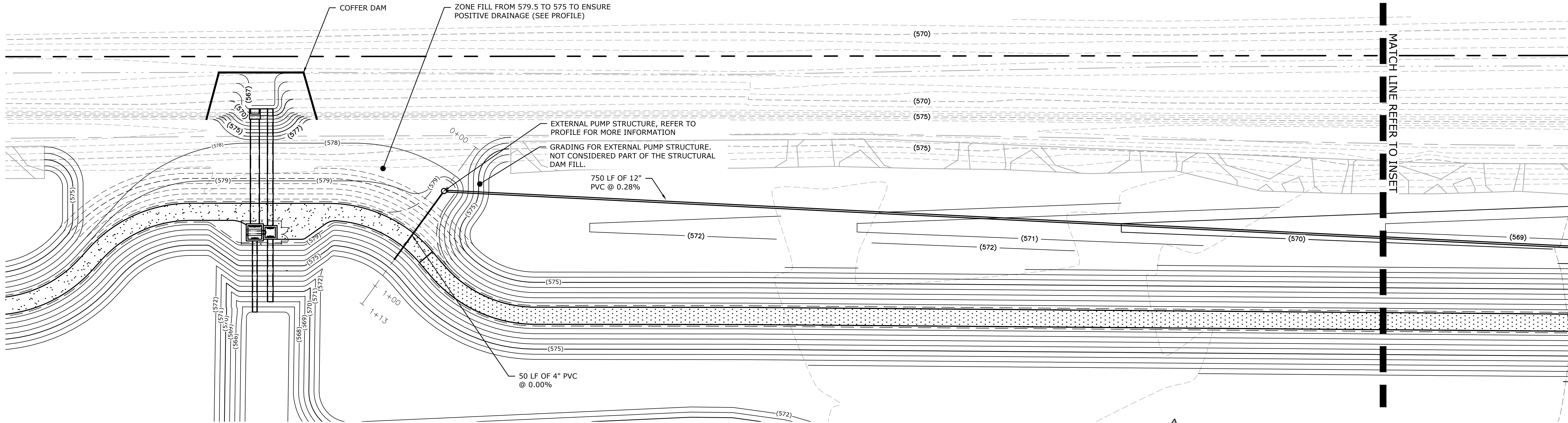


3. AFFIX SEAL: DUCKS UNLIMITED, INC.
ON:

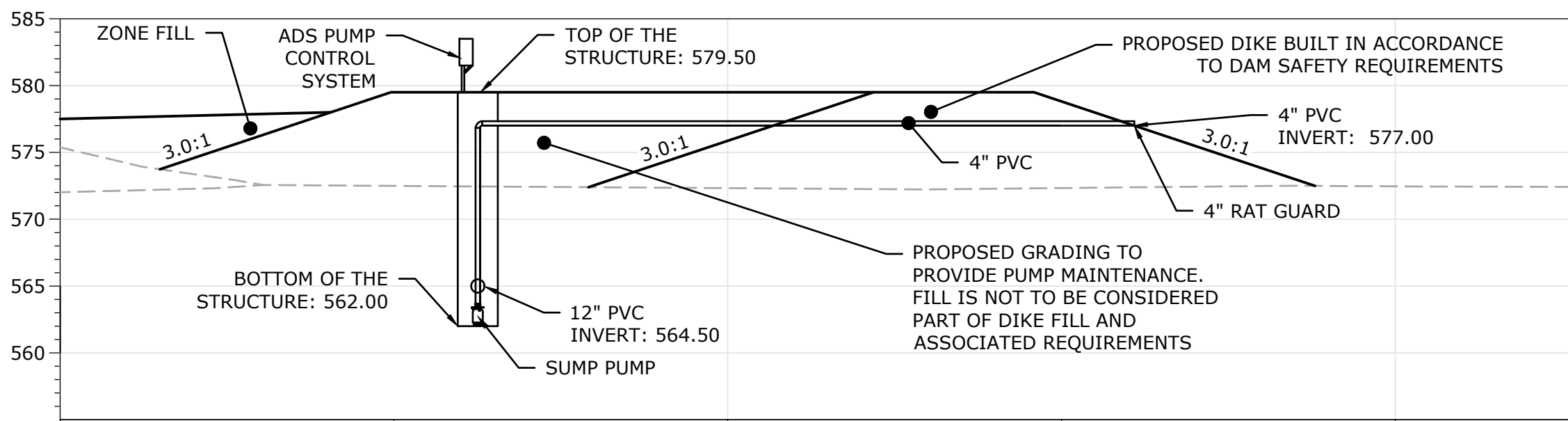
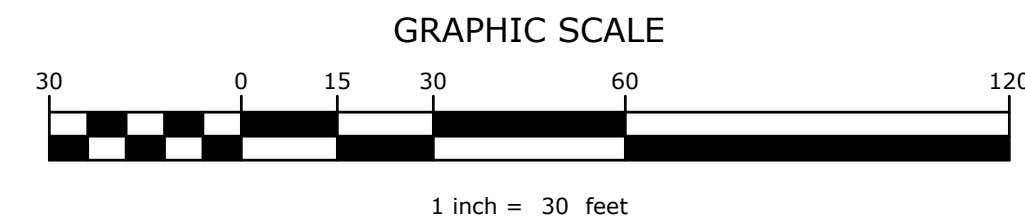
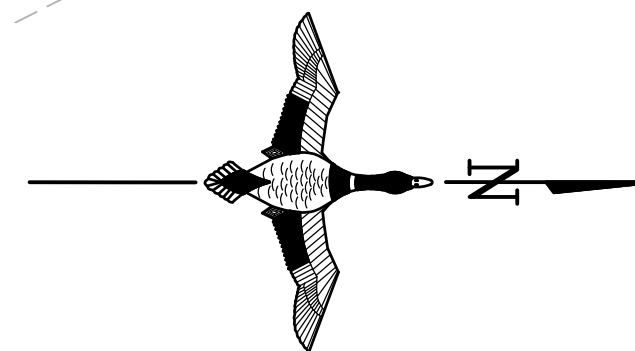
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C:\Users\Hydon\Documents\GLARO Engineering - Documents\OH-38-5 Howard Farms Cell 2\CAD DRAWING\OH-38-5_200 Site Plan.dwg, 11/13/2020 12:26 PM, Patrick Lydon, ADS Pump Plan, None



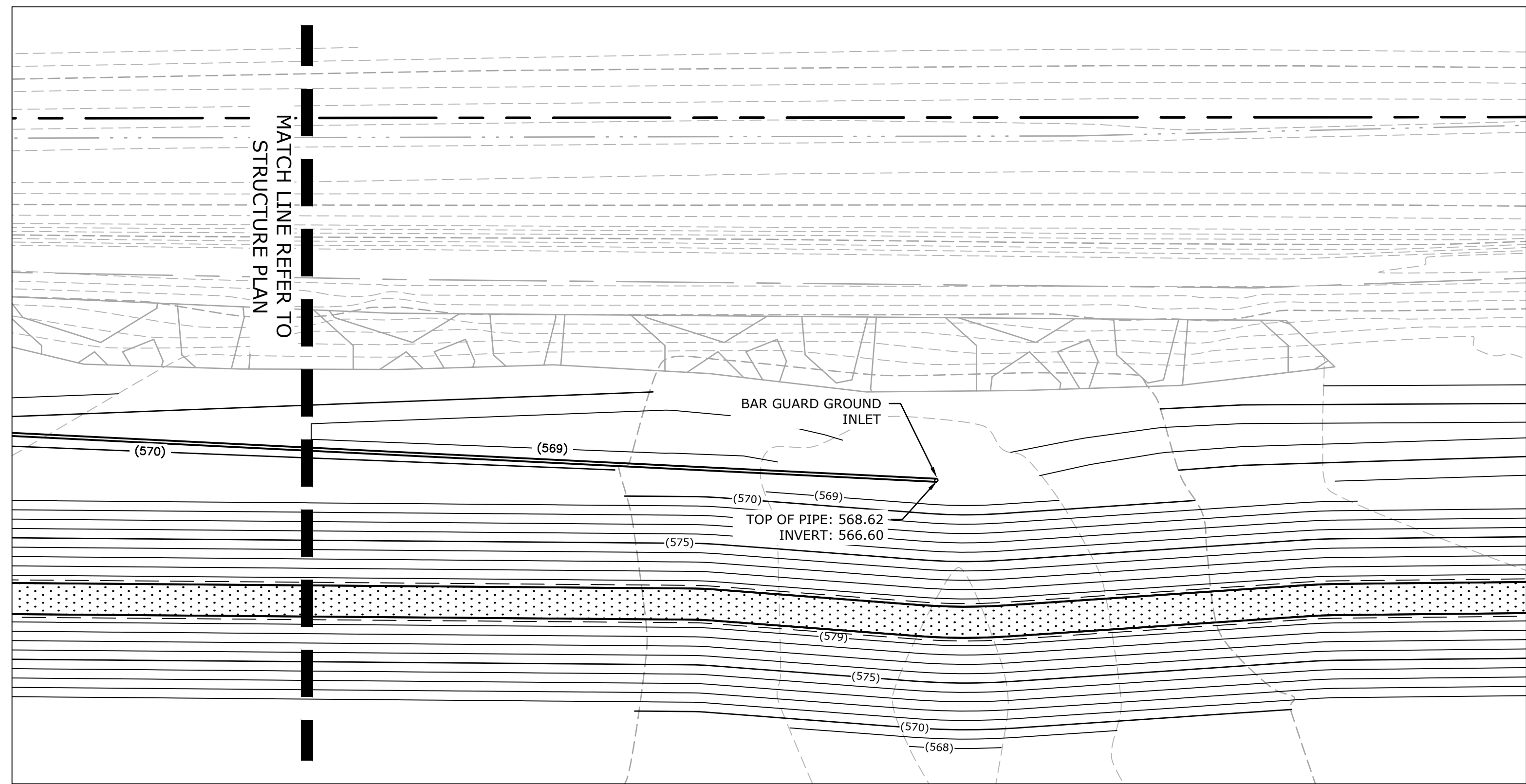
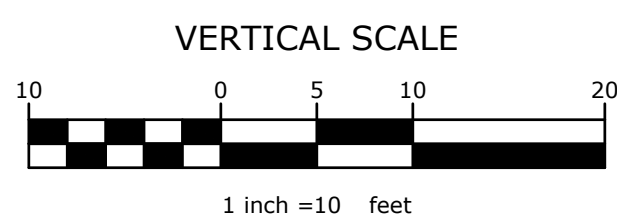
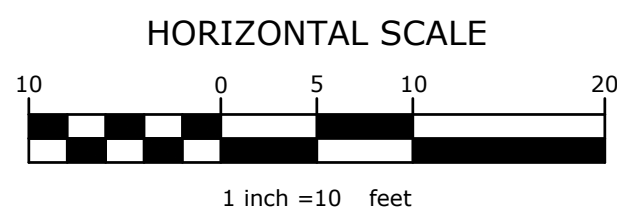
EXTERNAL PUMP STRUCTURE PLAN VIEW
SCALE: 1"=30'



EXTERNAL PUMP STRUCTURE PROFILE

SCALE: H:1"=10'
V:1"=10'

NOTE:
PROFILE IS INTENDED TO SHOW THE DETAIL FOR PIPES AND STRUCTURE LAYOUTS, LENGTHS AND INVERTS. FOR ADDITIONAL PUMP DETAILS, GRADING AND INSTALLATION INFORMATION REFER TO PUMP DETAILS ON SHEETS 401 - 404 AND CONSTRUCTION SPECIFICATIONS.



INSET
SCALE: 1"=30'

LEGEND

- APPROXIMATE PROPERTY LINE
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- [Pattern] PROPOSED CRUSHED STONE PAVING
- [Pattern] PROPOSED CRUSHED STONE WALKING PATH

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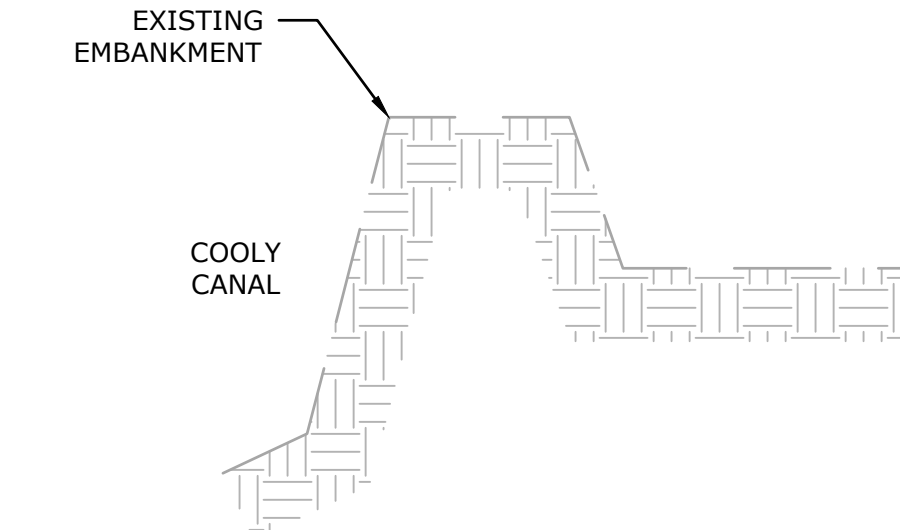
EXTERNAL PUMP PLAN
HOWARD MARSH CELL 2
WETLAND ENHANCEMENT
TOLEDO, OHIO
LUCAS COUNTY

Revision	Sheet	Revisions	Date	By

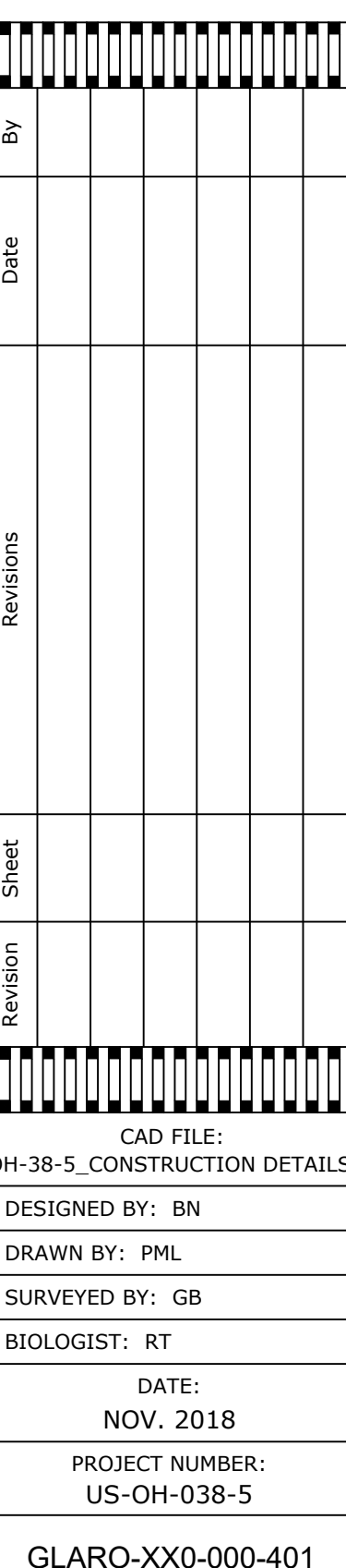
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DESIGNED BY: BN
DRAWN BY: PML
SURVEYED BY: GB
BIOLOGIST: RT
DATE: NOV. 2018
PROJECT NUMBER: US-OH-038-5
GLARO-XX0-000-210

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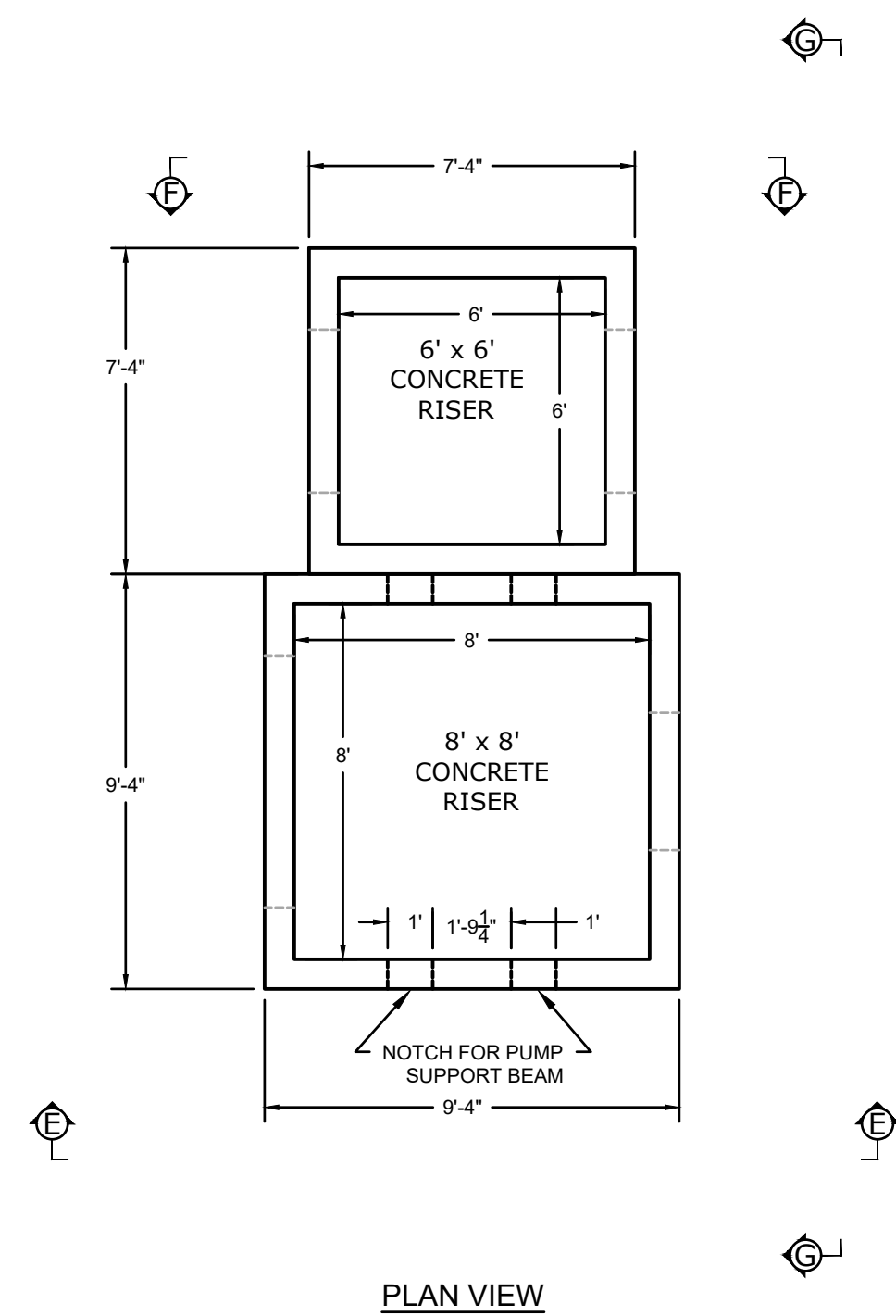
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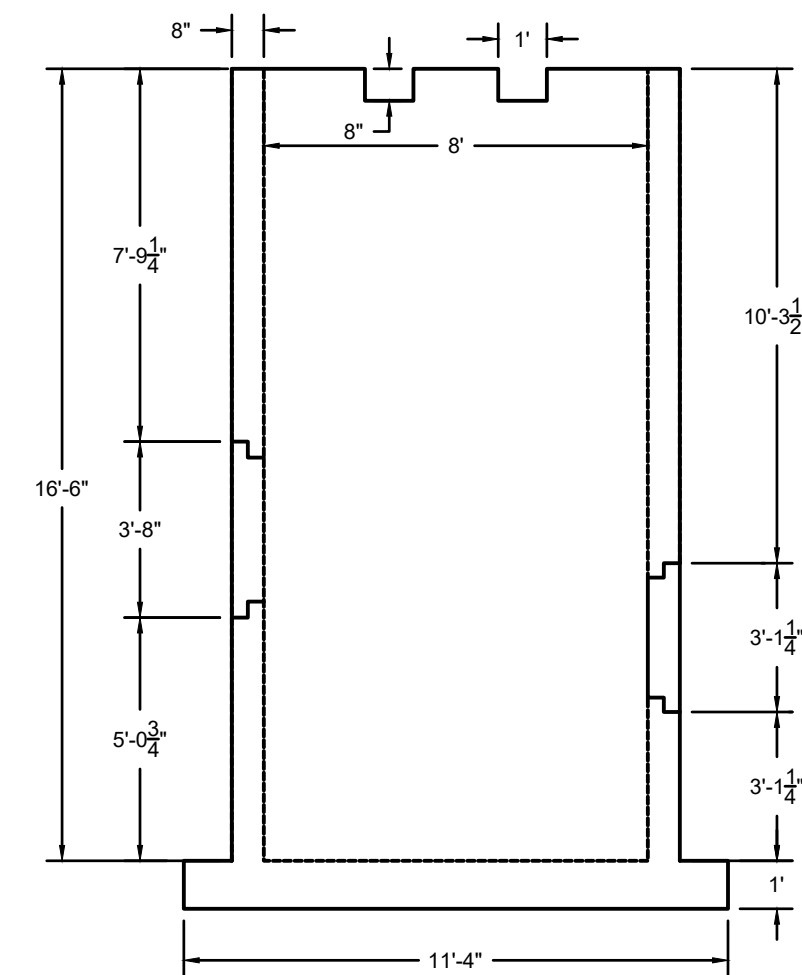
PRELIMINARY NOT FOR CONSTRUCTION



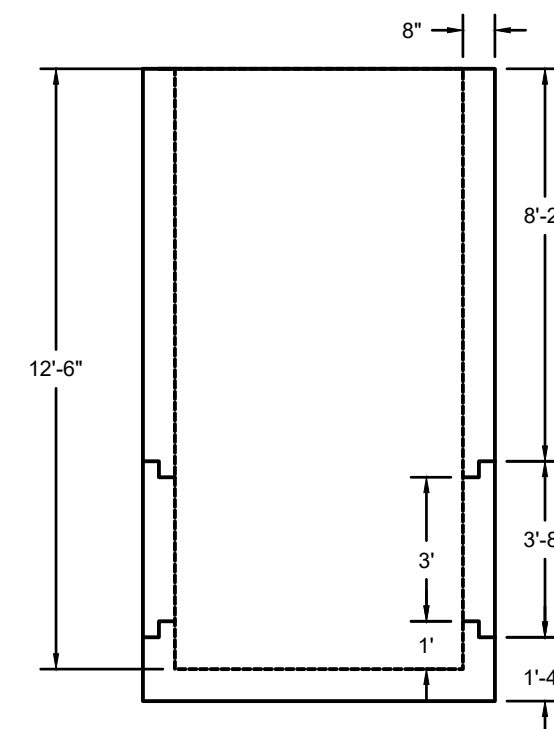
PRELIMINARY NOT FOR CONSTRUCTION



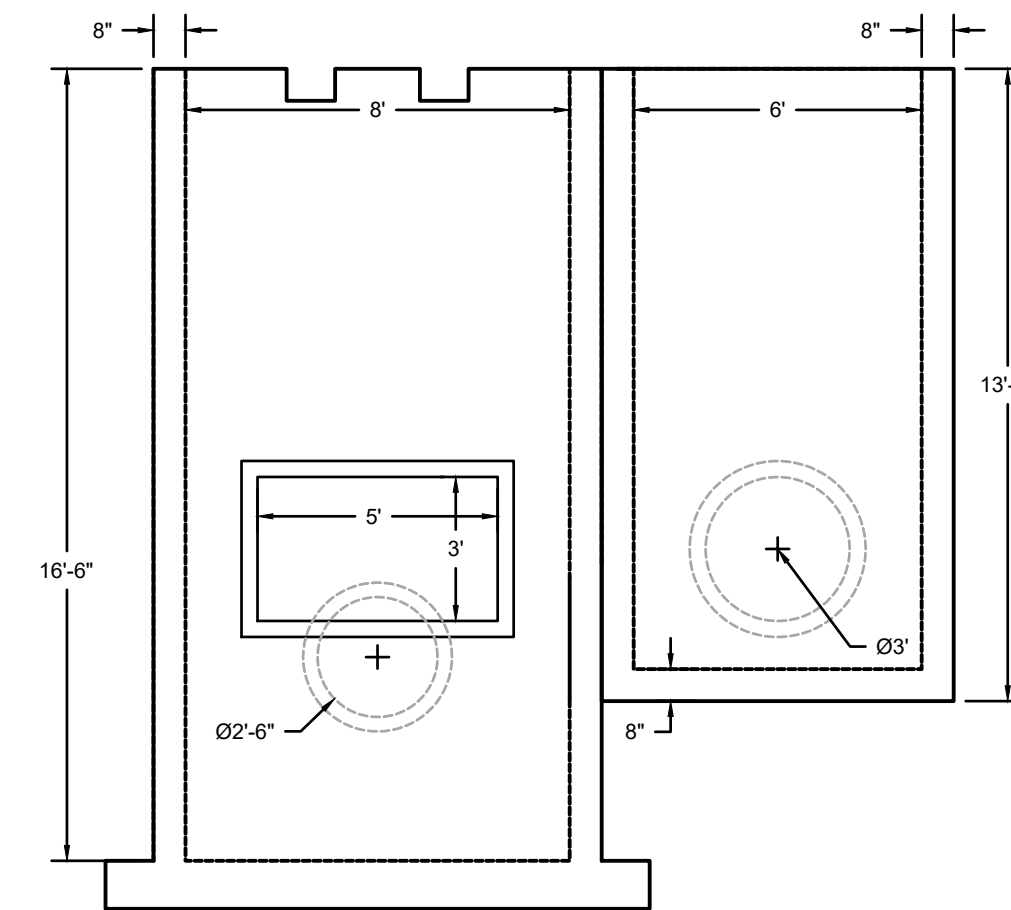
PLAN VIEW



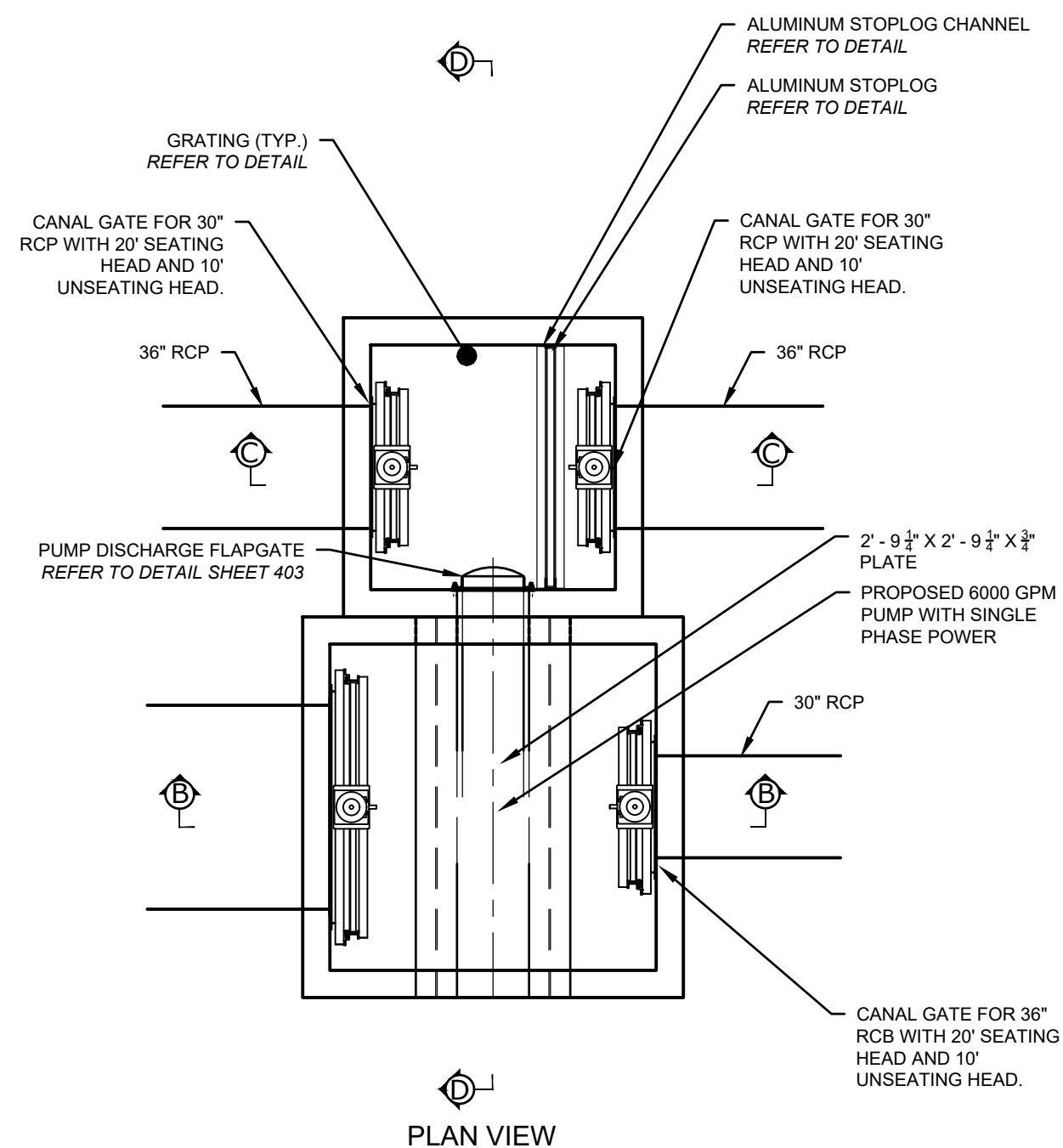
SIDE ELEVATION E-E



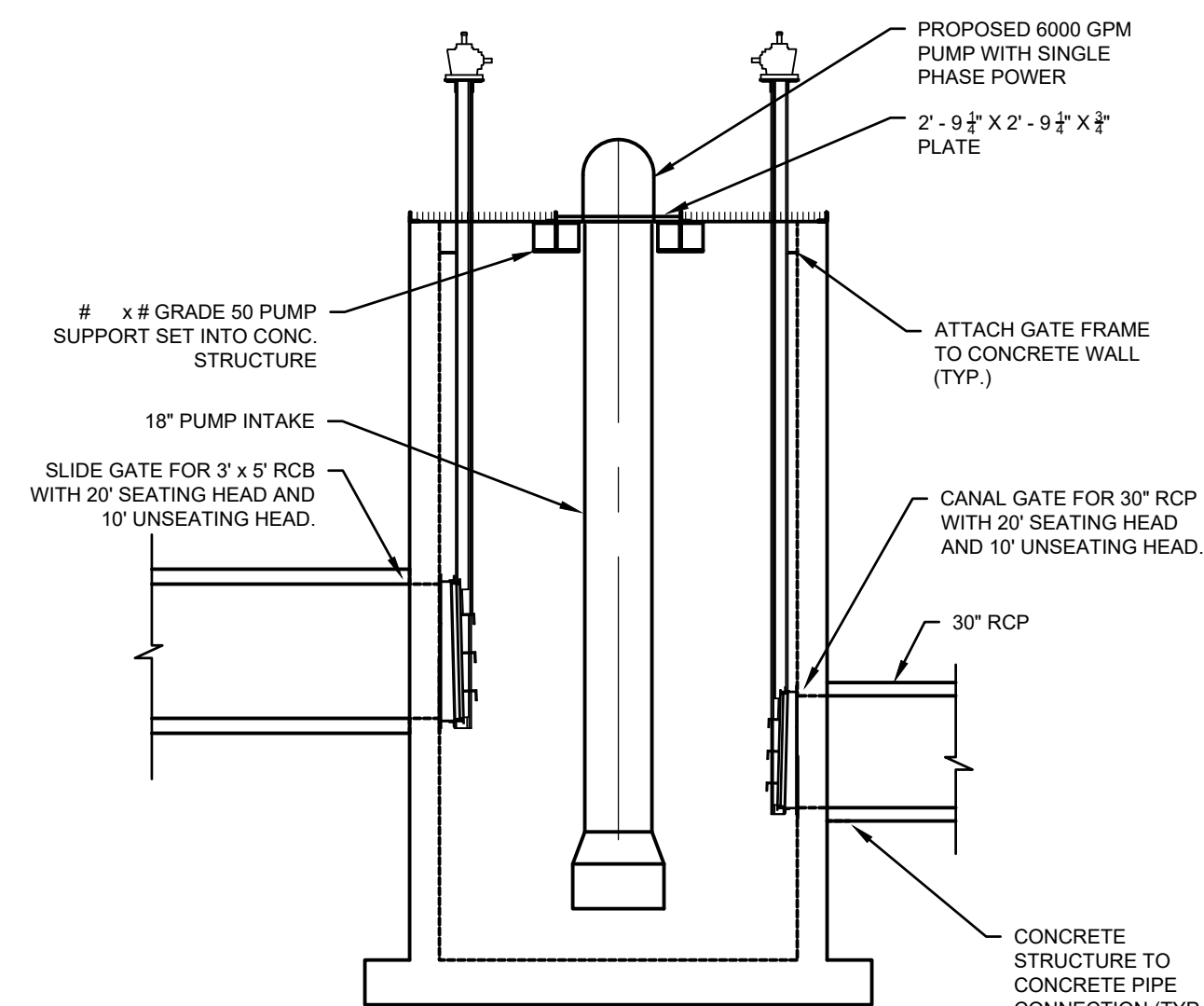
SIDE ELEVATION F-F



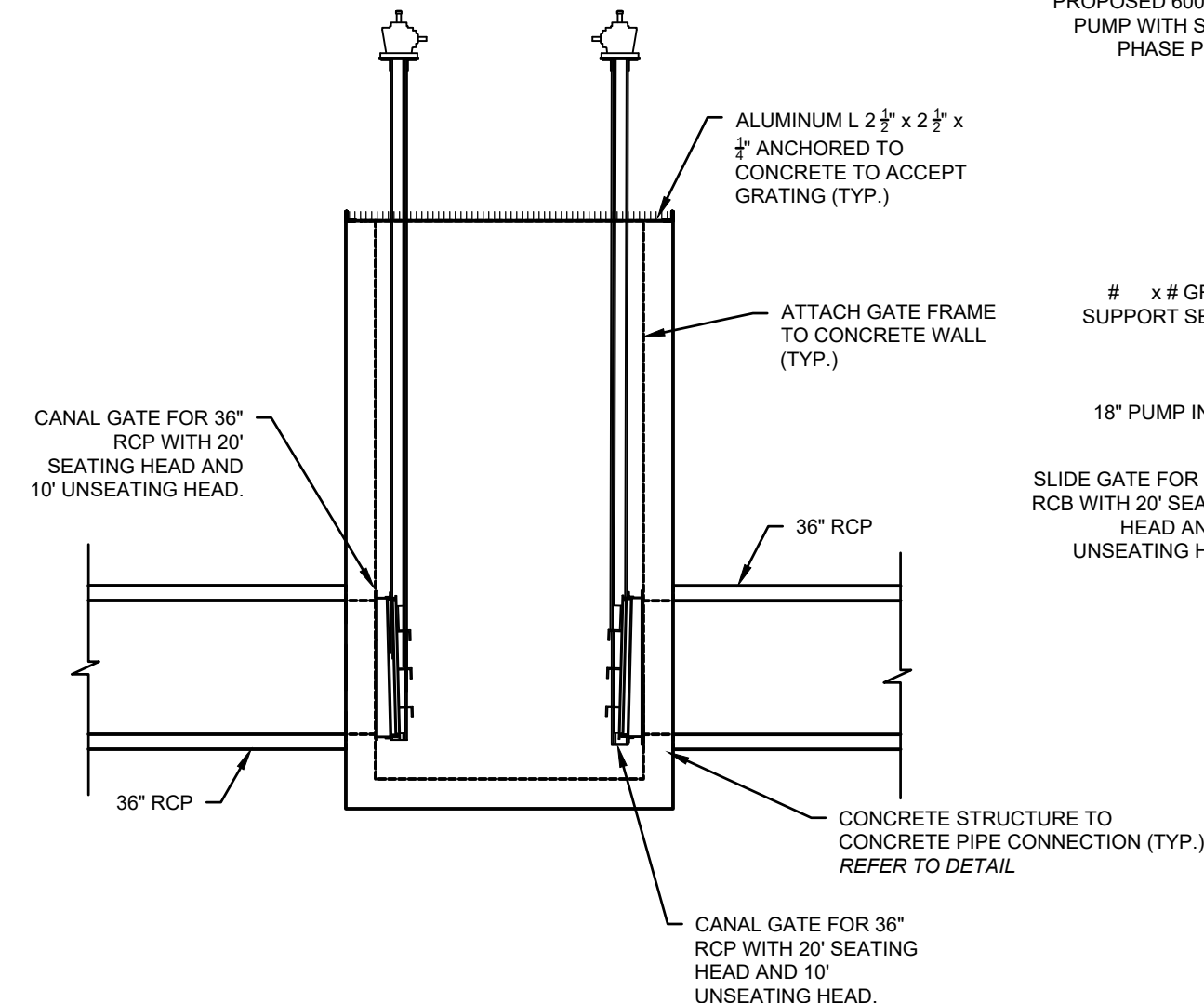
FRONT ELEVATION G-G



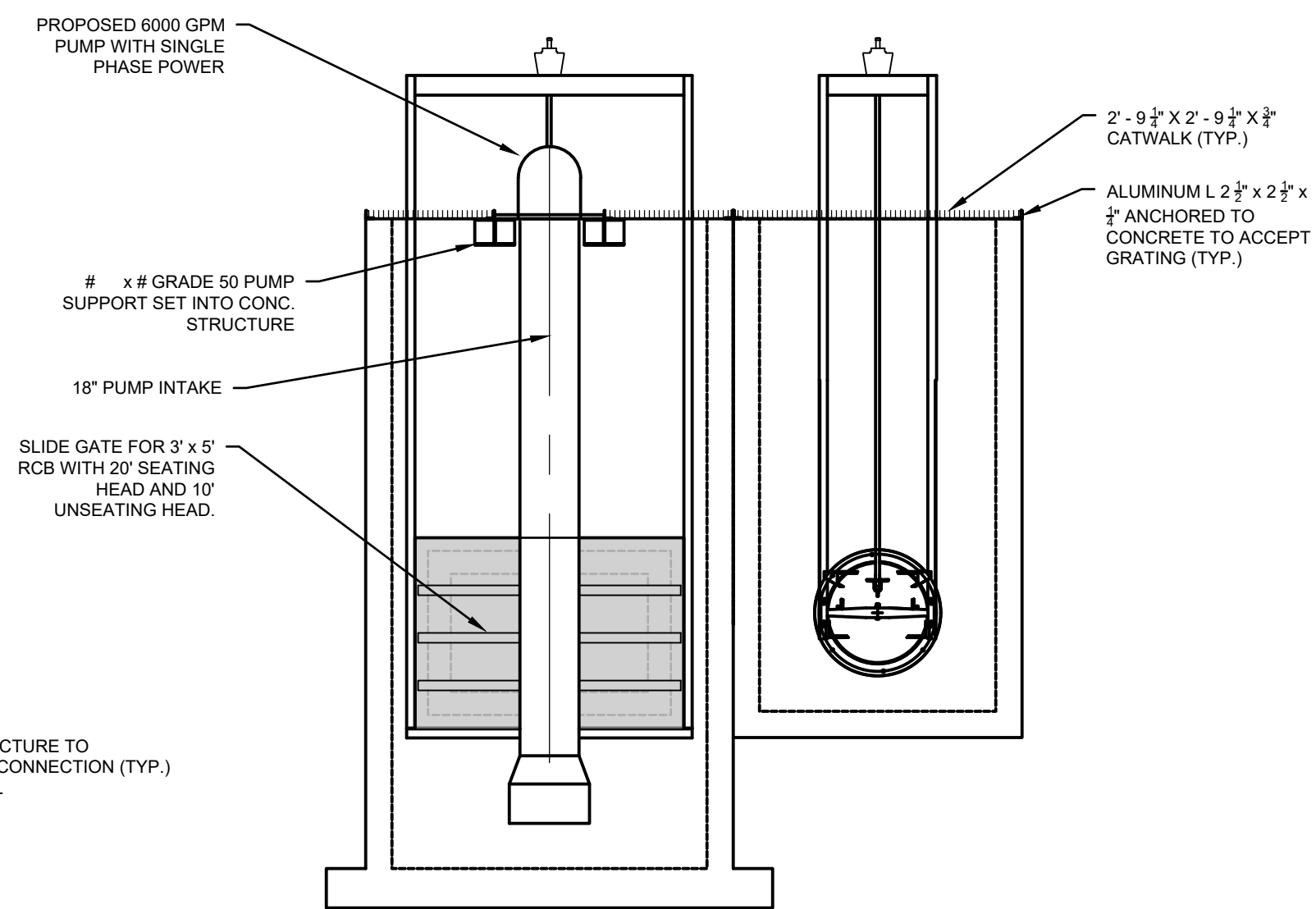
PLAN VIEW



SECTION VIEW B-B



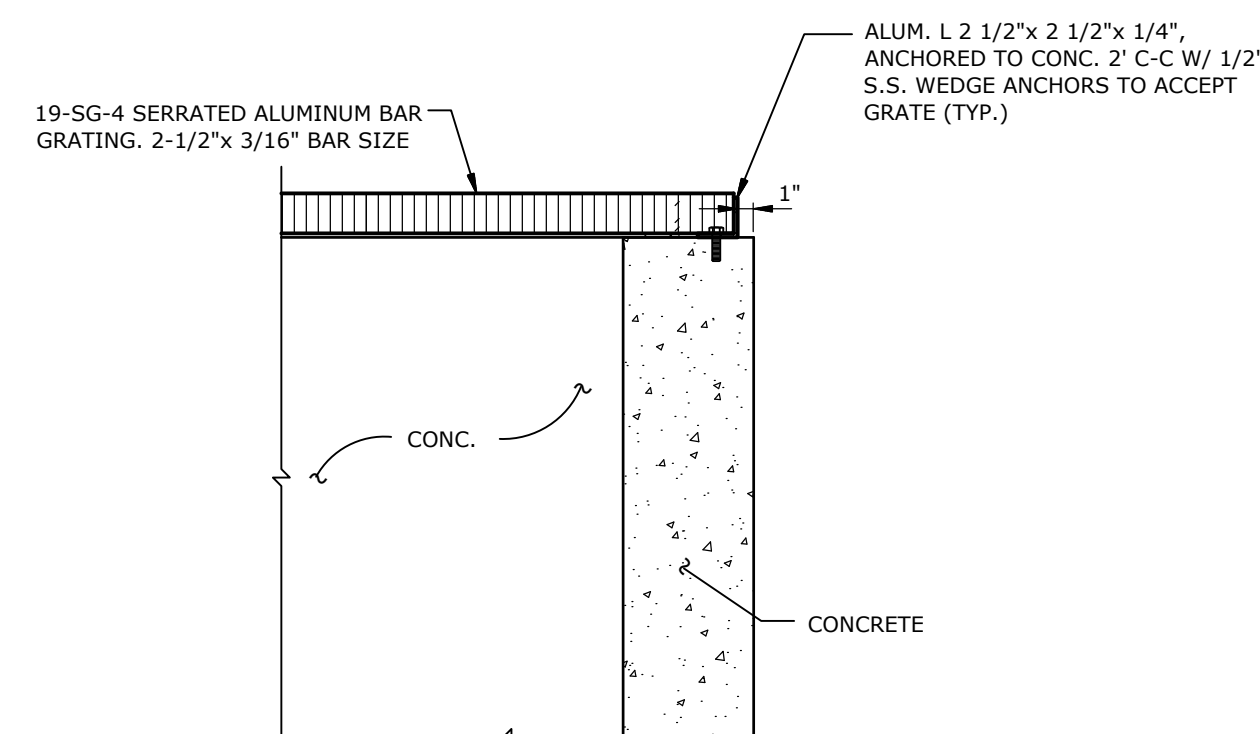
SECTION VIEW C - C



SECTION VIEW D-D

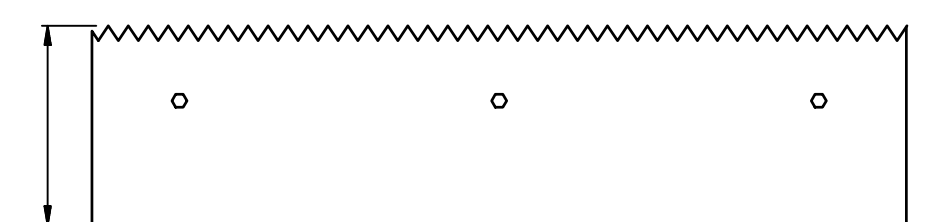
PUMP STRUCTURE DETAIL

SCALE: 3" = 1'

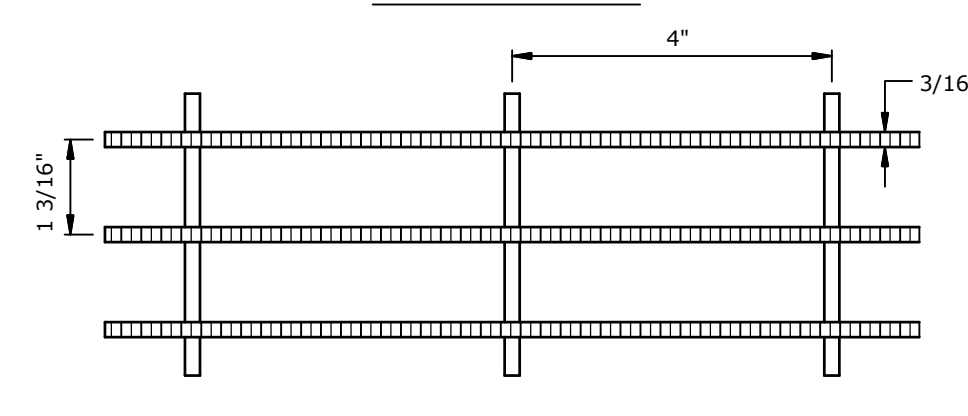


GRATING DETAIL

NO SCALE

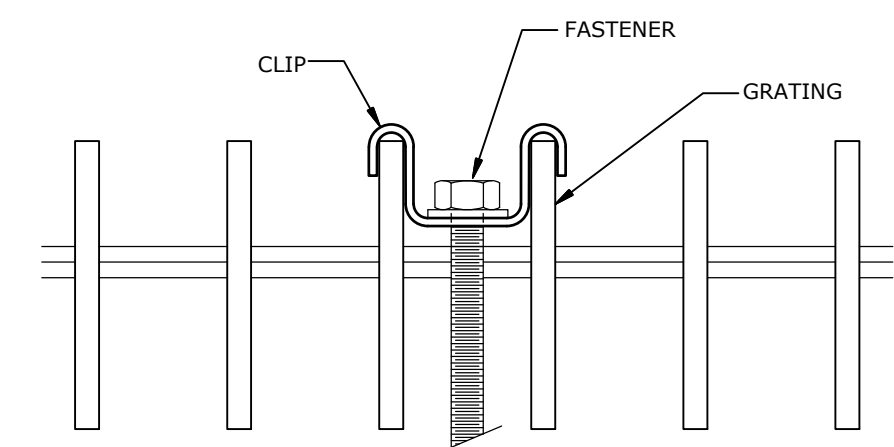


PROFILE VIEW



PLAN VIEW

19-SG-4 SERRATED ALUMINUM BAR
GRATING, 2-1/2"x 3/16" BAR SIZE



GRATING ATTACHMENT DETAIL

NO SCALE

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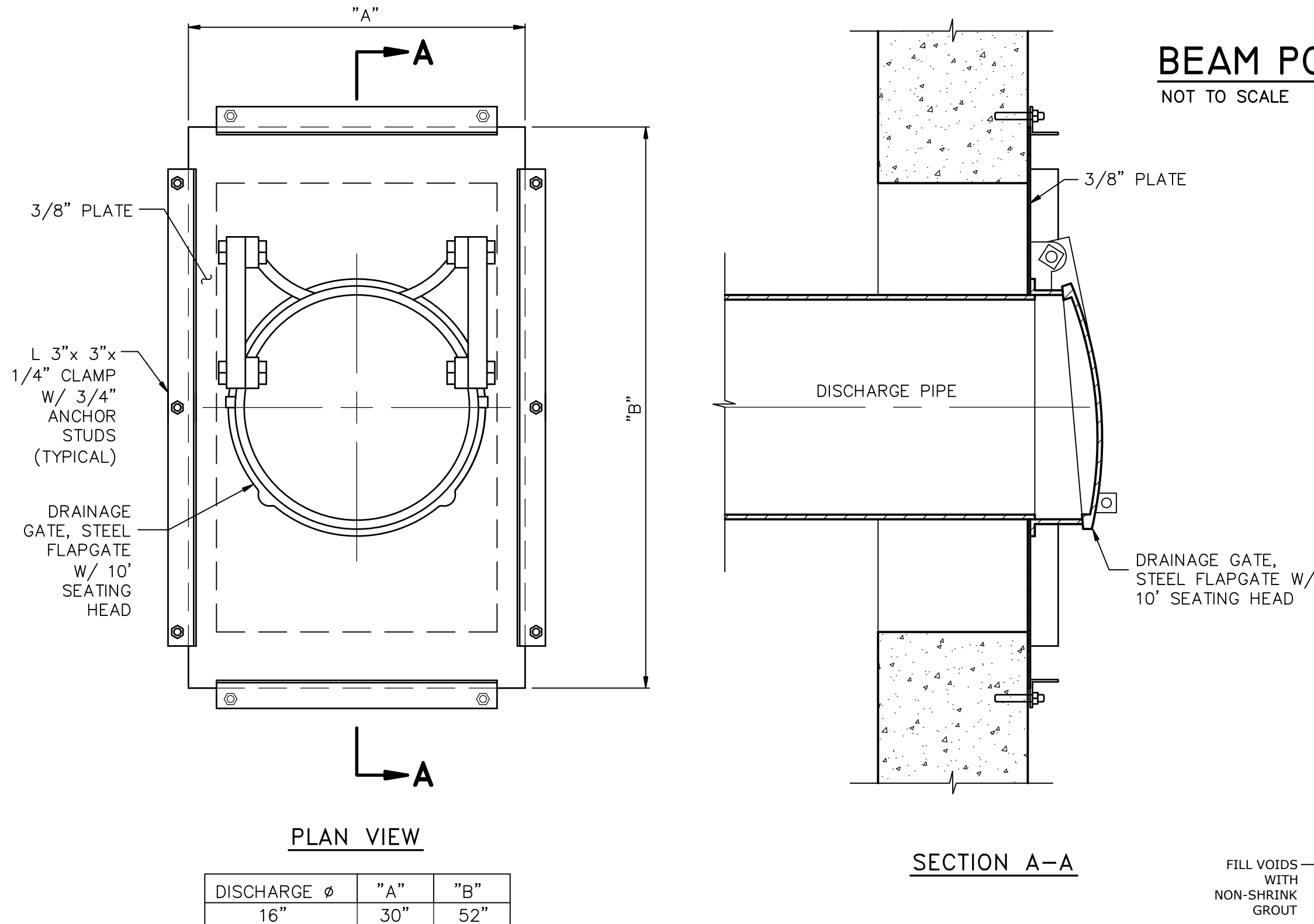
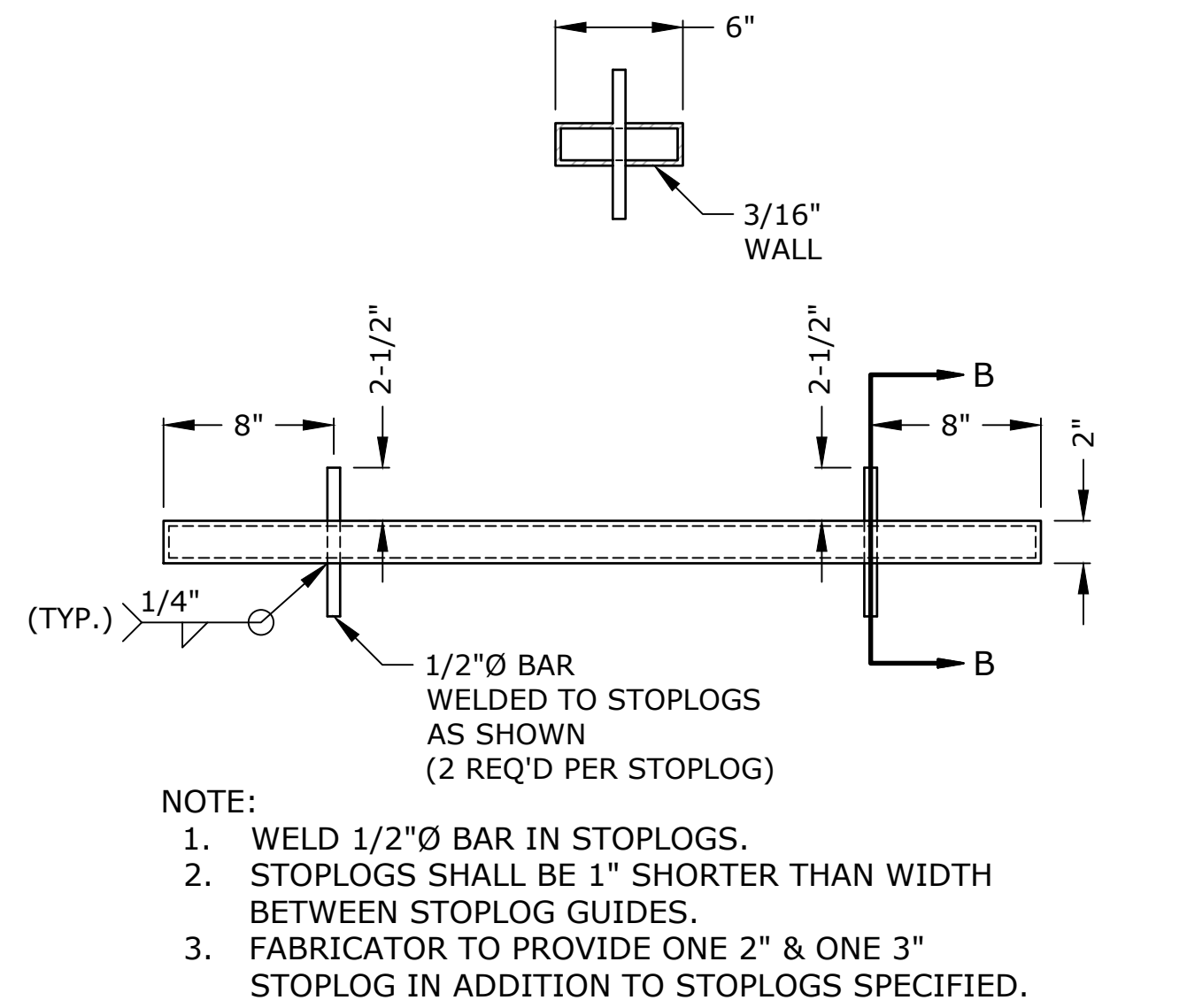
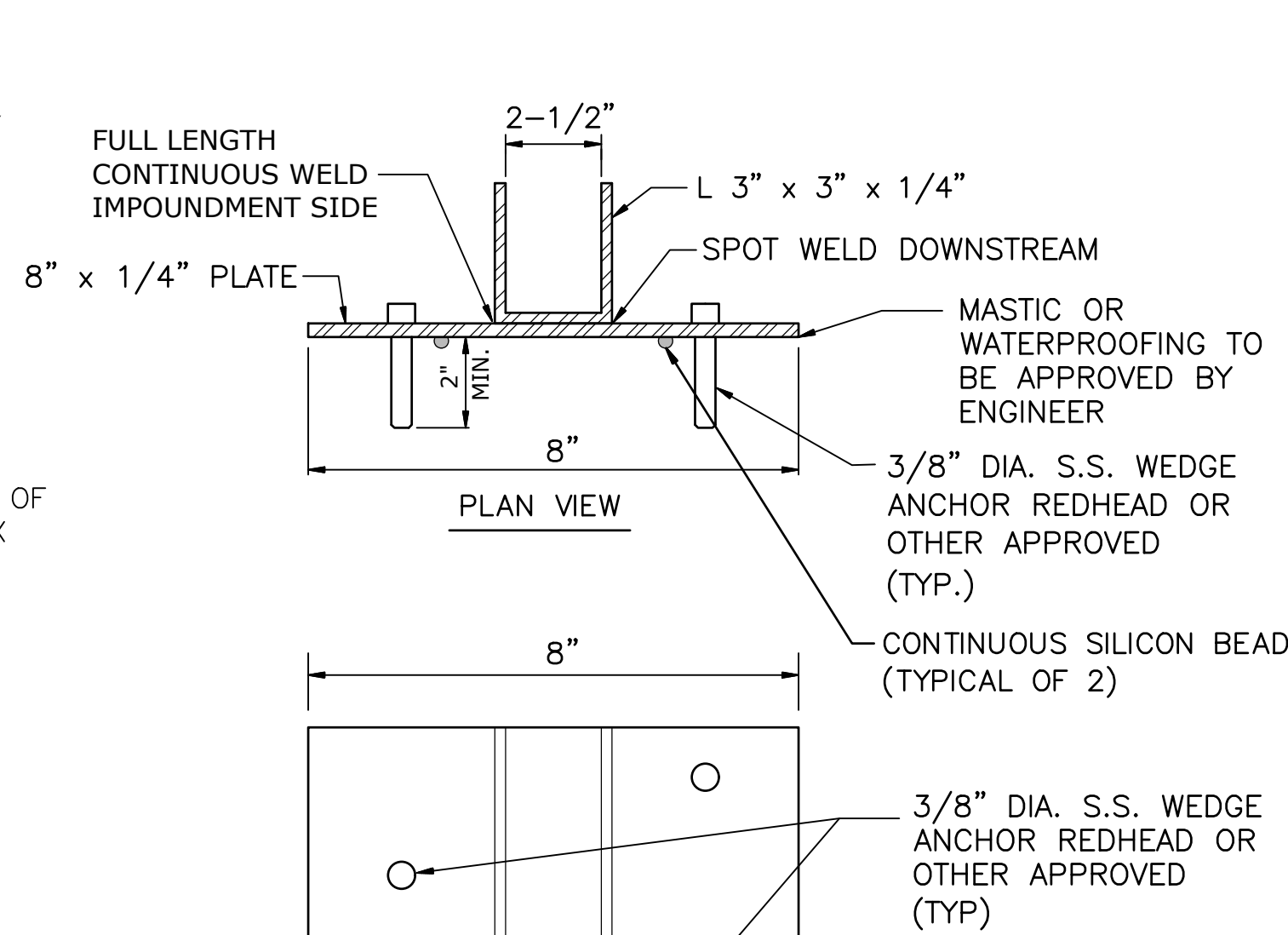
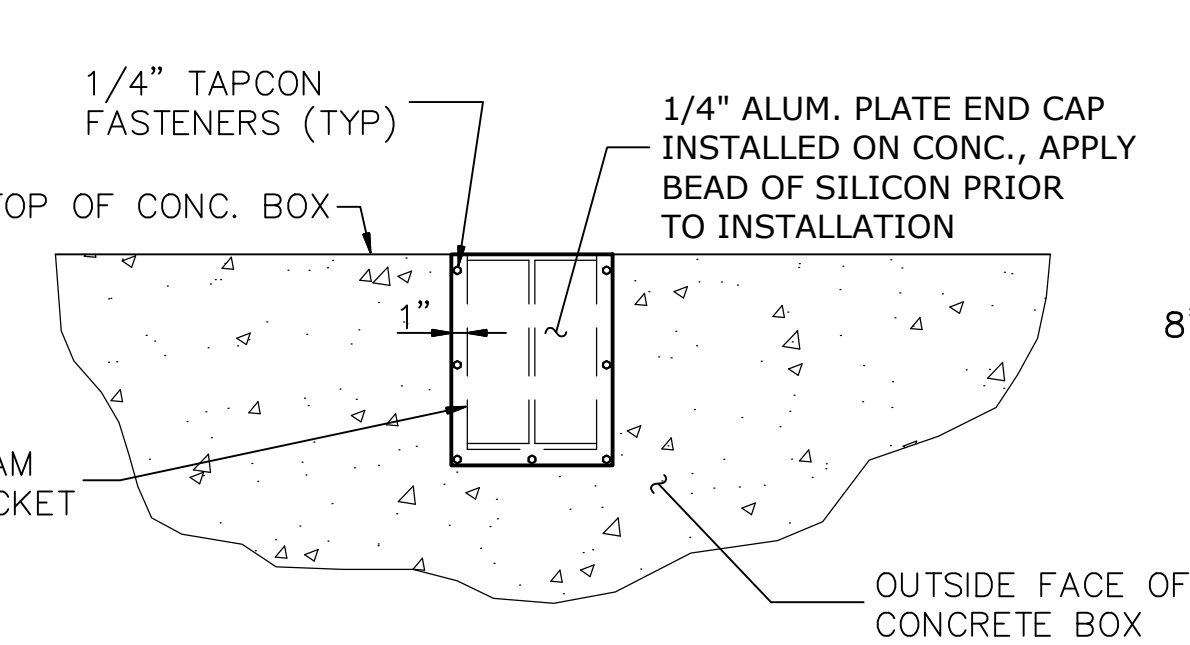
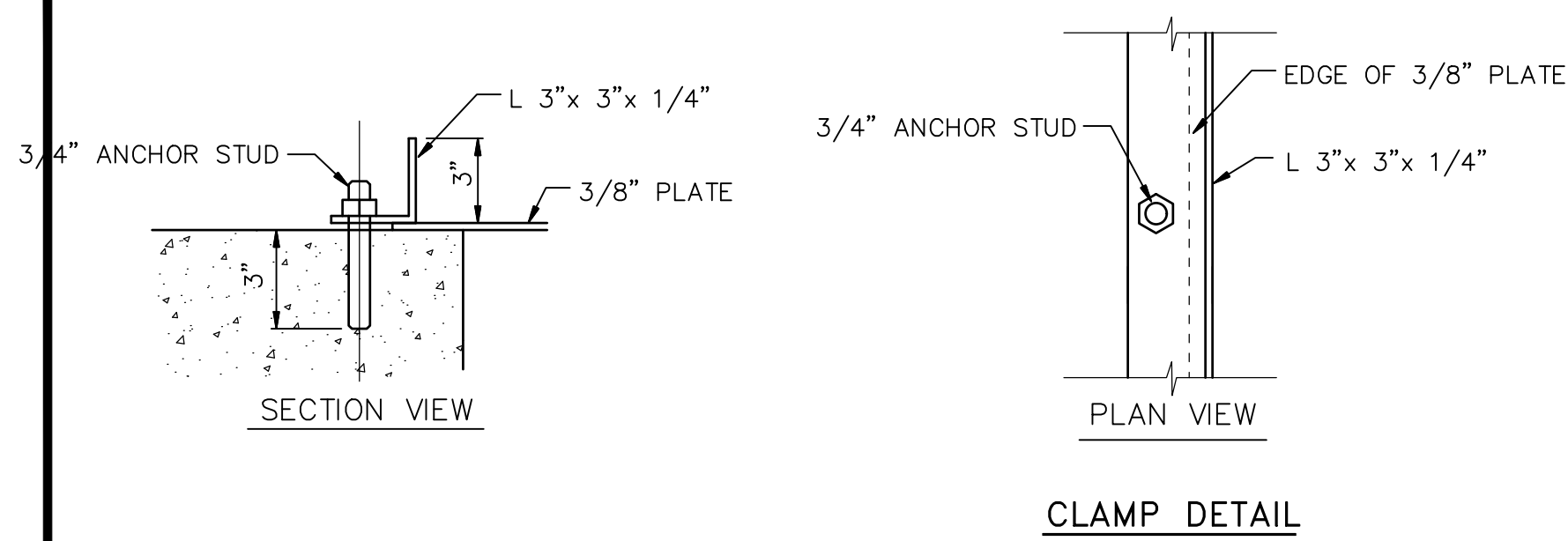
CONSTRUCTION DETAILS
HOWARD MARSH CELL 2
WETLAND ENHANCEMENT
TOLEDO, OHIO
LUCAS COUNTY

[illegible]

CAD FILE: OH-38-5_CONSTRUCTION DETAILS
DESIGNED BY: BN
DRAWN BY: PML
SURVEYED BY: GB
BIOLOGIST: RT
DATE: NOV. 2018
PROJECT NUMBER: US-OH-038-5

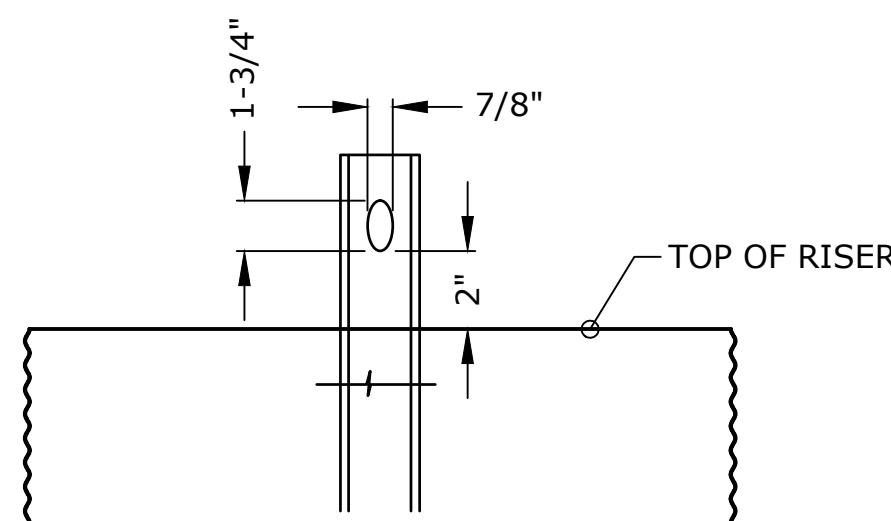
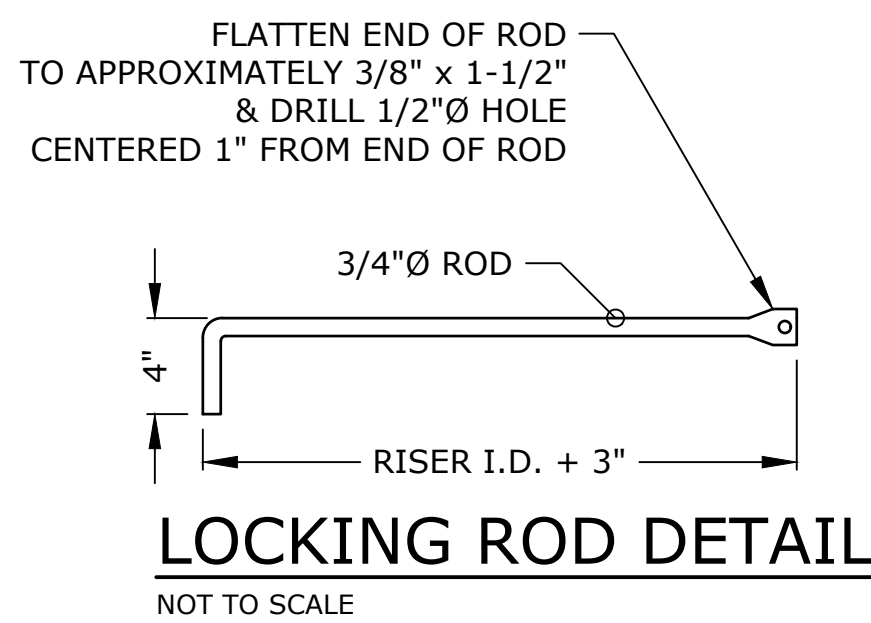
GLARO-XX0-000-402

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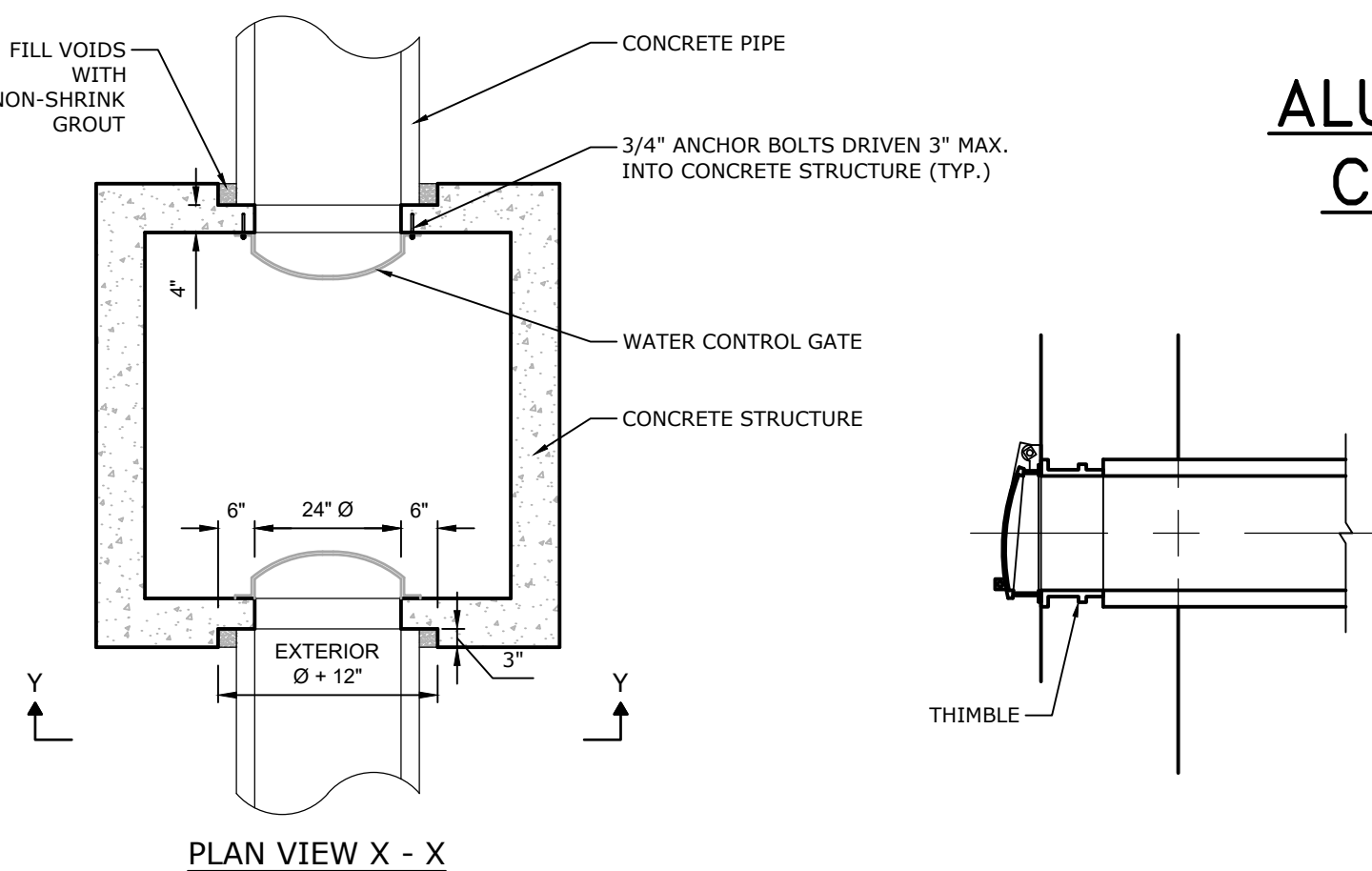
PUMP DISCHARGE FLAPGATE DETAIL

NO SCALE



LOCKING ROD SLOT DETAIL

NOT TO SCALE

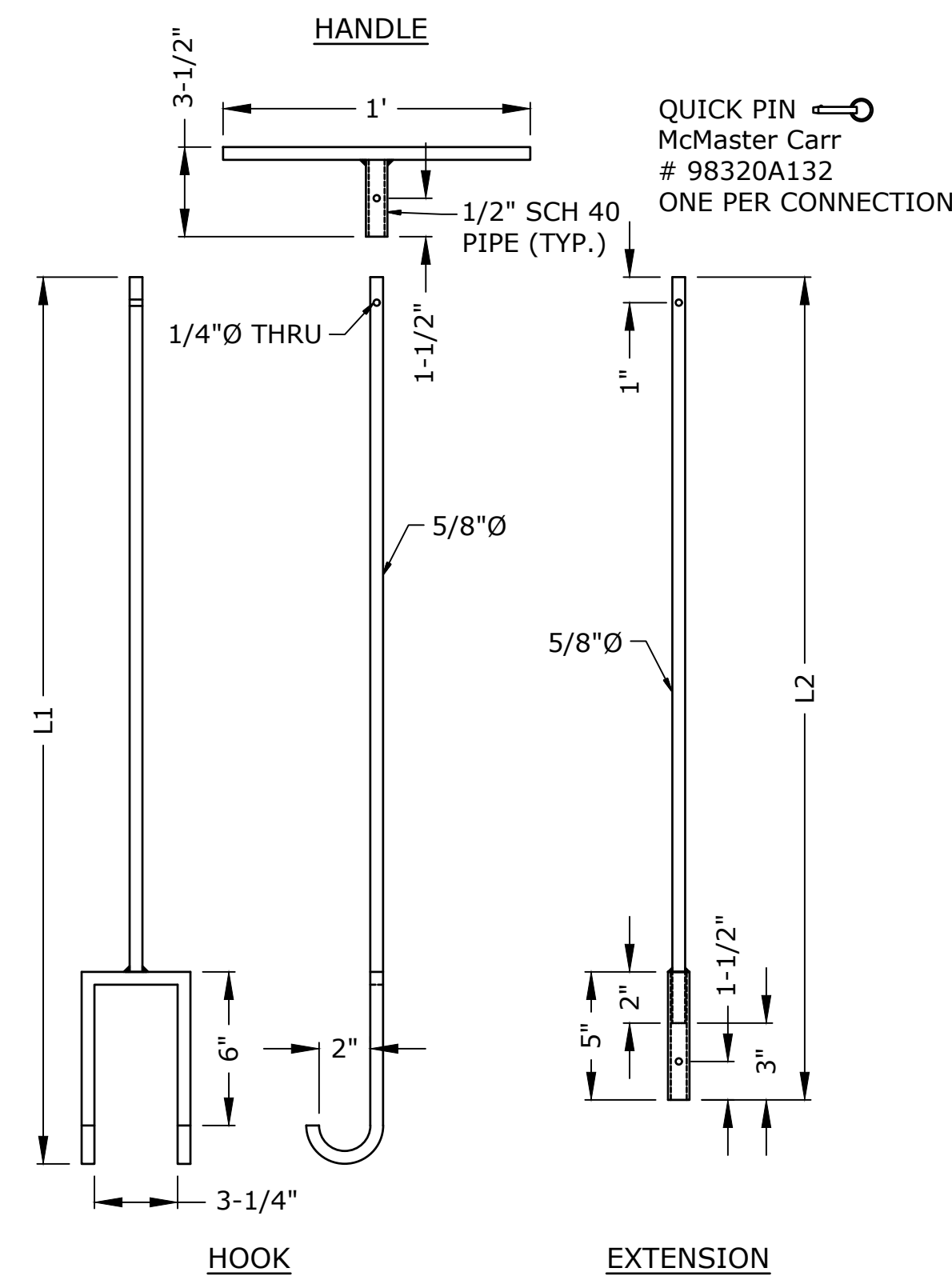
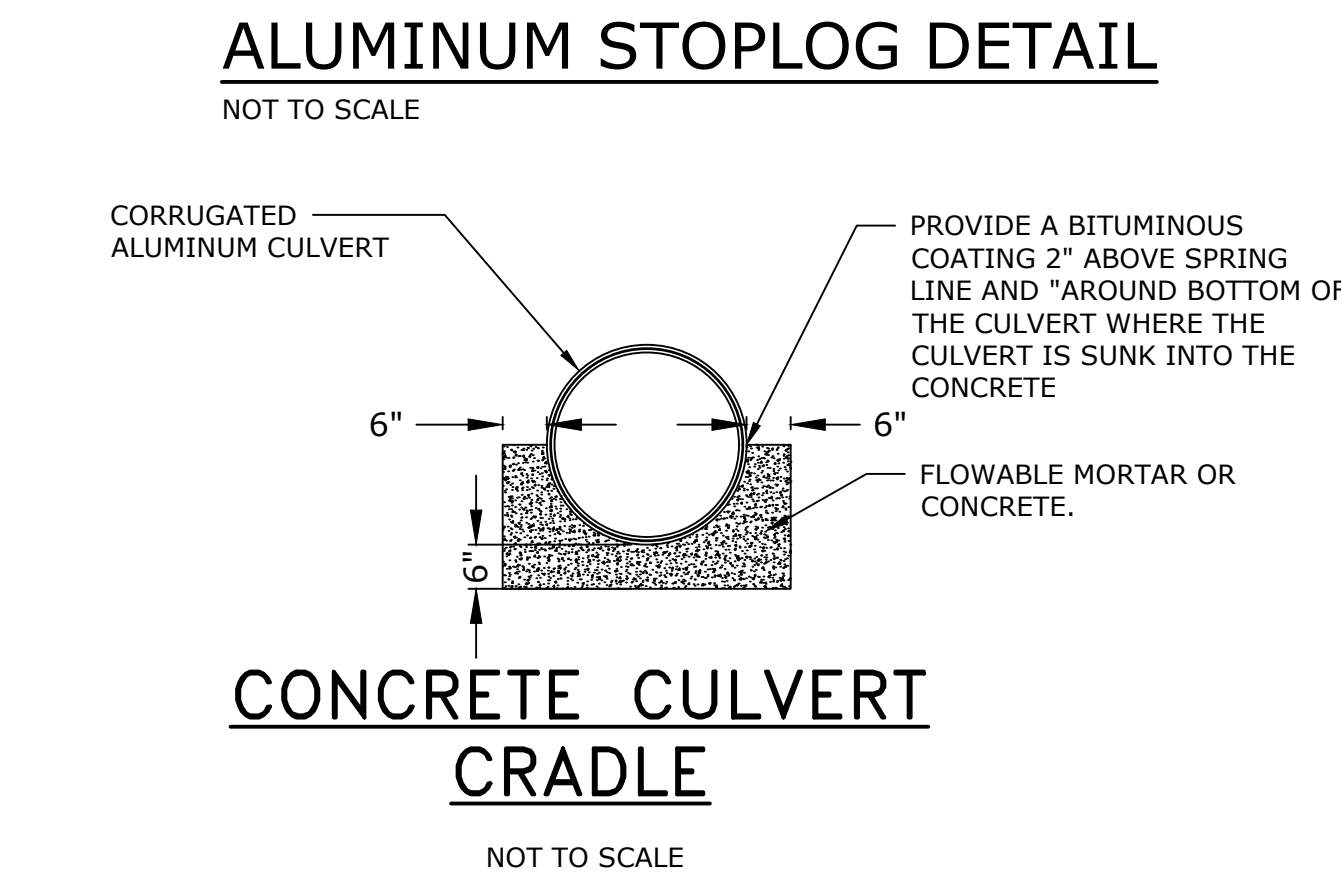


CONCRETE STRUCTURE TO CONCRETE PIPE CONNECTION DETAIL

NOT TO SCALE

ALUMINUM STOPLOG CHANNEL DETAIL

NOT TO SCALE



STOPLOG LIFTING HOOK DETAIL

NOT TO SCALE

NOTE:

L1 AND L2 EQUAL HEIGHT OF RISER PLUS 1' MAX LENGTH FOR EACH 5'. AFTER ADD A SECOND EXTENSION L3 2 PER STRUCTURE. MATERIAL TO BE STEEL.

PRELIMINARY NOT FOR CONSTRUCTION



CONSTRUCTION DETAILS
HOWARD MARSH CELL 2
WETLAND ENHANCEMENT
TOLEDO, OHIO
LUCAS COUNTY

Revision	Sheet	Revisions	Date	By

CAD FILE: OH-38-5_CONSTRUCTION DETAILS
DESIGNED BY: BN
DRAWN BY: PML
SURVEYED BY: GB
BIOLOGIST: RT
DATE: NOV. 2018
PROJECT NUMBER: US-OH-038-5
GLARO-XXO-000-403



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Call before you dig.

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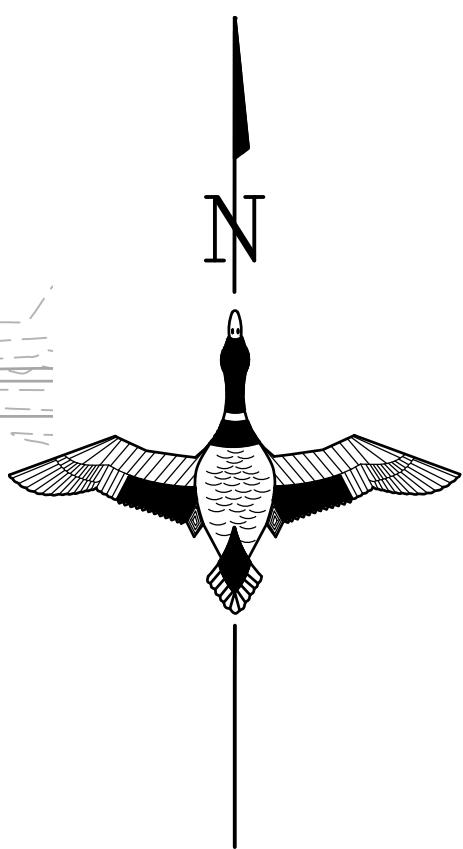
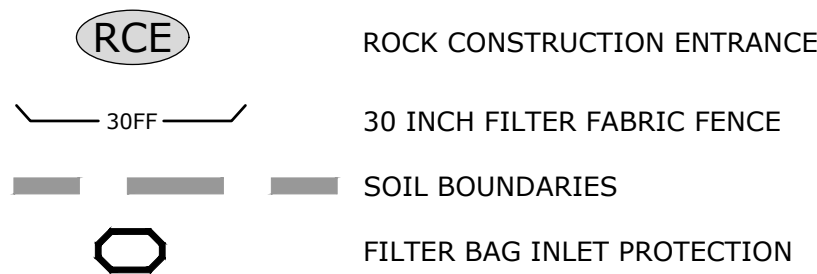
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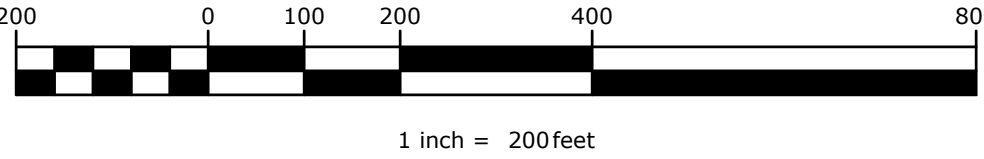
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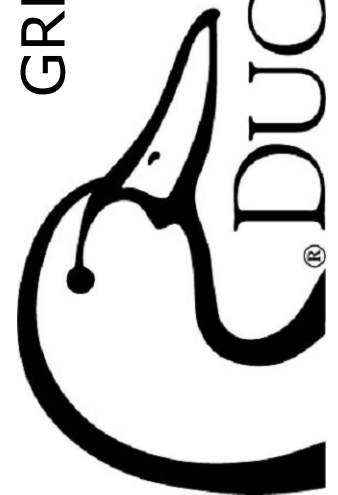
SWPPP LEGEND



GRAPHIC SCALE



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SOIL AND EROSION PLAN
HOWARD MARSH CELL 2
WETLAND ENHANCEMENT
TOLEDO, OHIO
LUCAS COUNTY

[illegible]

CAD FILE:
OH-38-5_500 SWPPP

DESIGNED BY: BN

DRAWN BY:PML

SURVEYED BY: GB

BIOLOGIST:RT

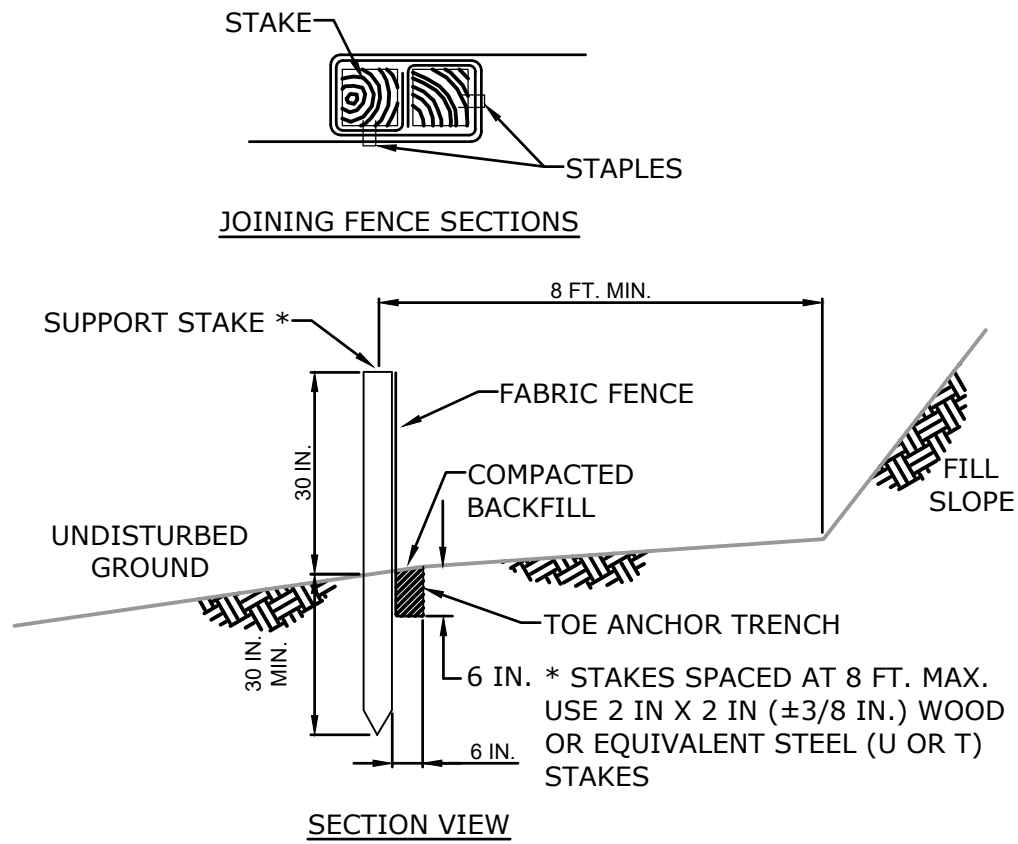
DATE _____

PROJECT NUMBER

US-OH-C

CLARO, YVO

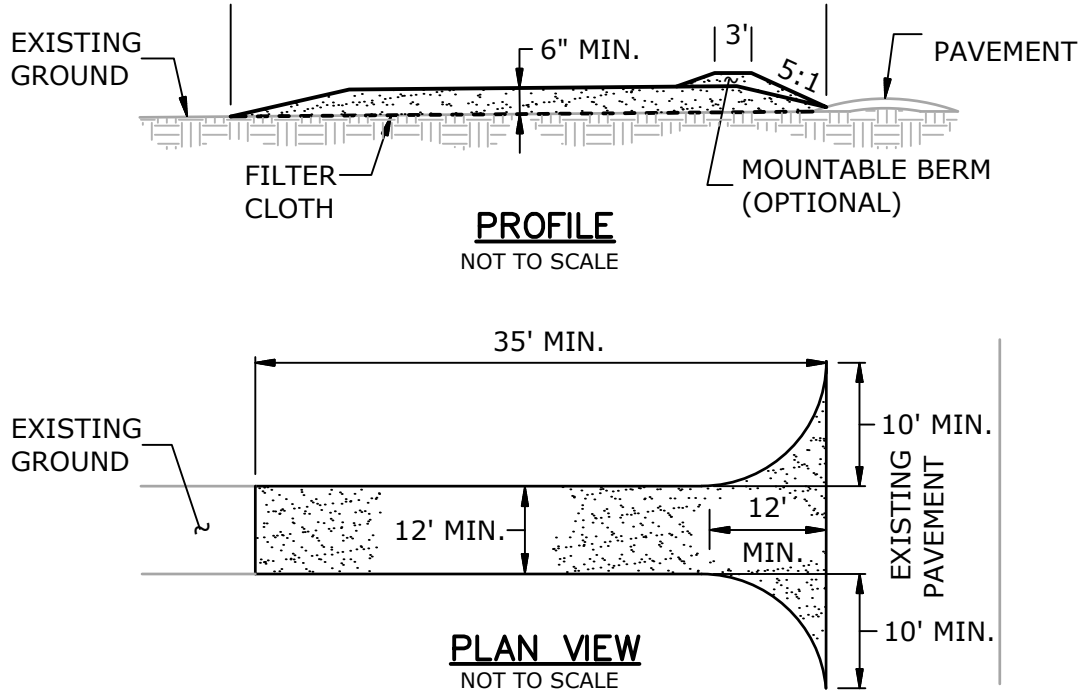
C:\Users\Hydon\Documents\GLARO Engineering - Documents\OH-38-5 Howard Farms Cell 2\CAD_DRAWING\OH-38-5_500 SWPPP.dwg, 11/13/2020 12:29 PM, Patrick Lydon, 502-SWPPP, None



NOTES:

- FABRIC WIDTH SHALL BE 30 IN. MINIMUM. STAKES SHALL BE HARDWOOD OR EQUIVALENT STEEL (U OR T) STAKES.
- SILT FENCE SHALL BE PLACED AT LEVEL EXISTING GRADE. BOTH ENDS OF THE FENCE SHALL BE EXTENDED AT LEAST 8 FEET UP SLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT.
- SEDIMENT SHALL BE REMOVED WHEN ACCUMULATIONS REACH HALF THE ABOVE GROUND HEIGHT OF THE FENCE.
- ANY SECTION OF SILT FENCE WHICH HAS BEEN UNDERMINED OR TOPPED SHALL BE IMMEDIATELY REPLACED WITH A ROCK FILTER OUTLET.
- FENCE SHALL BE REMOVED AND PROPERLY DISPOSED OF WHEN TRIBUTARY AREA IS PERMANENTLY STABILIZED.

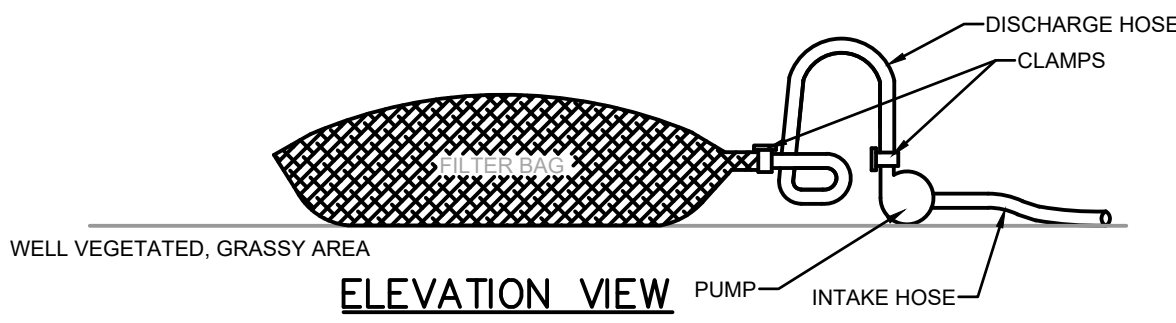
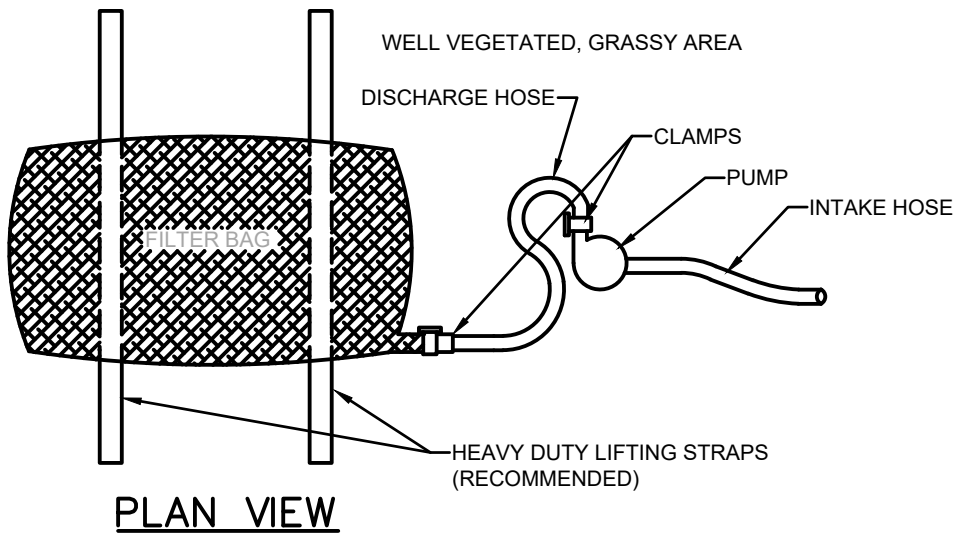
STANDARD SILT FENCE (30" HIGH)
NO SCALE



CONSTRUCTION SPECIFICATIONS

- STONE SIZE - USE 1-4 INCH STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
- LENGTH - NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY).
- THICKNESS - NOT LESS THAN SIX (6) INCHES.
- WIDTH - TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY-FOUR (24) FOOT IF SINGLE ENTRANCE TO SITE.
- GEOTEXTILE - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
- SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
- MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACTED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
- WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
- PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

STABILIZED CONSTRUCTION ENTRANCE
NO SCALE



NOTES:

LOW VOLUME FILTER BAGS SHALL BE MADE FROM NON-WOVEN GEOTEXTILE MATERIAL SEWN WITH HIGH STRENGTH, DOUBLE STITCHED "J" TYPE SEAMS. THEY SHALL BE CAPABLE OF TRAPPING PARTICLES LARGER THAN 150 MICRONS. HIGH VOLUME FILTER BAGS SHALL BE MADE FROM WOVEN GEOTEXTILES THAT MEET THE FOLLOWING STANDARDS:

PROPERTY	TEST METHOD	MINIMUM STANDARD
AVG. WIDE WIDTH STRENGTH	ASTM D-4884	60 LB/IN
GRAB TENSILE	ASTM D-4632	205 LB
PUNCTURE	ASTM D-4633	110 LB
MULLEN BURST	ASTM D-3786	350 PSI
UV RESISTANCE	ASTM D-4355	70%
AOS % RETAINED	ASTM D-4751	80 SIEVE

A SUITABLE MEANS OF ACCESSING THE BAG WITH MACHINERY REQUIRED FOR DISPOSAL PURPOSES SHALL BE PROVIDED. FILTER BAGS SHALL BE REPLACED WHEN THEY BECOME 1/2 FULL OF SEDIMENT. SPARE BAGS SHALL BE KEPT AVAILABLE FOR REPLACEMENT OF THOSE THAT HAVE FAILED OR ARE FILLED. BAGS SHALL BE PLACED ON STRAPS TO FACILITATE REMOVAL UNLESS BAGS COME WITH LIFTING STRAPS ALREADY ATTACHED.

BAGS SHALL BE LOCATED IN WELL-VEGETATED (GRASSY) AREA, AND DISCHARGE ONTO STABLE, EROSION RESISTANT AREAS. WHERE THIS IS NOT POSSIBLE, A GEOTEXTILE UNDERLAYMENT AND FLOW PATH SHALL BE PROVIDED. BAGS MAY BE PLACED ON FILTER STONE TO INCREASE DISCHARGE CAPACITY. BAGS SHALL NOT BE PLACED ON SLOPES GREATER THAN 5%. FOR SLOPES EXCEEDING 5%, CLEAN ROCK OR OTHER NON-ERODIBLE AND NON-POLLUTING MATERIAL MAY BE PLACED UNDER THE BAG TO REDUCE SLOPE STEEPNESS.

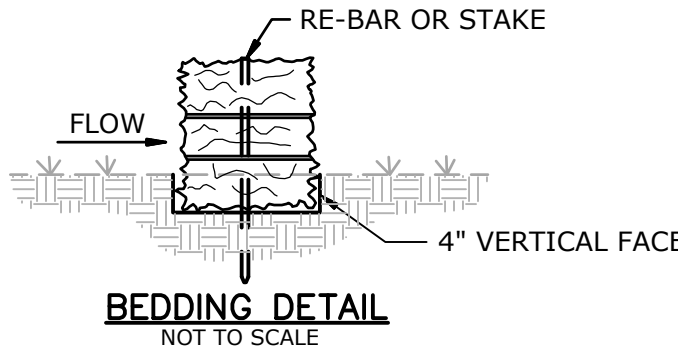
NO DOWNSLOPE SEDIMENT BARRIER IS REQUIRED FOR MOST INSTALLATIONS. COMPOST BERM OR COMPOST FILTER SOCK SHALL BE INSTALLED BELOW BAGS LOCATED IN HQ OR EV WATERSHEDS, WITHIN 50 FEET OF ANY RECEIVING SURFACE WATER OR WHERE GRASSY AREA IS NOT AVAILABLE.

THE PUMP DISCHARGE HOSE SHALL BE INSERTED INTO THE BAGS IN THE MANNER SPECIFIED BY THE MANUFACTURER AND SECURELY CLAMPED. A PIECE OF PVC PIPE IS RECOMMENDED FOR THIS PURPOSE.

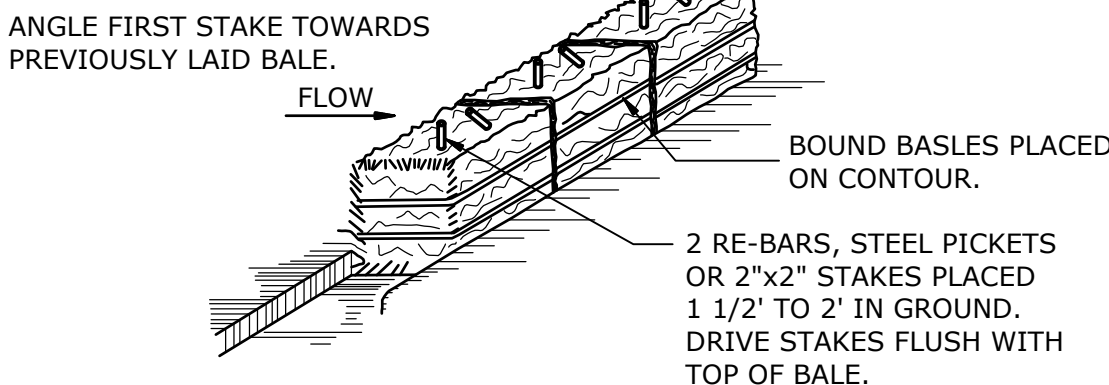
THE PUMPING RATE SHALL BE NO GREATER THAN 750 GPM OR 1/2 THE MAXIMUM SPECIFIED BY THE MANUFACTURER, WHICHEVER IS LESS. PUMP INTAKES SHALL BE FLOATING AND SCREENED.

FILTER BAGS SHALL BE INSPECTED DAILY. IF ANY PROBLEM IS DETECTED, PUMPING SHALL CEASE IMMEDIATELY AND NOT RESUME UNTIL THE PROBLEM IS CORRECTED.

PUMPED WATER FILTER BAG
NOT TO SCALE



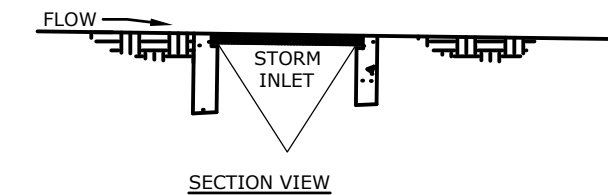
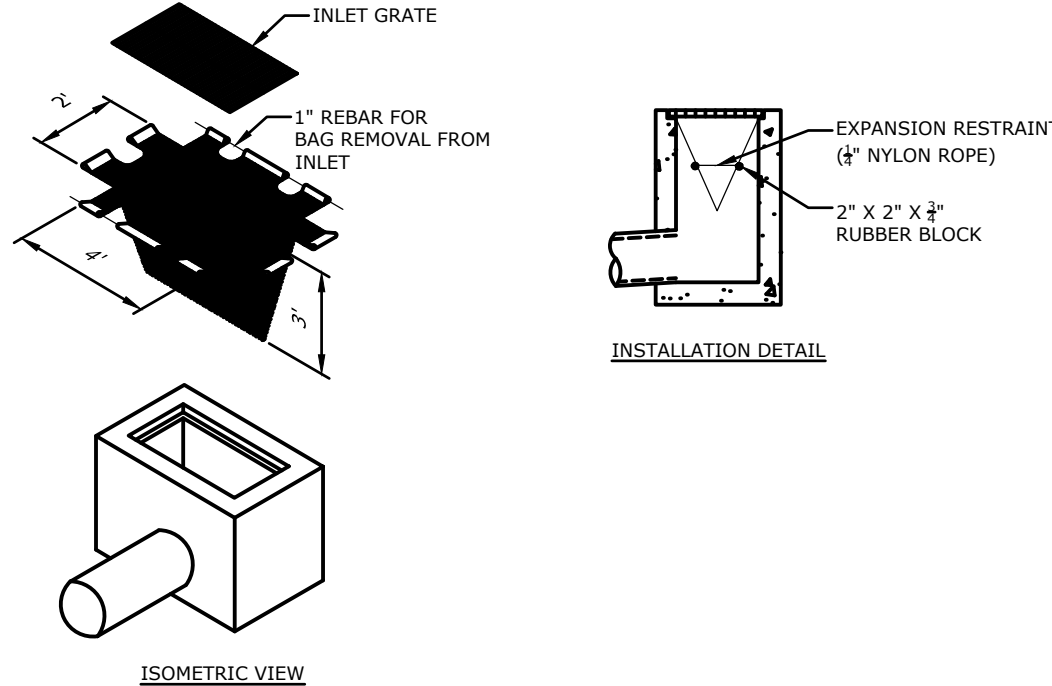
DRAINAGE AREA NO MORE THAN 1/4 ACRE PER 100 FEET OF STRAW BALE DIKE FOR SLOPES LESS THAN 25%.



CONSTRUCTION SPECIFICATIONS

- BALES SHALL BE PLACED AT THE TOE OF A SLOPE OR ON THE CONTOUR AND IN A ROW WITH ENDS TIGHTLY ABUTTING THE ADJACENT BALES.
- EACH BALE SHALL BE EMBEDDED IN THE SOIL A MINIMUM OF (4) INCHES, AND PLACED SO THE BINDINGS ARE HORIZONTAL.
- BALES SHALL BE SECURELY ANCHORED IN PLACE BY EITHER TWO STAKES OR RE-BARS DRIVEN THROUGH THE BALE. THE FIRST STAKE IN EACH BALE SHALL BE DRIVEN TOWARD THE PREVIOUSLY LAID BALE AT AN ANGLE TO FORCE THE BALES TOGETHER. STAKES SHALL BE DRIVEN FLUSH WITH THE BALE.
- INSPECTION SHALL BE FREQUENT AND REPAIR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
- BALES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFULNESS SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.

STRAW BALE SEDIMENT BARRIER DETAIL
NO SCALE



NOTES:

MAXIMUM DRAINAGE AREA = 1/2 ACRE.

INLET PROTECTION SHALL NOT BE REQUIRED FOR INLET TRIBUTARY TO SEDIMENT BASIN OR TRAP.

AT A MINIMUM, THE FABRIC SHALL HAVE A MINIMUM GRAB TENSILE STRENGTH OF 120 LBS., A MINIMUM BURST STRENGTH OF 200 PSI, AND A MINIMUM TRAPEZOIDAL TEAR STRENGTH OF 50 LBS. FILTER BAGS SHALL BE CAPABLE OF TRAPPING ALL PARTICLES NOT PASSING A NO. 40 SIEVE.

INLET FILTER BAGS SHALL BE INSPECTED ON A WEEKLY BASIS AND AFTER EACH RUNOFF EVENT. BAGS SHALL BE EMPTIED AND RINSED OR REPLACED WHEN HALF FULL OR WHEN FLOW CAPACITY HAS BEEN REDUCED SO AS TO CAUSE FLOODING OR BYPASSING OF THE INLET. DAMAGED OR CLOGGED BAGS SHALL BE REPLACED. A SUPPLY SHALL BE MAINTAINED ON SITE FOR REPLACEMENT OF BAGS. ALL NEEDED REPAIRS SHALL BE INITIATED IMMEDIATELY AFTER THE INSPECTION. DISPOSE ACCUMULATED SEDIMENT AS WELL AS ALL USED BAGS ACCORDING TO THE PLAN NOTES.

WHEN LOCATED IN VICINITY OF ROADWAY ENSURE NO PONDING OCCURS THAT MAY CAUSE TRAFFIC HAZARDS.

FILTER BAG INLET PROTECTION
NOT TO SCALE

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT OR LAND SURVEYOR, TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED, THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

NOTICE: Construction site safety is the sole responsibility of the contractor. Ducks Unlimited, Inc. shall not assume any responsibility for the safety of the work performed, persons engaged in the work, nearby structures, or of other persons on-site.

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GREAT LAKES/ATLANTIC REGIONAL OFFICE

7322 NEWMAN BOULEVARD, BUILDING 1
DEXTER, MICHIGAN 48130
(734) 623-2000 www.ducks.org

DUCKS UNLIMITED

SOIL AND EROSION

DETAILS

HOWARD MARSH CELL 2

WETLAND ENHANCEMENT

TOLEDO, OHIO

LUCAS COUNTY

By

Date

Revisions

Sheet

Revision

CAD FILE:
OH-38-5_500 SWPPP

DESIGNED BY: BN

DRAWN BY:PML

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BIOLOGIST:RT

DATE:

NOV. 2018

PROJECT NUMBER:

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