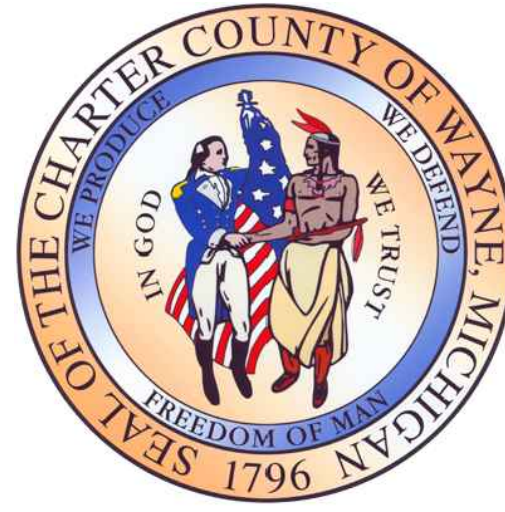


# ROUGE RIVER AOC - HENRY FORD ESTATE DAM FISHWAY HABITAT RESTORATION PROJECT

WAYNE COUNTY, MICHIGAN  
GLRI EPA AWARD NO. GL-00E02040-0

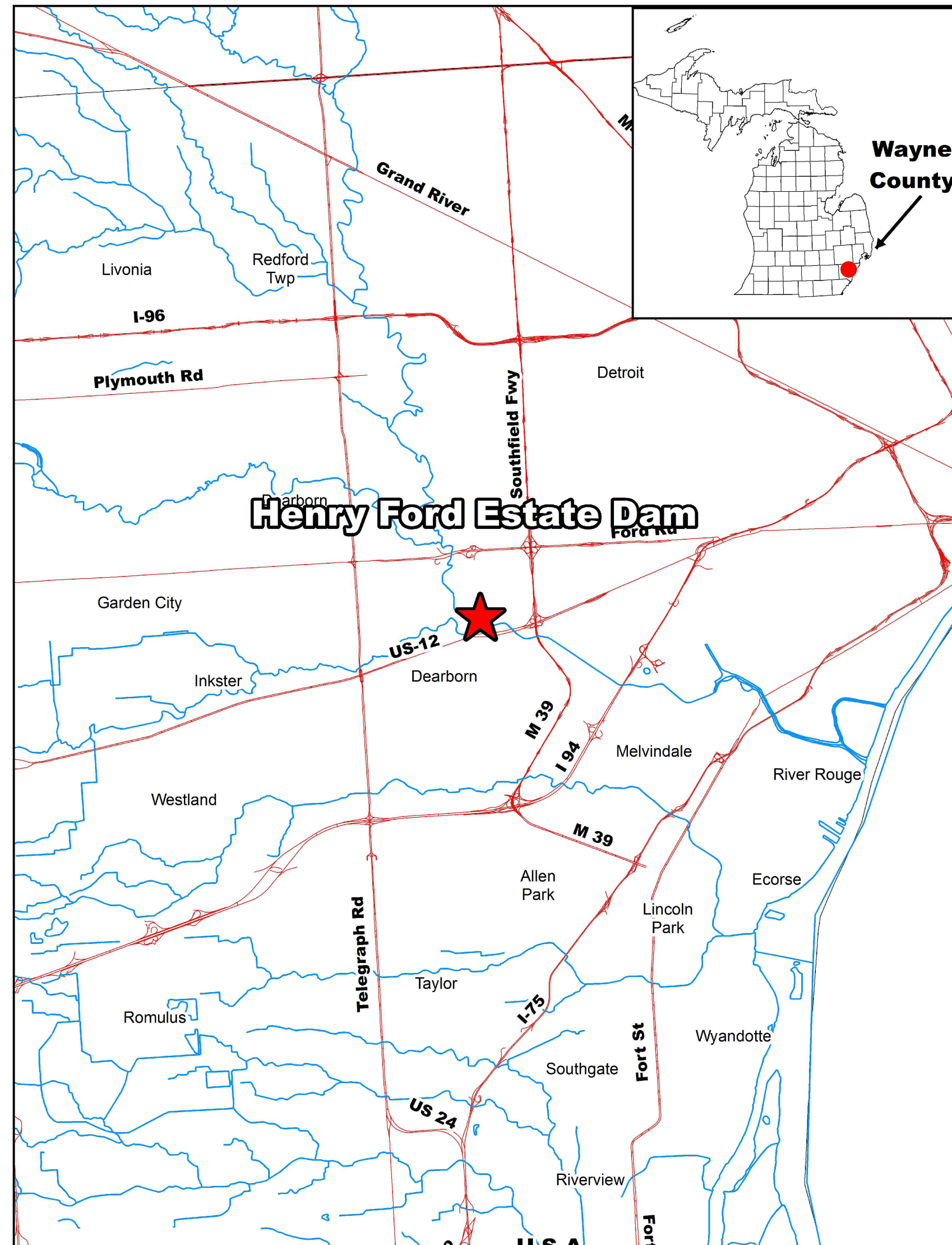
FOR BIDDING - OCTOBER, 2017



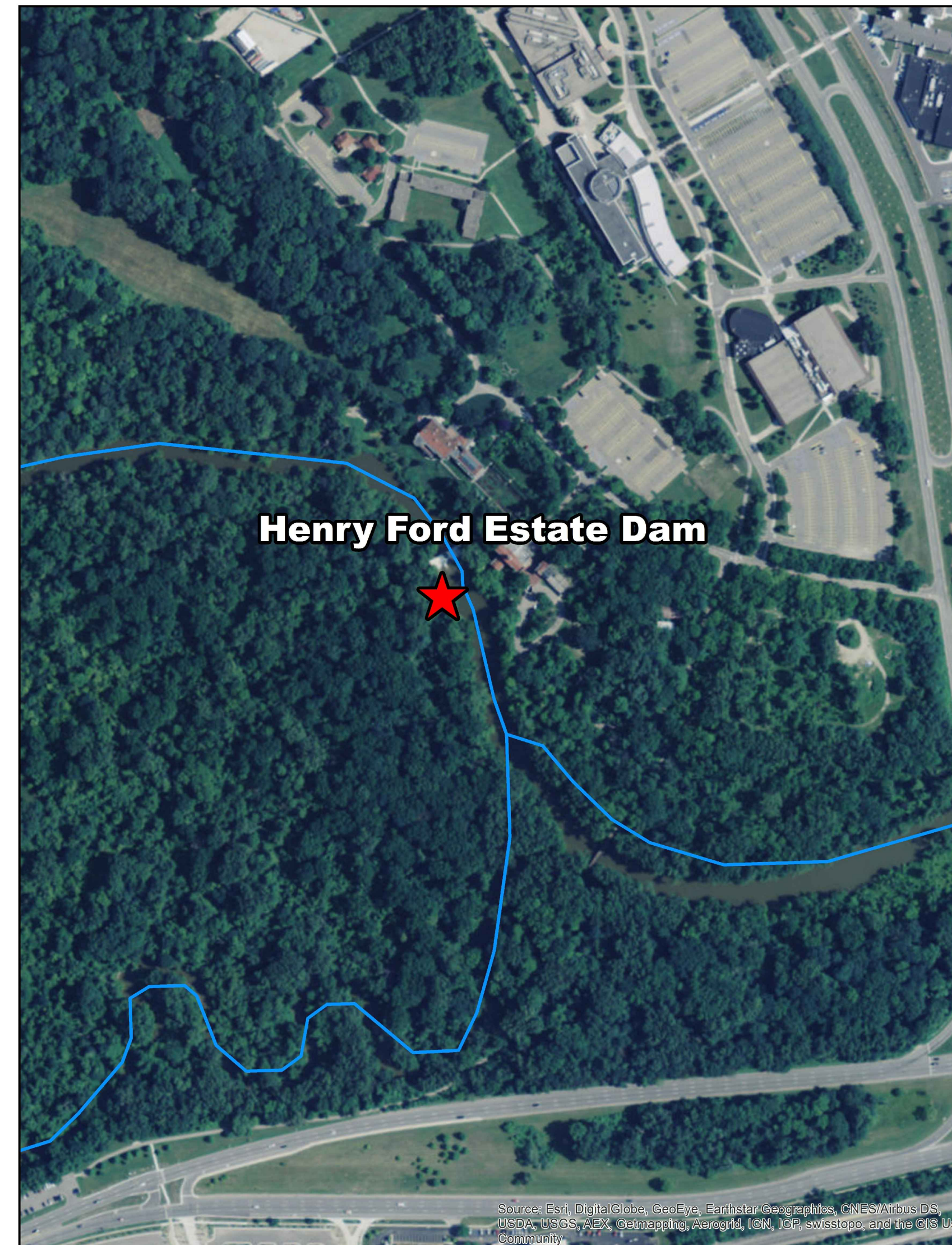
PREPARED BY:  
**ECT** Environmental Consulting & Technology, Inc.

Environmental Consulting & Technology, Inc.  
2200 Commonwealth Boulevard, Suite 300  
Ann Arbor, Michigan 48105  
Phone: 734.769.3004  
Fax: 734.769.31664

WITH:



PROJECT LOCATION MAP  
NOT TO SCALE



PROJECT VICINITY MAP  
NOT TO SCALE

## DRAWING INDEX

1. COVER SHEET
2. EXISTING CONDITIONS - OVERVIEW
3. EXISTING CONDITIONS - FISHWAY PROJECT AREA
4. EXISTING CONDITIONS - ACCESS
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6. TREE REMOVAL - FISHWAY
7. TREE REMOVAL - ACCESS
8. TEMPORARY ACCESS DETAILS
9. GRADING PLAN - OVERVIEW
10. GRADING - NORTH
11. GRADING - SOUTH
12. FISHWAY PROFILE
13. FISHWAY DETAILS
14. END DETAILS
15. REVEGETATION PLAN - OVERVIEW
16. REVEGETATION - NORTH
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19. NOTES
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- GC1.8 VOLUME PLANS AND PROFILES



**ROUGE RIVER  
 AOC - HENRY FORD ESTATE  
 DAM FISHWAY  
 HABITAT  
 RESTORATION  
 PROJECT**

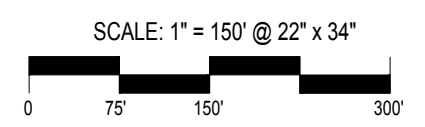
**ALLIANCE OF ROUGE  
 COMMUNITIES**

**DEARBORN,  
 WAYNE COUNTY,  
 MICHIGAN**

FOR BIDDING	10-2017
FINAL DESIGN	01-20-17
95% DRAWINGS	10-12-16
50% DRAWINGS	6-30-16

150646-0300 ECT PROJECT NUMBER	
DESIGNED BY	MB
CHECKED BY	MB
DRAWN BY	JO
APPROVED BY	JO

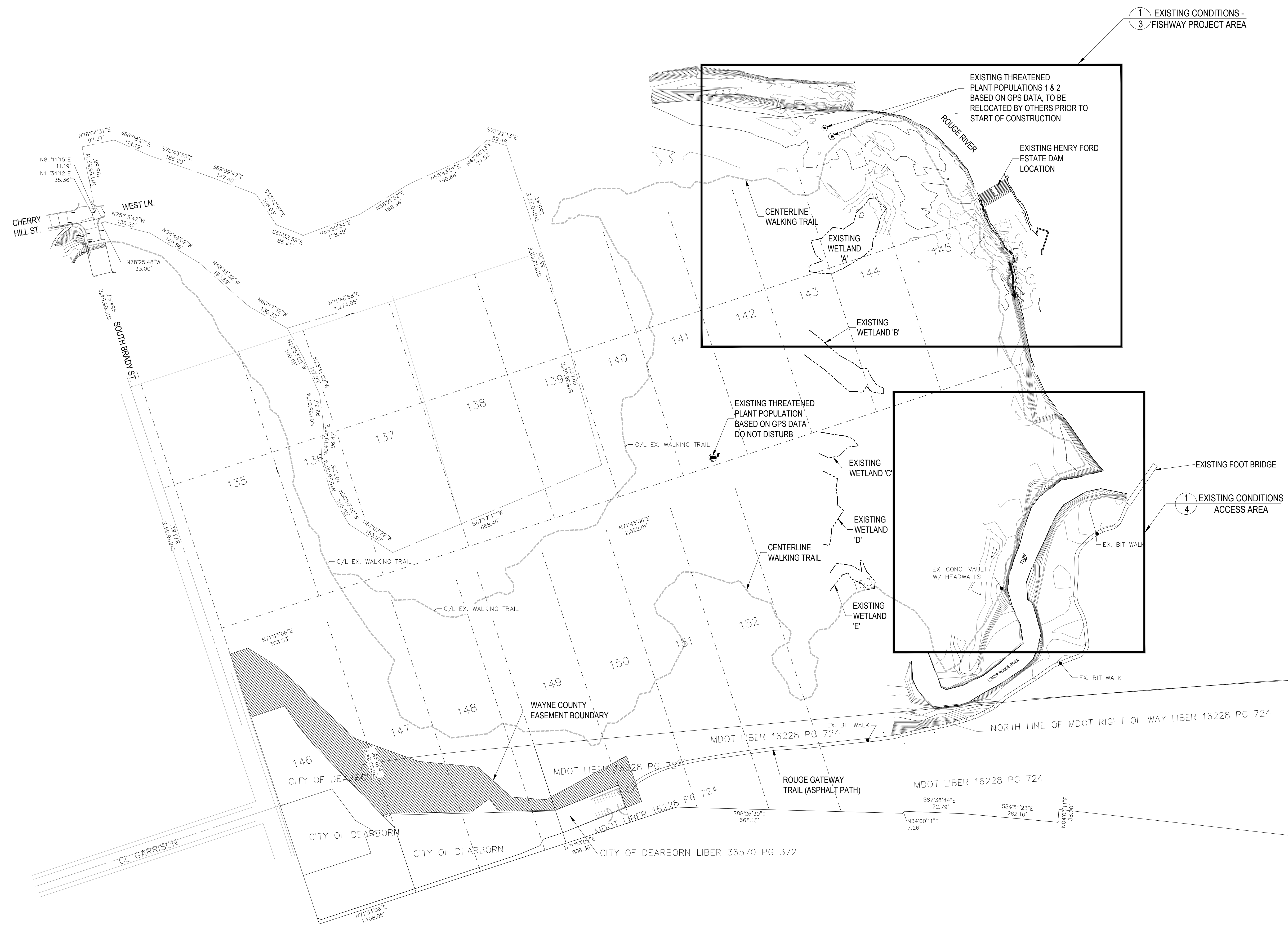
**EXISTING  
 CONDITIONS -  
 OVERVIEW**



NORTH  
  
 SHEET NUMBER  
**2**

**LEGEND:**

- EXISTING CONTOUR
- EXISTING PROPERTY BOUNDARY
- EXISTING WALKING TRAIL
- PLAT BOUNDARY
- EXISTING FOOTBRIDGE
- WAYNE COUNTY EASEMENT
- EXISTING WETLAND BOUNDARY
- EXISTING THREATENED PLANT POPULATION



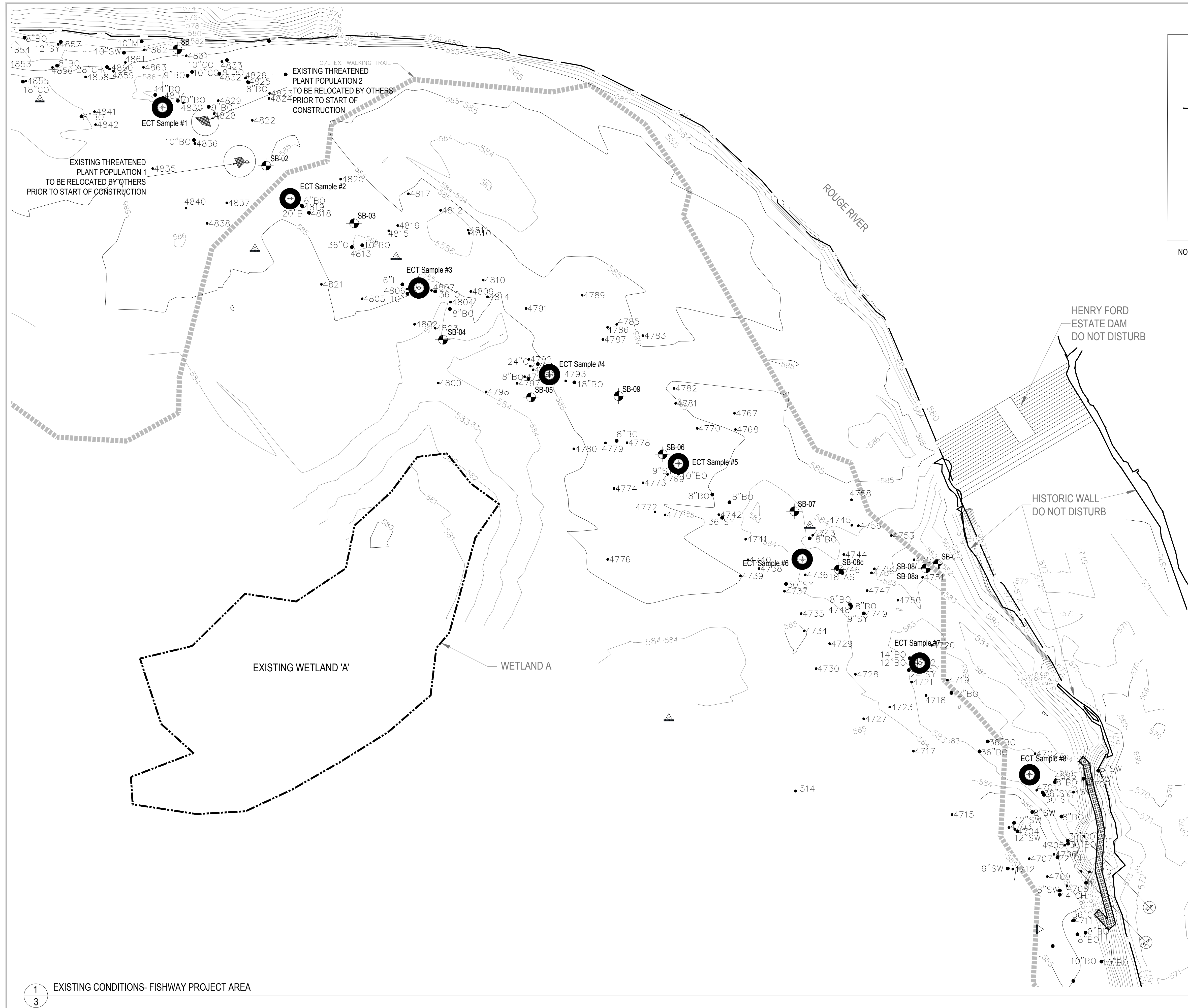
1 EXISTING CONDITIONS -  
 3 FISHWAY PROJECT AREA

1 EXISTING CONDITIONS  
 4 ACCESS AREA

100-YEAR FLOODPLAIN ELEVATION:  
 589 AT PROPOSED FISHWAY  
 588 AT PROPOSED LOWER ROUGE  
 ACCESS CROSSING

ORDINARY HIGH WATER MARK (OHWM):  
 583 AT PROPOSED FISHWAY  
 582 AT PROPOSED LOWER ROUGE  
 ACCESS CROSSING

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



**LEGEND:**

- 4824 EXISTING TREE
- 585 EXISTING CONTOUR
- WATER SURFACE
- EXISTING WALKING TRAIL
- SB-01 SOIL BORING LOCATION
- ⊙ SOIL SAMPLE LOCATION
- △ CONTROL POINT
- - - - - EXISTING WETLAND BOUNDARY
- ⊕ EXISTING THREATENED PLANT POPULATION

NOTE: FOR LIST OF EXISTING TREES, SEE SHEET 6



**ROUGE RIVER  
 AOC - HENRY FORD ESTATE DAM FISHWAY  
 HABITAT RESTORATION  
 PROJECT**

**ALLIANCE OF ROUGE  
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**DEARBORN,  
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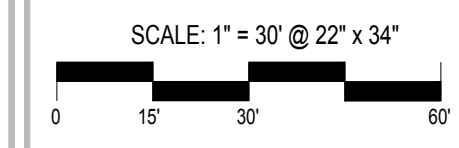
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50% DRAWINGS	6-30-16

150846-0300	
ECT PROJECT NUMBER	
ABI/MB	MB
DESIGNED BY	CHECKED BY
ABI/SR	JO
DRAWN BY	APPROVED BY

100-YEAR FLOODPLAIN ELEVATION:  
 589 AT PROPOSED FISHWAY

ORDINARY HIGH WATER MARK (OHWM):  
 583 AT PROPOSED FISHWAY

**EXISTING  
 CONDITIONS -  
 FISHWAY PROJECT  
 AREA**



SHEET NUMBER  
**3**

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

P:\Alliance of Rouge Communities\Grant Progress\0118 NOAA - HFE Fish Passage\04\ECT\_HFE\_DamBypass\_6301.dwg (Plot Style: HFE-ECT.dwt)



**ROUGE RIVER  
 AOC - HENRY  
 FORD ESTATE  
 DAM FISHWAY  
 HABITAT  
 RESTORATION  
 PROJECT**

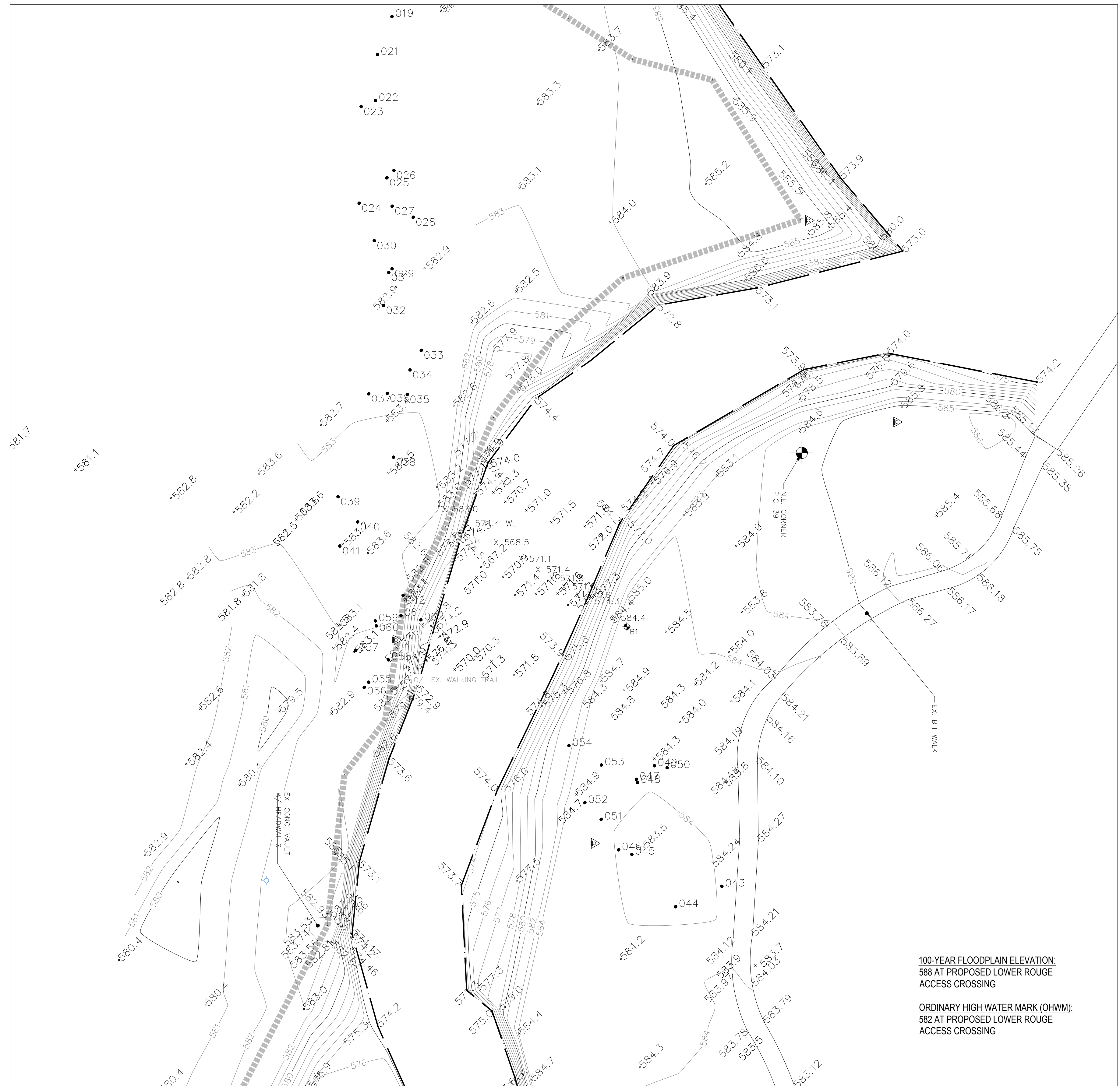
**ALLIANCE OF ROUGE  
 COMMUNITIES**

**DEARBORN,  
 WAYNE COUNTY,  
 MICHIGAN**

**LEGEND:**

- EXISTING SPOT ELEVATION
- EXISTING TREE
- EXISTING CONTOUR
- EDGE OF WATER
- EXISTING WALKING TRAIL
- EXISTING FOOTBRIDGE
- SOIL BORING LOCATION

NOTE: FOR LIST OF EXISTING TREES, SEE SHEET 6



100-YEAR FLOODPLAIN ELEVATION:  
 588 AT PROPOSED LOWER ROUGE  
 ACCESS CROSSING

ORDINARY HIGH WATER MARK (OHWM):  
 582 AT PROPOSED LOWER ROUGE  
 ACCESS CROSSING

1  
 4 EXISTING CONDITIONS - ACCESS AREA

FOR BIDDING	10-2017
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95% DRAWINGS	10-12-16
50% DRAWINGS	6-30-16

150646-0300 ECT PROJECT NUMBER	
DESIGNED BY	MB
CHECKED BY	MB
DRAWN BY	JO
APPROVED BY	JO

**EXISTING  
 CONDITIONS -  
 ACCESS**

SCALE: 1" = 30' @ 22" x 34"



NORTH  
  
 SHEET NUMBER  
**4**

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



**ROUGE RIVER  
 AOC - HENRY  
 FORD ESTATE  
 DAM FISHWAY  
 HABITAT  
 RESTORATION  
 PROJECT**

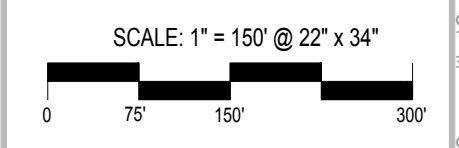
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**DEARBORN,  
 WAYNE COUNTY,  
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150846-0300 ECT PROJECT NUMBER	
AB/MB DESIGNED BY	MB CHECKED BY
AB/SR DRAWN BY	JO APPROVED BY

**SITE PREPARATION  
 PLAN**



NORTH  
  
 SHEET NUMBER  
**5**

**TEMPORARY CONSTRUCTION SIGN**



**SIGN DIMENSIONS:** 1200 mm x 2400 mm x 19 mm (approx. 4' x 8' x 3/4")  
 PLYWOOD PANEL (APA RATED A-B GRADE-EXTERIOR)

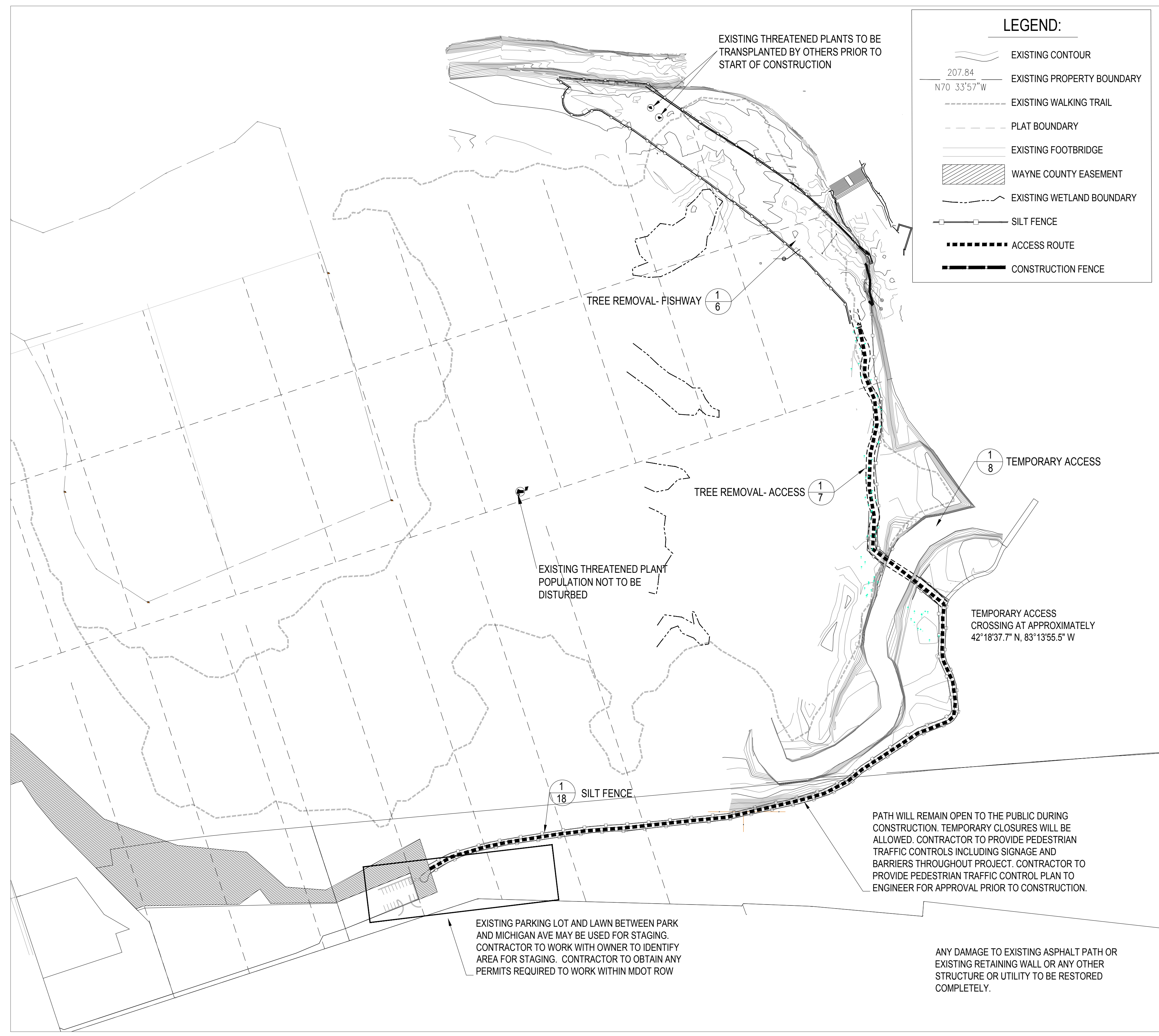
**SOIL EROSION CONTROL NOTES:**

IN ACCORDANCE WITH RULE 1709 PROMULGATED UNDER THE AUTHORITY OF PART 91, SOIL EROSION AND SEDIMENT CONTROL, OF THE NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION ACT, 1994 PA 451, AS AMENDED, AND IN ADDITION TO THE INFORMATION IN THE PROJECT PLANS AND SPECIFICATIONS, THE FOLLOWING GENERAL CONDITIONS APPLY TO THE EARTH CHANGE AUTHORIZED BY THIS DOCUMENT.

1. CONSTRUCT AND COMPLETE THE EARTH CHANGE IN ACCORDANCE WITH THE SOIL EROSION AND SEDIMENT CONTROL PERMIT AND IN A MANNER THAT LIMITS THE EXPOSED AREA OF DISTURBED LAND FOR THE SHORTEST PERIOD OF TIME.
2. TEMPORARY OR PERMANENT CONTROL MEASURES SHALL BE INSTALLED TO CONVEY WATER AROUND, THROUGH OR FROM THE EARTH CHANGE AT A NON-EROSIVE VELOCITY.
3. REMOVE SEDIMENT CAUSED BY ACCELERATED SOIL EROSION FROM RUNOFF WATER BEFORE IT LEAVES THE SITE OF THE EARTH CHANGE.
4. INSTALL TEMPORARY SOIL EROSION AND SEDIMENTATION MEASURES BEFORE OR UPON 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.)
5. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING SITE DRAINAGE.
6. CONTRACTOR IS RESPONSIBLE TO PROTECT ADJACENT WATER COURSES FROM THE DISCHARGE OF SEDIMENT DURING CONSTRUCTION.
7. INSTALL PERMANENT EROSION CONTROL MEASURES WITHIN 5 DAYS OF COMPLETING FINAL GRADING OR MAINTAIN TEMPORARY MEASURES UNTIL PERMANENT MEASURES ARE INSTALLED.
8. SILT FENCE TO BE INSTALLED AROUND OFF-SITE STOCKPILE AREAS.
9. APPLY TEMPORARY EROSION CONTROL ON OVER EXPOSED SOILS DURING WET WEATHER AND WHEN SITE IS INACTIVE FOR MORE THAN 24 HOURS.
10. DO NOT CONSTRUCT DURING HIGH FLOW OR WET WEATHER.
11. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING LANDSCAPING DURING THE WARRANTY PERIOD.
12. PROTECT ALL DRAIN INLETS WITH SEDIMENT FILTERS.
13. EXISTING LOW AREAS TO BE USED FOR STORMWATER DETENTION AND SETTLING DURING CONSTRUCTION.

14. INSTALL TEMPORARY INLET FILTERS AT ALL ADJACENT AND DOWN-GRADIENT STORM WATER INLETS, CATCH BASINS AND MANHOLES THAT MAY BE IMPACTED. 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.
15. INSTALL AN ANTI-TRACKING PAD AT THE SITE ENTRY AND EXIT(S). THE ANTI-TRACKING PAD SHOULD BE CONSTRUCTED OF GEOTEXTILE FABRIC WITH LIMESTONE OVER IT.
16. SILT FENCE AND/OR TURBIDITY BARRIER SHALL 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. CONTRACTOR SHALL REMOVE, REPLACE IF IT FAILS. ADDITIONALLY, THE CONTRACTOR SHALL REINSTALL ANY PORTION OF THE FENCING/ BARRIER DAMAGED BY CONSTRUCTION MACHINERY.
17. 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 FEW STOCKPILES AS POSSIBLE DURING THE COURSE OF THE PROJECT.
18. THROUGHOUT THE CONSTRUCTION PERIOD, ALL MUD/SILT TRACKED ONTO EXISTING ROADS FROM THE SITE DUE TO CONSTRUCTION SHALL BE IMMEDIATELY REMOVED BY THE CONTRACTOR.
19. SEEDING OR OTHER STABILIZATION SHALL BE REQUIRED IMMEDIATELY TO AREAS WHICH HAVE BEEN DAMAGED BY RUNOFF.
20. THE CONTRACTOR SHALL MAINTAIN DUST CONTROL ON THE SITE THROUGHOUT THE DURATION OF THE CONSTRUCTION PROCESS.

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



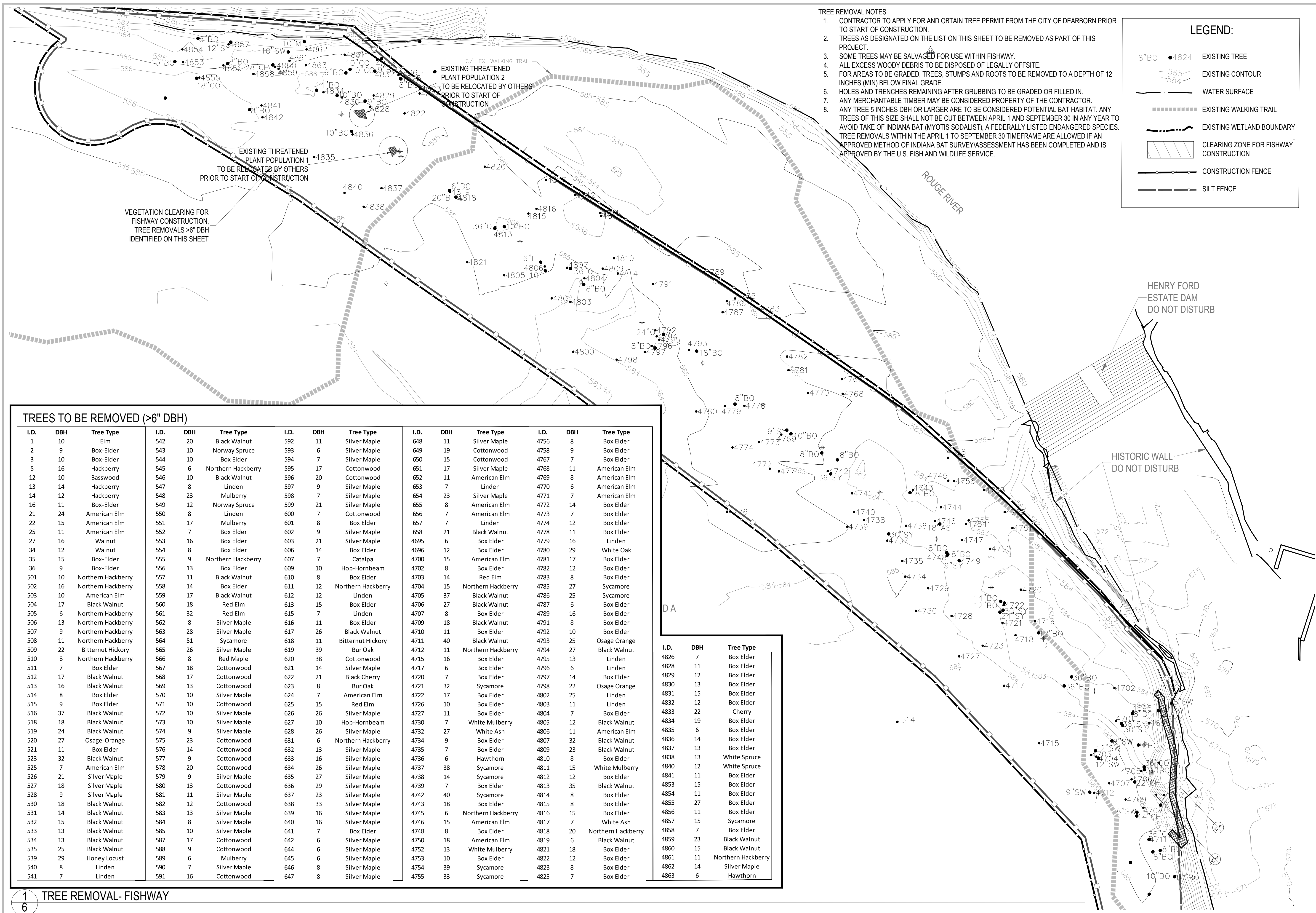
**LEGEND:**

- EXISTING CONTOUR
- EXISTING PROPERTY BOUNDARY (207.84 N70 33'57"W)
- EXISTING WALKING TRAIL
- PLAT BOUNDARY
- EXISTING FOOTBRIDGE
- WAYNE COUNTY EASEMENT
- EXISTING WETLAND BOUNDARY
- SILT FENCE
- ACCESS ROUTE
- CONSTRUCTION FENCE

**1 SITE PREPARATION PLAN**

**SPECIES TIMING NOTES:**

1. ANY TREE 5 INCHES DBH OR LARGER ARE TO BE CONSIDERED POTENTIAL BAT HABITAT. ANY TREES OF THIS SIZE SHALL NOT BE CUT BETWEEN APRIL 1 AND SEPTEMBER 30 IN ANY YEAR TO AVOID TAKE OF INDIANA BAT (MYOTIS SODALIST), A FEDERALLY LISTED ENDANGERED SPECIES. TREE REMOVALS WITHIN THE APRIL 1 TO SEPTEMBER 30 TIMEFRAME ARE ALLOWED IF AN APPROVED METHOD OF INDIANA BAT SURVEY/ASSESSMENT HAS BEEN COMPLETED AND IS APPROVED BY THE U.S. FISH AND WILDLIFE SERVICE.



- TREE REMOVAL NOTES**
1. CONTRACTOR TO APPLY FOR AND OBTAIN TREE PERMIT FROM THE CITY OF DEARBORN PRIOR TO START OF CONSTRUCTION.
  2. TREES AS DESIGNATED ON THE LIST ON THIS SHEET TO BE REMOVED AS PART OF THIS PROJECT.
  3. SOME TREES MAY BE SALVAGED FOR USE WITHIN FISHWAY.
  4. ALL EXCESS WOODY DEBRIS TO BE DISPOSED OF LEGALLY OFFSITE.
  5. FOR AREAS TO BE GRADED, TREES, STUMPS AND ROOTS TO BE REMOVED TO A DEPTH OF 12 INCHES (MIN) BELOW FINAL GRADE.
  6. HOLES AND TRENCHES REMAINING AFTER GRUBBING TO BE GRADED OR FILLED IN.
  7. ANY MERCHANTABLE TIMBER MAY BE CONSIDERED PROPERTY OF THE CONTRACTOR.
  8. ANY TREE 5 INCHES DBH OR LARGER ARE TO BE CONSIDERED POTENTIAL BAT HABITAT. ANY TREES OF THIS SIZE SHALL NOT BE CUT BETWEEN APRIL 1 AND SEPTEMBER 30 IN ANY YEAR TO AVOID TAKE OF INDIANA BAT (MYOTIS SODALIST), A FEDERALLY LISTED ENDANGERED SPECIES. TREE REMOVALS WITHIN THE APRIL 1 TO SEPTEMBER 30 TIMEFRAME ARE ALLOWED IF AN APPROVED METHOD OF INDIANA BAT SURVEY/ASSESSMENT HAS BEEN COMPLETED AND IS APPROVED BY THE U.S. FISH AND WILDLIFE SERVICE.

**LEGEND:**

- 8" BO ● 4824 EXISTING TREE
- 585 584 EXISTING CONTOUR
- WATER SURFACE
- EXISTING WALKING TRAIL
- EXISTING WETLAND BOUNDARY
- CLEARING ZONE FOR FISHWAY CONSTRUCTION
- CONSTRUCTION FENCE
- SILT FENCE

**TREES TO BE REMOVED (>6" DBH)**

I.D.	DBH	Tree Type	I.D.	DBH	Tree Type	I.D.	DBH	Tree Type	I.D.	DBH	Tree Type	I.D.	DBH	Tree Type
1	10	Elm	542	20	Black Walnut	592	11	Silver Maple	648	11	Silver Maple	4756	8	Box Elder
2	9	Box-Elder	543	10	Norway Spruce	593	6	Silver Maple	649	19	Cottonwood	4758	9	Box Elder
3	10	Box-Elder	544	10	Box Elder	594	7	Silver Maple	650	15	Cottonwood	4767	7	Box Elder
5	16	Hackberry	545	6	Northern Hackberry	595	17	Cottonwood	651	17	Silver Maple	4768	11	American Elm
12	10	Basswood	546	10	Black Walnut	596	20	Cottonwood	652	11	American Elm	4769	8	American Elm
13	14	Hackberry	547	8	Linden	597	9	Silver Maple	653	7	Linden	4770	6	American Elm
14	12	Hackberry	548	23	Mulberry	598	7	Silver Maple	654	23	Silver Maple	4771	7	American Elm
16	11	Box-Elder	549	12	Norway Spruce	599	21	Silver Maple	655	8	American Elm	4772	14	Box Elder
21	24	American Elm	550	8	Linden	600	7	Cottonwood	656	7	American Elm	4773	7	Box Elder
22	15	American Elm	551	17	Mulberry	601	8	Box Elder	657	7	Linden	4774	12	Box Elder
25	11	American Elm	552	7	Box Elder	602	9	Silver Maple	658	21	Black Walnut	4778	11	Box Elder
27	16	Walnut	553	16	Box Elder	603	21	Silver Maple	4695	6	Box Elder	4779	16	Linden
34	12	Walnut	554	8	Box Elder	606	14	Box Elder	4696	12	Box Elder	4780	29	White Oak
35	15	Box-Elder	555	9	Northern Hackberry	607	7	Catalpa	4700	15	American Elm	4781	17	Box Elder
36	9	Box-Elder	556	13	Box Elder	609	10	Hop-Hornbeam	4702	8	Box Elder	4782	12	Box Elder
501	10	Northern Hackberry	557	11	Black Walnut	610	8	Box Elder	4703	14	Red Elm	4783	8	Box Elder
502	16	Northern Hackberry	558	14	Box Elder	611	12	Northern Hackberry	4704	15	Northern Hackberry	4785	27	Sycamore
503	10	American Elm	559	17	Black Walnut	612	12	Linden	4705	37	Black Walnut	4786	25	Sycamore
504	17	Black Walnut	560	18	Red Elm	613	15	Box Elder	4706	27	Black Walnut	4787	6	Box Elder
505	6	Northern Hackberry	561	32	Red Elm	615	7	Linden	4707	8	Box Elder	4789	16	Box Elder
506	13	Northern Hackberry	562	8	Silver Maple	616	11	Box Elder	4709	18	Black Walnut	4791	8	Box Elder
507	9	Northern Hackberry	563	28	Silver Maple	617	26	Black Walnut	4710	11	Box Elder	4792	10	Box Elder
508	11	Northern Hackberry	564	51	Sycamore	618	11	Bitternut Hickory	4711	40	Black Walnut	4793	25	Osage Orange
509	22	Bitternut Hickory	565	26	Silver Maple	619	39	Bur Oak	4712	11	Northern Hackberry	4794	27	Black Walnut
510	8	Northern Hackberry	566	8	Red Maple	620	38	Cottonwood	4715	16	Box Elder	4795	13	Linden
511	7	Box Elder	567	18	Cottonwood	621	14	Silver Maple	4717	6	Box Elder	4796	6	Linden
512	17	Black Walnut	568	17	Cottonwood	622	21	Black Cherry	4720	7	Box Elder	4797	14	Box Elder
513	16	Black Walnut	569	13	Cottonwood	623	8	Bur Oak	4721	32	Sycamore	4798	22	Osage Orange
514	8	Box Elder	570	10	Silver Maple	624	7	American Elm	4722	17	Box Elder	4802	25	Linden
515	9	Box Elder	571	10	Cottonwood	625	15	Red Elm	4726	10	Box Elder	4803	11	Linden
516	37	Black Walnut	572	10	Silver Maple	626	26	Silver Maple	4727	11	Box Elder	4804	7	Cherry
518	18	Black Walnut	573	10	Silver Maple	627	10	Hop-Hornbeam	4730	7	White Mulberry	4805	12	Black Walnut
519	24	Black Walnut	574	9	Silver Maple	628	26	Silver Maple	4732	27	White Ash	4806	11	American Elm
520	27	Osage-Orange	575	23	Cottonwood	631	6	Northern Hackberry	4734	9	Box Elder	4807	32	Black Walnut
521	11	Box Elder	576	14	Cottonwood	632	13	Silver Maple	4735	7	Box Elder	4809	23	Black Walnut
523	32	Black Walnut	577	9	Cottonwood	633	16	Silver Maple	4736	6	Hawthorn	4810	8	Box Elder
525	7	American Elm	578	20	Cottonwood	634	26	Silver Maple	4737	38	Sycamore	4811	15	White Mulberry
526	21	Silver Maple	579	9	Silver Maple	635	27	Silver Maple	4738	14	Sycamore	4812	12	Box Elder
527	18	Silver Maple	580	13	Cottonwood	636	29	Silver Maple	4739	7	Box Elder	4813	35	Black Walnut
528	9	Silver Maple	581	11	Silver Maple	637	23	Silver Maple	4742	40	Sycamore	4814	8	Box Elder
530	18	Black Walnut	582	12	Cottonwood	638	33	Silver Maple	4743	18	Box Elder	4815	8	Box Elder
531	14	Black Walnut	583	13	Silver Maple	639	16	Silver Maple	4745	6	Northern Hackberry	4816	15	Box Elder
532	15	Black Walnut	584	8	Silver Maple	640	16	Silver Maple	4746	15	American Elm	4817	7	White Ash
533	13	Black Walnut	585	10	Silver Maple	641	7	Box Elder	4748	8	Box Elder	4818	20	Northern Hackberry
534	13	Black Walnut	587	17	Cottonwood	642	6	Silver Maple	4750	18	American Elm	4819	6	Black Walnut
535	25	Black Walnut	588	9	Cottonwood	644	6	Silver Maple	4752	13	White Mulberry	4821	18	Box Elder
539	29	Honey Locust	589	6	Mulberry	645	6	Silver Maple	4753	10	Box Elder	4822	12	Box Elder
540	8	Linden	590	7	Silver Maple	646	8	Silver Maple	4754	39	Sycamore	4823	8	Box Elder
541	7	Linden	591	16	Cottonwood	647	8	Silver Maple	4755	33	Sycamore	4825	7	Box Elder

I.D.	DBH	Tree Type
4826	7	Box Elder
4828	11	Box Elder
4829	12	Box Elder
4830	13	Box Elder
4831	15	Box Elder
4832	12	Box Elder
4833	22	Cherry
4834	19	Box Elder
4835	6	Box Elder
4836	14	Box Elder
4837	13	Box Elder
4838	13	White Spruce
4840	12	White Spruce
4841	11	Box Elder
4853	15	Box Elder
4854	11	Box Elder
4855	27	Box Elder
4856	11	Box Elder
4857	15	Sycamore
4858	7	Box Elder
4859	23	Black Walnut
4860	15	Black Walnut
4861	11	Northern Hackberry
4862	14	Silver Maple
4863	6	Hawthorn

**ECT Environmental Consulting & Technology, Inc.**  
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 Ann Arbor, Michigan 48105  
 734.769.3004  
 734.769.3164 fax  
 www.ectinc.com

Alliance of Rouge Communities  
**OURS TO PROTECT**  
 Working together, restoring the river

**ROUGE RIVER AOC - HENRY FORD ESTATE DAM FISHWAY HABITAT RESTORATION PROJECT**

**ALLIANCE OF ROUGE COMMUNITIES**

DEARBORN, WAYNE COUNTY, MICHIGAN

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

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AB/SR DRAWN BY JO APPROVED BY

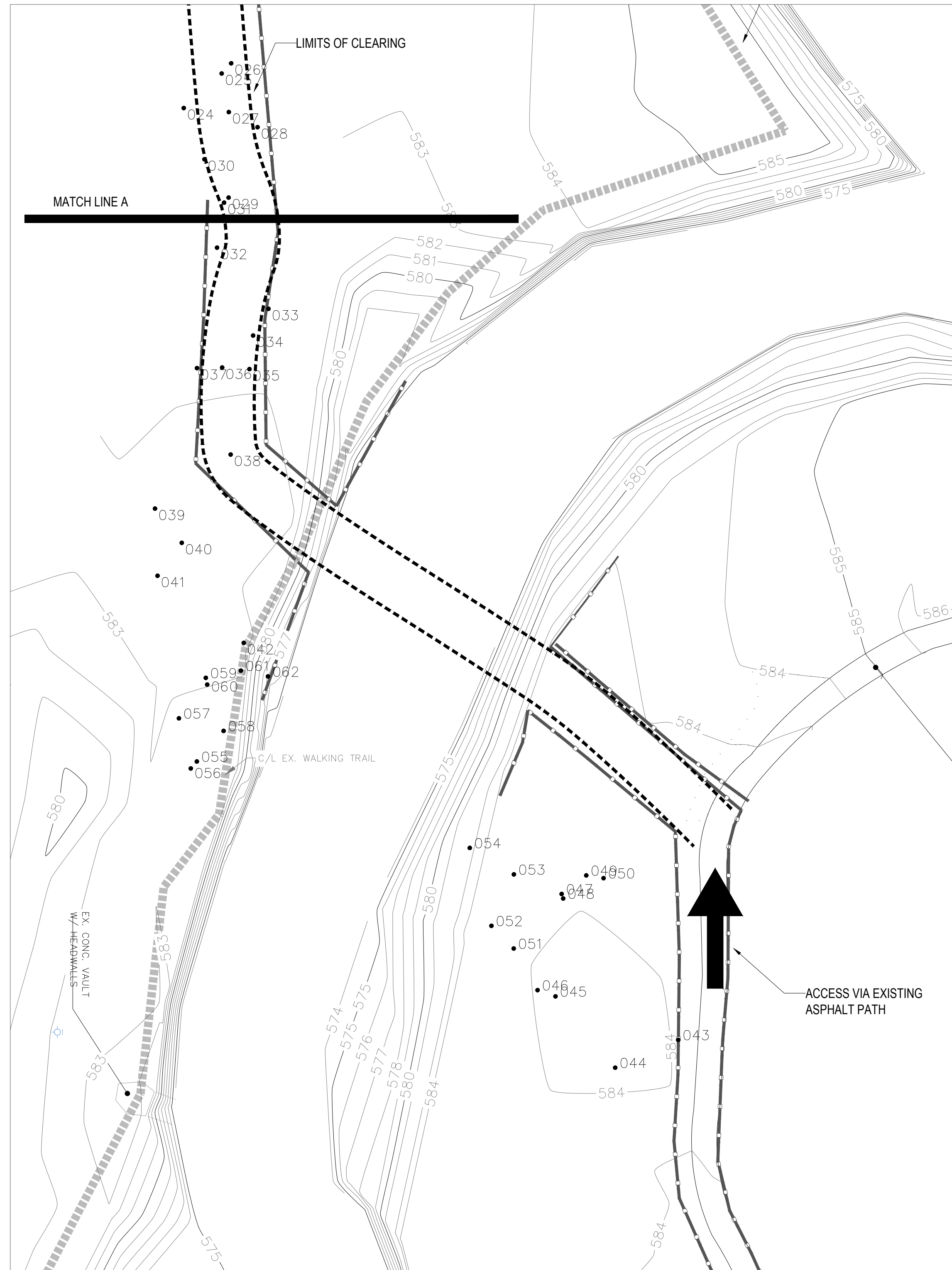
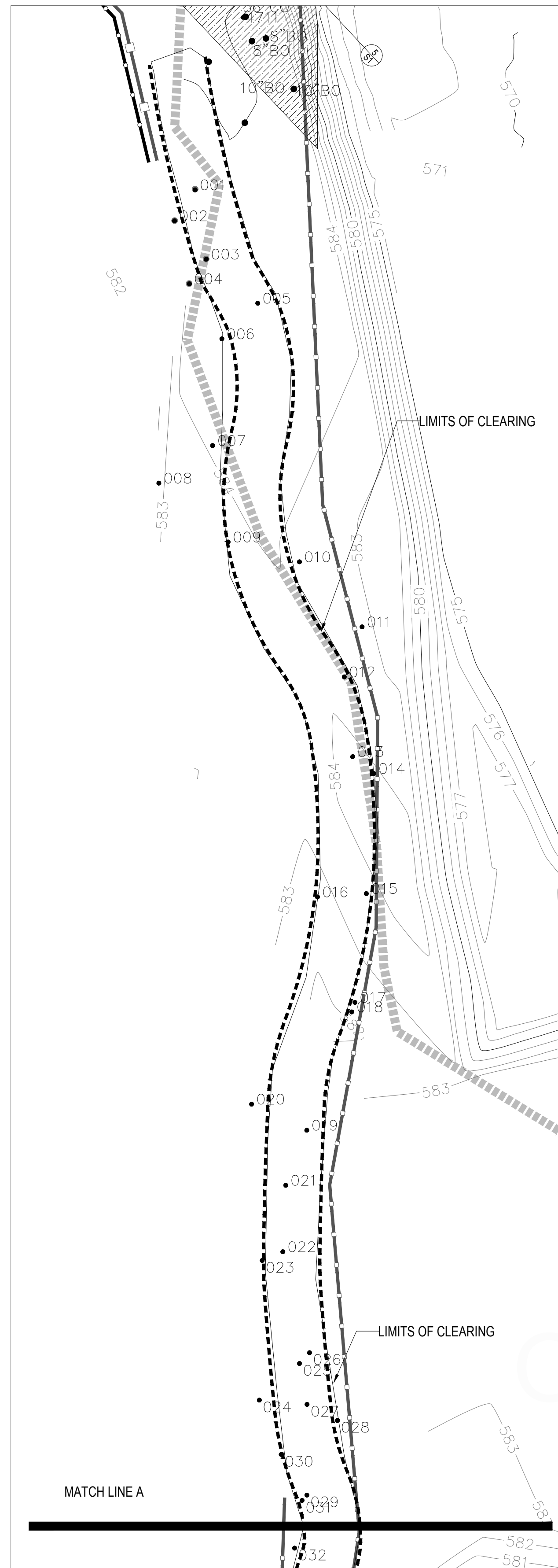
**TREE REMOVAL-FISHWAY**

SCALE: 1" = 30' @ 22" x 34"

NORTH

SHEET NUMBER **6**

P:\Alliance of Rouge Communities\Grant Projects\2015 NOAA- HFE Fish Passage\CA\ECT\_HFE\_Dam\Phase 6\_30\_16.dwg (Plot Style: HFE-ECT.dwt)

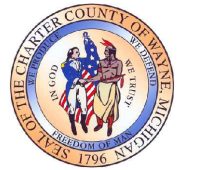


**LEGEND:**

- EXISTING TREE
- EXISTING CONTOUR
- EXISTING WALKING TRAIL
- SILT FENCE
- CONSTRUCTION FENCE

- NOTES:**
1. CLEAR VEGETATION FOR ACCESS ROAD.
  2. TREES TO BE REMOVED >6" DBH LISTED ON SHEET 6.
  3. FOR TEMPORARY ACCESS DETAILS, SEE SHEET 8.
  4. SEE TREE REMOVAL NOTES, SHEET 6.

**ECT** Environmental Consulting & Technology, Inc.  
 2200 Commonwealth Blvd, Suite 300  
 Ann Arbor, Michigan 48105  
 734.769.3004  
 734.769.3164 fax  
 www.ectinc.com



**ROUGE RIVER  
 AOC - HENRY  
 FORD ESTATE  
 DAM FISHWAY  
 HABITAT  
 RESTORATION  
 PROJECT**

**ALLIANCE OF ROUGE  
 COMMUNITIES**  
  
 DEARBORN,  
 WAYNE COUNTY,  
 MICHIGAN

FOR BIDDING	10-2017
FINAL DESIGN	01-20-17
95% DRAWINGS	10-12-16
90% DRAWINGS	6-30-16

150646-0300 ECT PROJECT NUMBER	
AB/MB DESIGNED BY	MB CHECKED BY
AB/SR DRAWN BY	JD APPROVED BY

**TREE REMOVAL-  
 ACCESS**

SCALE: 1" = 30' @ 22" x 34"

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

NORTH

SHEET NUMBER  
**7**

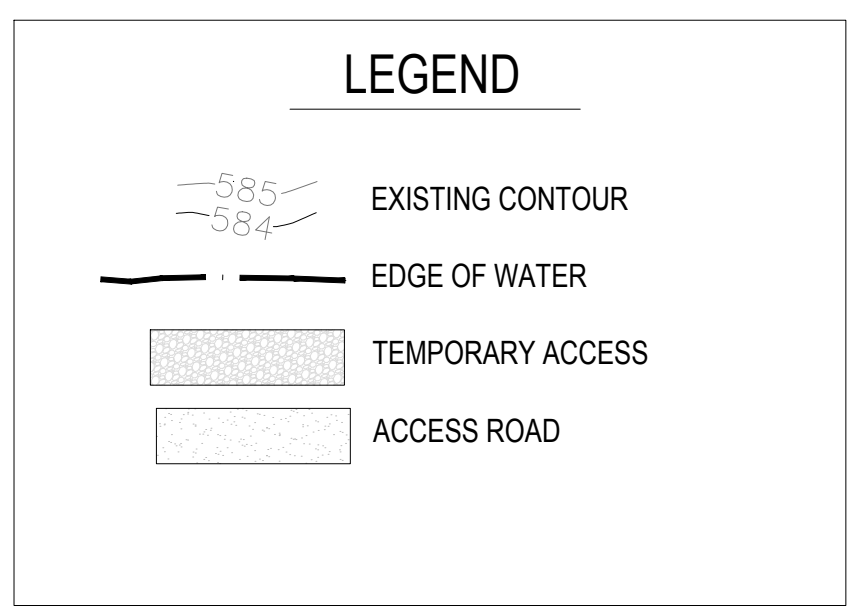
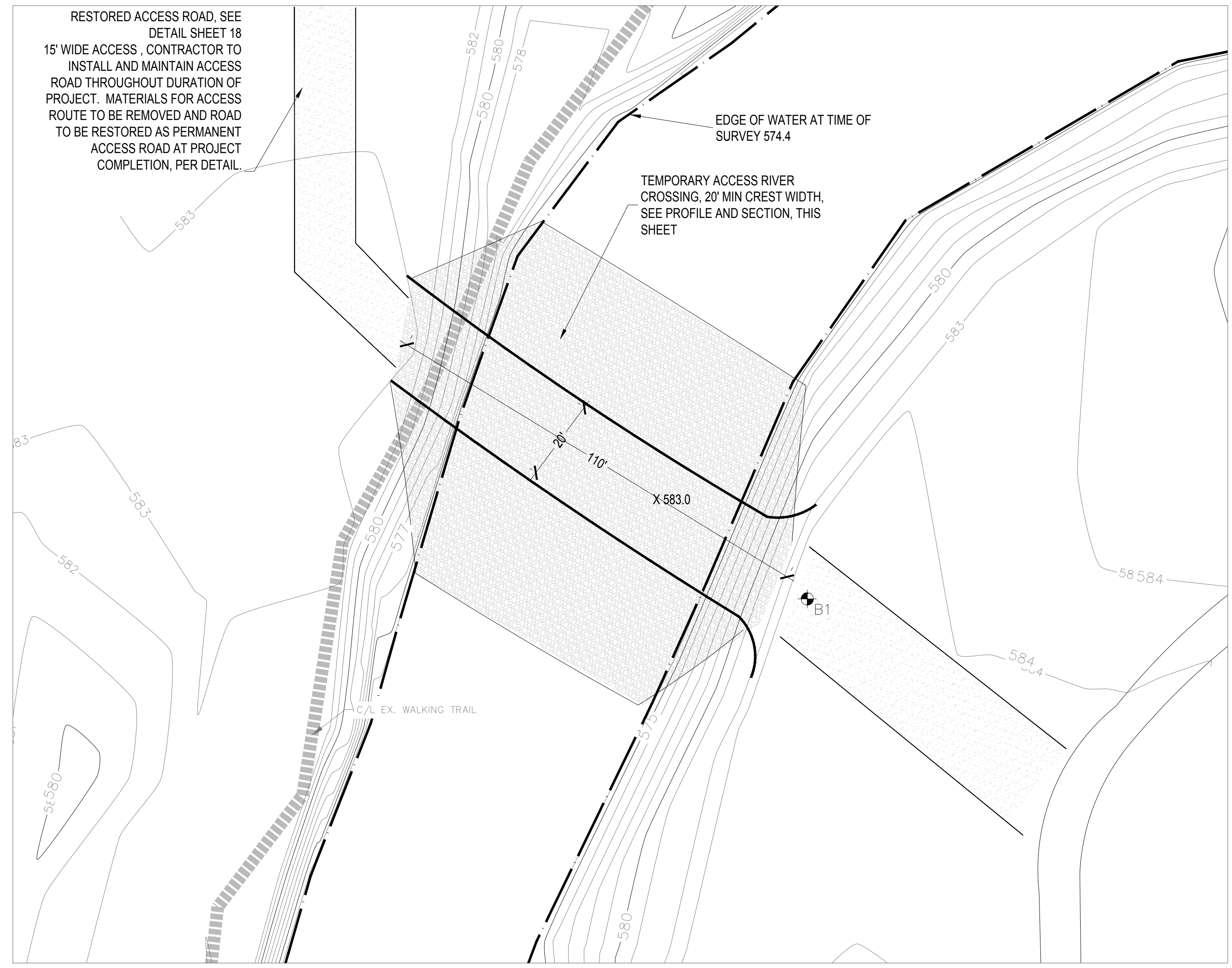
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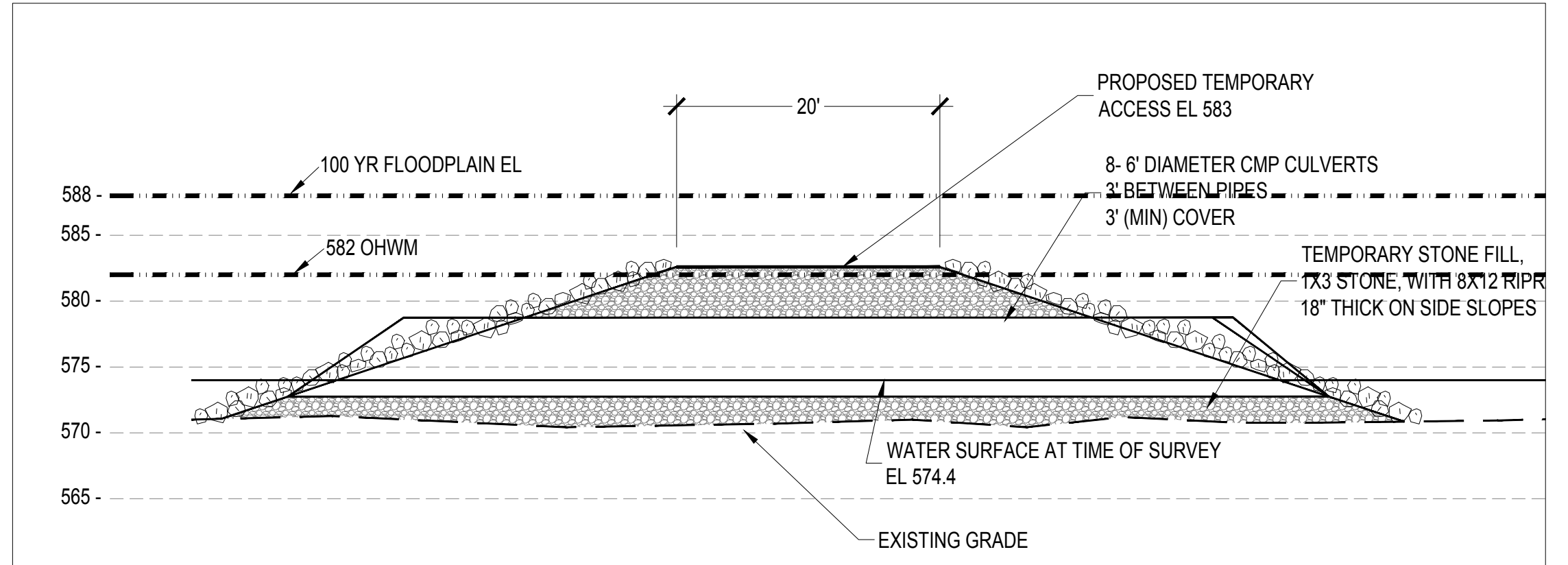
**ROUGE RIVER  
 AOC - HENRY  
 FORD ESTATE  
 DAM FISHWAY  
 HABITAT  
 RESTORATION  
 PROJECT**

**ALLIANCE OF ROUGE  
 COMMUNITIES**

**DEARBORN,  
 WAYNE COUNTY,  
 MICHIGAN**



- TEMPORARY ACCESS NOTES:**
1. CONTRACTOR TO ESTABLISH ACCESS AND MAINTAIN THROUGHOUT DURATION OF PROJECT.
  2. TEMPORARY ACCESS AS SHOWN ON THIS SHEET MAY BE USED BY CONTRACTOR THROUGHOUT CONSTRUCTION. CONTRACTOR MAY PROPOSE ALTERNATE TEMPORARY ACCESS. TEMPORARY ACCESS SHOWN IN THESE DRAWINGS HAS BEEN INCLUDED IN MDEQ PERMIT. ANY PROPOSED ALTERNATE TEMPORARY ACCESS PROPOSED BY CONTRACTOR MUST RESULT IN SAME OR LESS IMPACT IN ORDER TO COMPLY WITH THE PERMIT.
  3. CONTRACTOR MAY CHOOSE TO INSTALL THE PERMANENT ACCESS STRUCTURE PRIOR TO CONSTRUCTION AND USE DURING CONSTRUCTION. PERMANENT ACCESS STRUCTURE MUST BE RESTORED COMPLETELY AND MANUFACTURED AFTER RESTORATION. ANY DAMAGE CONSTRUCTION MUST BE REPAIRED AND RESTORED.
  4. ALL TEMPORARY ACCESS FILL STONE, RIP RAP, AND CULVERTS TO BE REMOVED AFTER COMPLETION OF THE FISHWAY.
  5. MATERIALS FOR ACCESS ROAD TO BE REMOVED AT COMPLETION OF PROJECT AND ROUTE TO BE RESTORED AS PERMANENT 2-TRACK ACCESS ROAD.

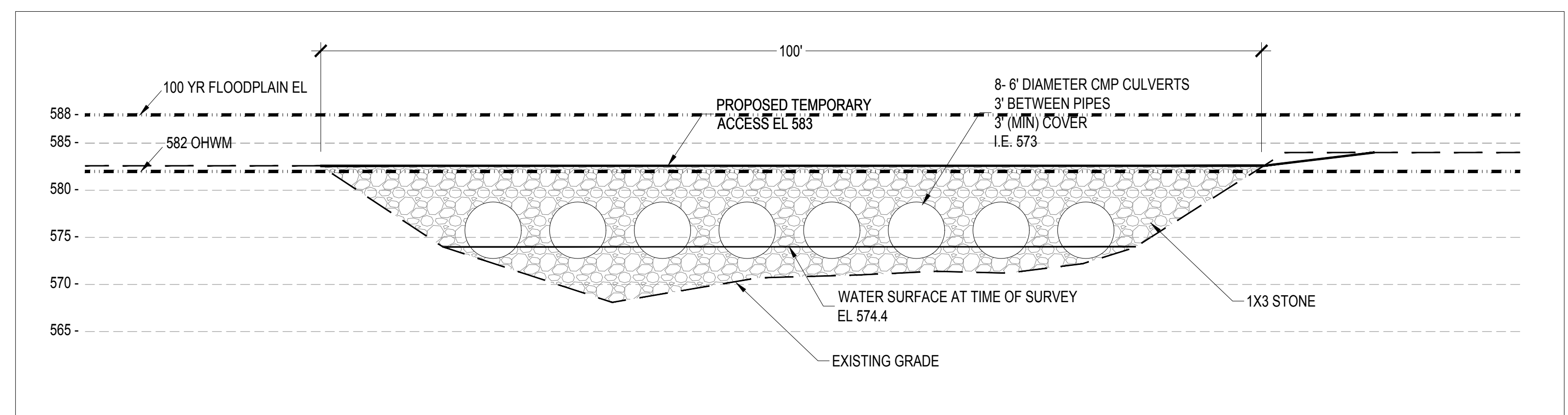


**3**  
**8** TEMPORARY ACCESS- SECTION  
 SCALE: 1" = 10' @ 22" x 34"

**1**  
**8** TEMPORARY ACCESS- PLAN  
 SCALE: 1" = 20' @ 22" x 34"

100-YEAR FLOODPLAIN ELEVATION:  
 588 AT PROPOSED LOWER ROUGE  
 ACCESS CROSSING

ORDINARY HIGH WATER MARK (OHWM):  
 582 AT PROPOSED LOWER ROUGE  
 ACCESS CROSSING



**2**  
**8** TEMPORARY ACCESS- PROFILE  
 SCALE: 1" = 10' @ 22" x 34"

FOR BIDDING	10-2017
FINAL DESIGN	01-20-17
95% DRAWINGS	10-12-16
50% DRAWINGS	6-30-16

150646-0300	
ECT PROJECT NUMBER	
AB/MB	MB
DESIGNED BY	CHECKED BY
AB/SR	JO
DRAWN BY	APPROVED BY

**TEMPORARY  
 ACCESS  
 DETAILS**

SCALE: AS SHOWN

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

P:\Alliance of Rouge Communities\Grant Projects\2015 NOAA - HEE Fish Passage\PROJECT\_HEE (Plot Style: HEE.ECT.ctb)



**ROUGE RIVER  
 AOC - HENRY FORD ESTATE  
 DAM FISHWAY  
 HABITAT RESTORATION  
 PROJECT**

**ALLIANCE OF ROUGE COMMUNITIES**

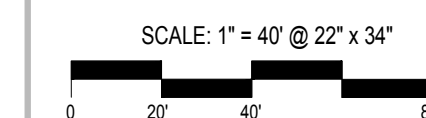
**DEARBORN,  
 WAYNE COUNTY,  
 MICHIGAN**

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

FOR BIDDING	10-2017
FINAL DESIGN	01-20-17
95% DRAWINGS	10-12-16
50% DRAWINGS	6-30-16

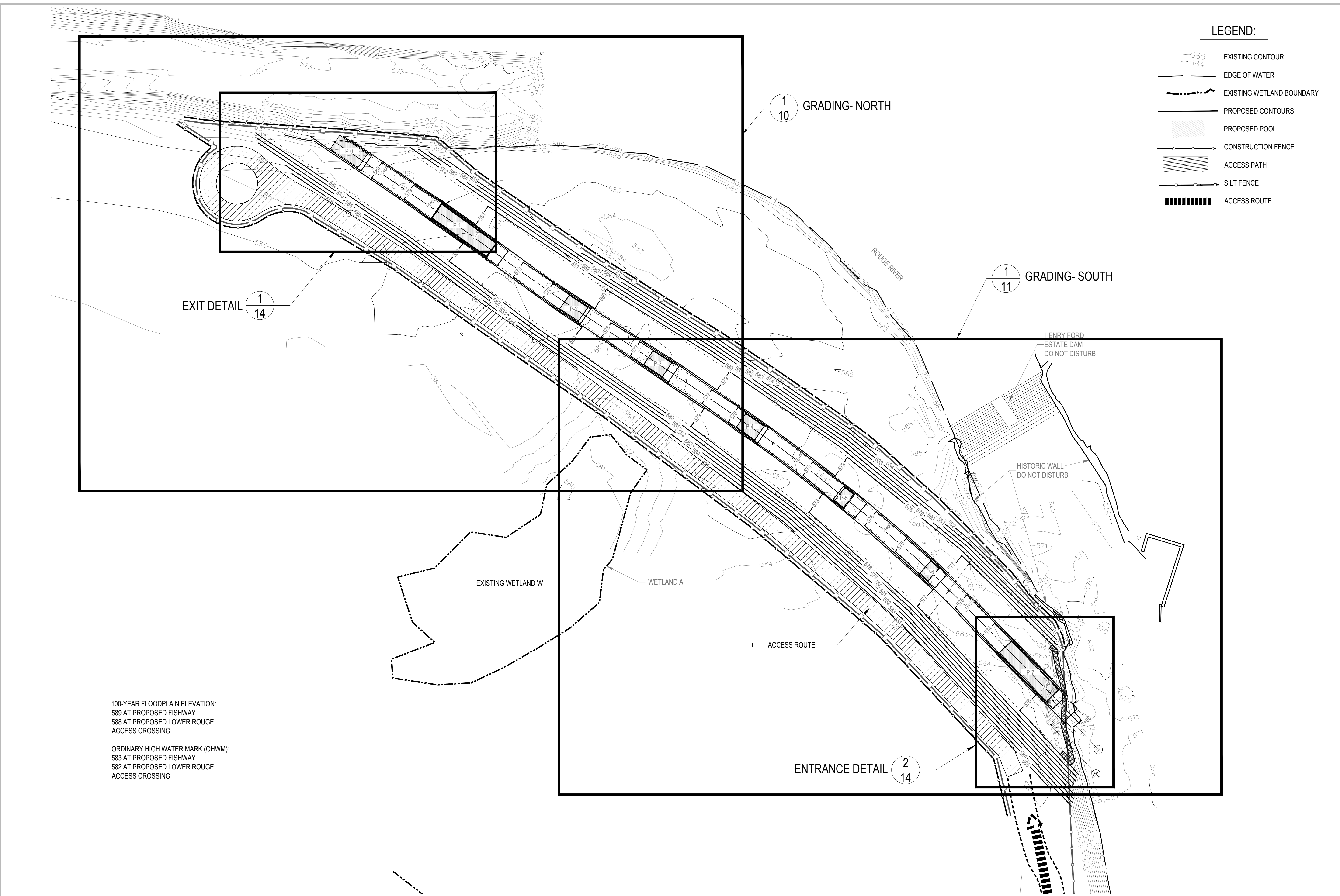
150646-0300	
ECT PROJECT NUMBER	
AB/MB DESIGNED BY	MB CHECKED BY
AB/SR DRAWN BY	JO APPROVED BY

**GRADING PLAN -  
 OVERVIEW**



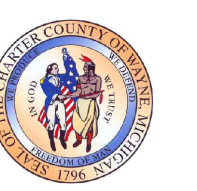
**LEGEND:**

- EXISTING CONTOUR
- EDGE OF WATER
- EXISTING WETLAND BOUNDARY
- PROPOSED CONTOURS
- PROPOSED POOL
- CONSTRUCTION FENCE
- ACCESS PATH
- SILT FENCE
- ACCESS ROUTE



100-YEAR FLOODPLAIN ELEVATION:  
 589 AT PROPOSED FISHWAY  
 588 AT PROPOSED LOWER ROUGE  
 ACCESS CROSSING

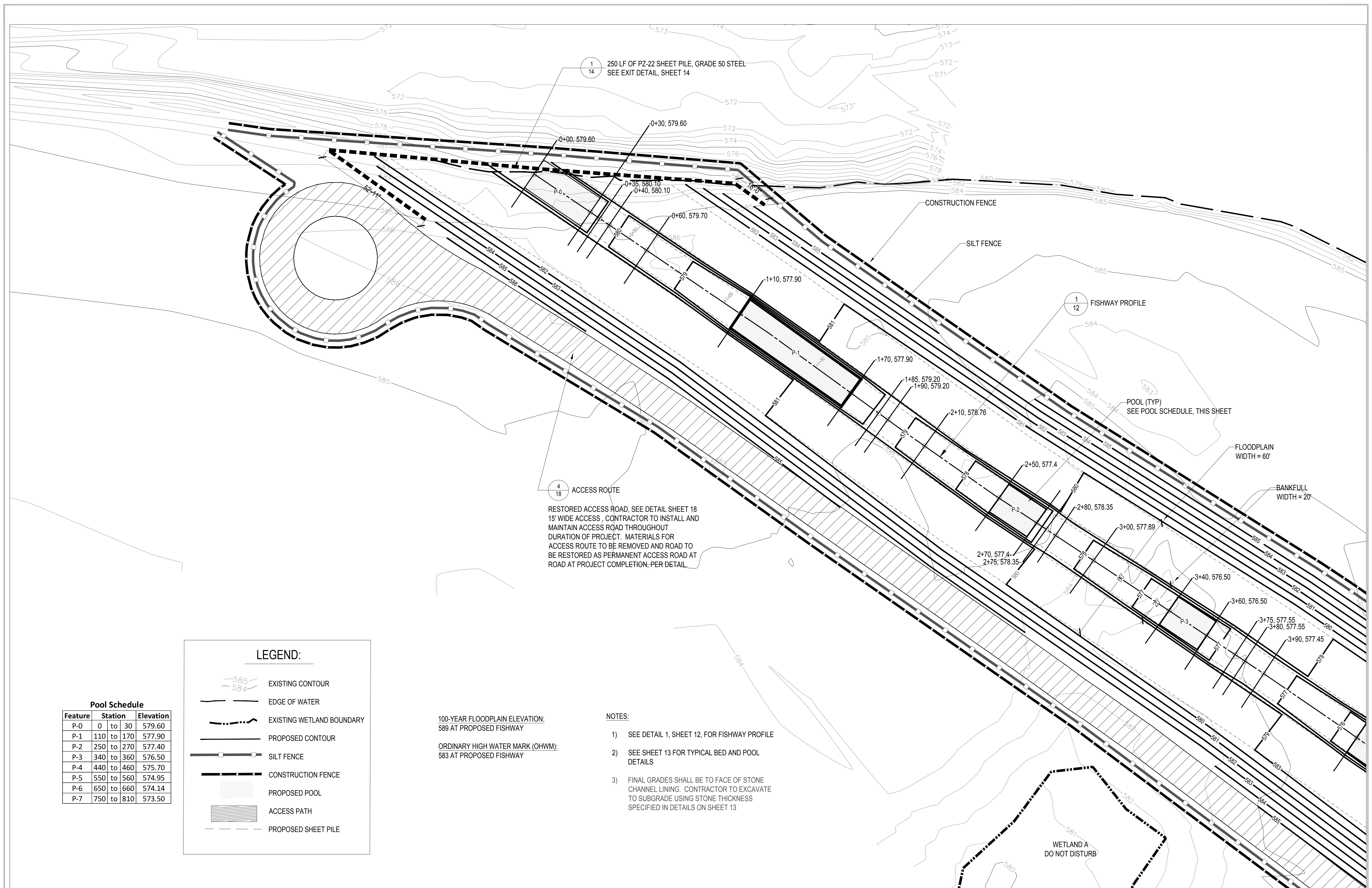
ORDINARY HIGH WATER MARK (OHWM):  
 583 AT PROPOSED FISHWAY  
 582 AT PROPOSED LOWER ROUGE  
 ACCESS CROSSING



**ROUGE RIVER  
 AOC - HENRY  
 FORD ESTATE  
 DAM FISHWAY  
 HABITAT  
 RESTORATION  
 PROJECT**

**ALLIANCE OF ROUGE  
 COMMUNITIES**

**DEARBORN,  
 WAYNE COUNTY,  
 MICHIGAN**



1  
14 250 LF OF PZ-22 SHEET PILE, GRADE 50 STEEL  
 SEE EXIT DETAIL, SHEET 14

1  
12 FISHWAY PROFILE

4  
18 ACCESS ROUTE

RESTORED ACCESS ROAD, SEE DETAIL SHEET 18  
 15' WIDE ACCESS. CONTRACTOR TO INSTALL AND  
 MAINTAIN ACCESS ROAD THROUGHOUT  
 DURATION OF PROJECT. MATERIALS FOR  
 ACCESS ROUTE TO BE REMOVED AND ROAD TO  
 BE RESTORED AS PERMANENT ACCESS ROAD AT  
 ROAD AT PROJECT COMPLETION, PER DETAIL.

100-YEAR FLOODPLAIN ELEVATION:  
 589 AT PROPOSED FISHWAY  
 ORDINARY HIGH WATER MARK (OHWM):  
 583 AT PROPOSED FISHWAY

- NOTES:
- 1) SEE DETAIL 1, SHEET 12, FOR FISHWAY PROFILE
  - 2) SEE SHEET 13 FOR TYPICAL BED AND POOL DETAILS
  - 3) FINAL GRADES SHALL BE TO FACE OF STONE CHANNEL LINING. CONTRACTOR TO EXCAVATE TO SUBGRADE USING STONE THICKNESS SPECIFIED IN DETAILS ON SHEET 13

**LEGEND:**

- EXISTING CONTOUR
- EDGE OF WATER
- EXISTING WETLAND BOUNDARY
- PROPOSED CONTOUR
- SILT FENCE
- CONSTRUCTION FENCE
- PROPOSED POOL
- ACCESS PATH
- PROPOSED SHEET PILE

**Pool Schedule**

Feature	Station	Elevation
P-0	0 to 30	579.60
P-1	110 to 170	577.90
P-2	250 to 270	577.40
P-3	340 to 360	576.50
P-4	440 to 460	575.70
P-5	550 to 560	574.95
P-6	650 to 660	574.14
P-7	750 to 810	573.50

FOR BIDDING	10-2017
FINAL DESIGN	01-20-17
95% DRAWINGS	10-12-16
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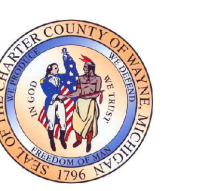
150646-0300	
ECT PROJECT NUMBER	
AB/MB	MB
DESIGNED BY	CHECKED BY
AB/SR	JO
DRAWN BY	APPROVED BY

**GRADING- NORTH**

SCALE: 1" = 20' @ 22" x 34"

NORTH SHEET NUMBER  
**10**

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



**ROUGE RIVER  
 AOC - HENRY  
 FORD ESTATE  
 DAM FISHWAY  
 HABITAT  
 RESTORATION  
 PROJECT**

**ALLIANCE OF ROUGE  
 COMMUNITIES**

DEARBORN,  
 WAYNE COUNTY,  
 MICHIGAN

**Pool Schedule**

Feature	Station	Elevation
P-0	0 to 30	579.60
P-1	110 to 170	577.90
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P-3	340 to 360	576.50
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P-6	650 to 660	574.14
P-7	750 to 810	573.50

**LEGEND:**

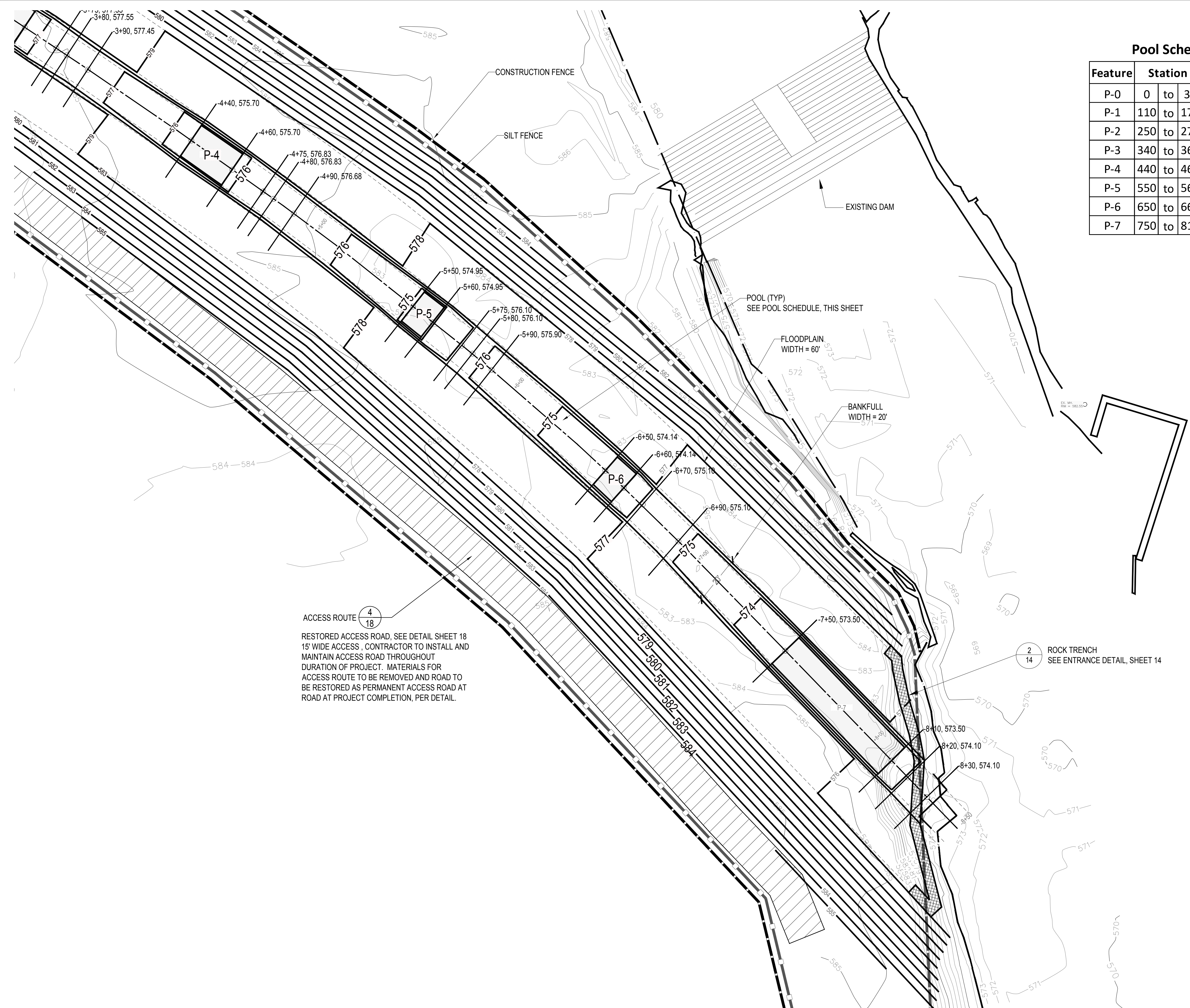
- EXISTING CONTOUR
- EDGE OF WATER
- PLAT BOUNDARY
- EXISTING WETLAND BOUNDARY
- PROPOSED CONTOUR
- CONSTRUCTION FENCE
- PROPOSED POOL
- ACCESS PATH
- SILT FENCE

100-YEAR FLOODPLAIN ELEVATION:  
 589 AT PROPOSED FISHWAY

ORDINARY HIGH WATER MARK (OHWM):  
 583 AT PROPOSED FISHWAY

**NOTES:**

- 1) SEE DETAIL 1, SHEET 12, FOR FISHWAY PROFILE
- 2) SEE SHEET 13 FOR TYPICAL BED AND POOL DETAILS
- 3) FINAL GRADES SHALL BE TO FACE OF STONE CHANNEL LINING. CONTRACTOR TO EXCAVATE TO SUBGRADE USING STONE THICKNESS SPECIFIED IN DETAILS ON SHEET 13



ACCESS ROUTE  $\frac{4}{18}$   
 RESTORED ACCESS ROAD, SEE DETAIL SHEET 18  
 15' WIDE ACCESS, CONTRACTOR TO INSTALL AND  
 MAINTAIN ACCESS ROAD THROUGHOUT  
 DURATION OF PROJECT. MATERIALS FOR  
 ACCESS ROUTE TO BE REMOVED AND ROAD TO  
 BE RESTORED AS PERMANENT ACCESS ROAD AT  
 ROAD AT PROJECT COMPLETION, PER DETAIL.

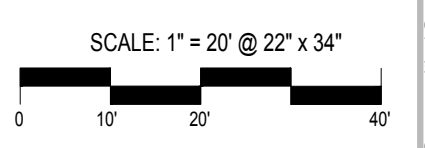
$\frac{2}{14}$  ROCK TRENCH  
 SEE ENTRANCE DETAIL, SHEET 14

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

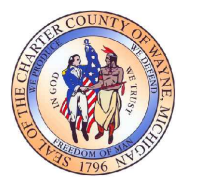
FOR BIDDING	10-2017
FINAL DESIGN	01-20-17
95% DRAWINGS	10-12-16
50% DRAWINGS	6-30-16

150646-0300  
 ECT PROJECT NUMBER  
 AB/MB DESIGNED BY MB CHECKED BY  
 AB/SR DRAWN BY JO APPROVED BY

**GRADING-  
 SOUTH**



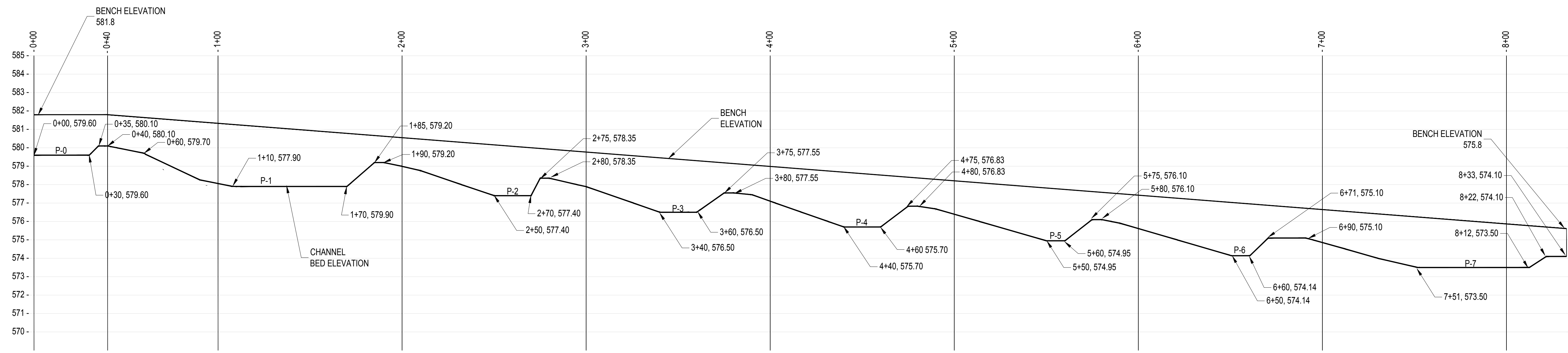
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**ROUGE RIVER  
 AOC - HENRY  
 FORD ESTATE  
 DAM FISHWAY  
 HABITAT  
 RESTORATION  
 PROJECT**

**ALLIANCE OF ROUGE  
 COMMUNITIES**

**DEARBORN,  
 WAYNE COUNTY,  
 MICHIGAN**



**1**  
**12** FISHWAY PROFILE

HORIZONTAL SCALE: 1" = 30' @ 22" x 34"  
 VERTICAL SCALE: 1" = 3' @ 22" x 34"

Station (ft)	Bed Elevation (ft)	Station (ft)	Bed Elevation (ft)	Station (ft)	Bed Elevation (ft)
0	579.60	270	577.40	520	575.82
10	579.60	275	578.35	530	575.53
20	579.60	280	578.35	540	575.24
30	579.60	290	578.12	550	574.95
35	580.10	300	577.89	560	574.95
40	580.10	310	577.54	565	575.33
50	579.90	320	577.20	570	575.72
60	579.70	330	576.85	575	576.10
70	579.34	340	576.50	580	576.10
80	578.98	345	576.50	590	575.90
90	578.62	350	576.50	600	575.61
100	578.26	360	576.50	610	575.31
110	577.90	365	576.85	620	575.02
120	577.90	370	577.20	630	574.73
130	577.90	375	577.55	640	574.43
140	577.90	380	577.55	650	574.14
150	577.90	390	577.45	660	574.14
160	577.90	400	577.10	670	575.10
165	577.90	410	576.75	680	575.10
170	577.90	420	576.40	690	575.10
180	578.77	430	576.05	700	574.82
185	579.20	440	575.70	720	574.25
190	579.20	450	575.70	730	573.97
200	578.98	460	575.70	740	573.68
210	578.76	465	576.08	750	573.50
220	578.42	470	576.45	760	573.50
230	578.08	475	576.83	770	573.50
240	577.74	480	576.83	780	573.50
250	577.40	490	576.68	790	573.50
260	577.40	500	576.39	800	573.50
265	577.40	510	576.10	810	573.50
				820	574.10
				830	574.10
				840	573.80
				850	573.50

- NOTE:  
 1. SEE SHEET 9 FOR GRADING PLAN  
 2. SEE SHEET 11 FOR CHANNEL CONSTRUCTION DETAILS  
 3. PROFILE REFLECTS FINAL GRADES AT FACE OF STONE CHANNEL LINING. CONTRACTOR TO EXCAVATE TO SUBGRADE USING STONE THICKNESS SPECIFIED IN DETAILS ON SHEET 13.

100-YEAR FLOODPLAIN ELEVATION:  
 589 AT PROPOSED FISHWAY

ORDINARY HIGH WATER MARK (OHWM):  
 583 AT PROPOSED FISHWAY

FOR BIDDING	10-2017
FINAL DESIGN	01-20-17
95% DRAWINGS	10-12-16
90% DRAWINGS	6-30-16

150646-0300  
 ECT PROJECT NUMBER

AB/MB  
 DESIGNED BY CHECKED BY

AB/SR  
 DRAWN BY APPROVED BY

**FISHWAY  
 PROFILE**

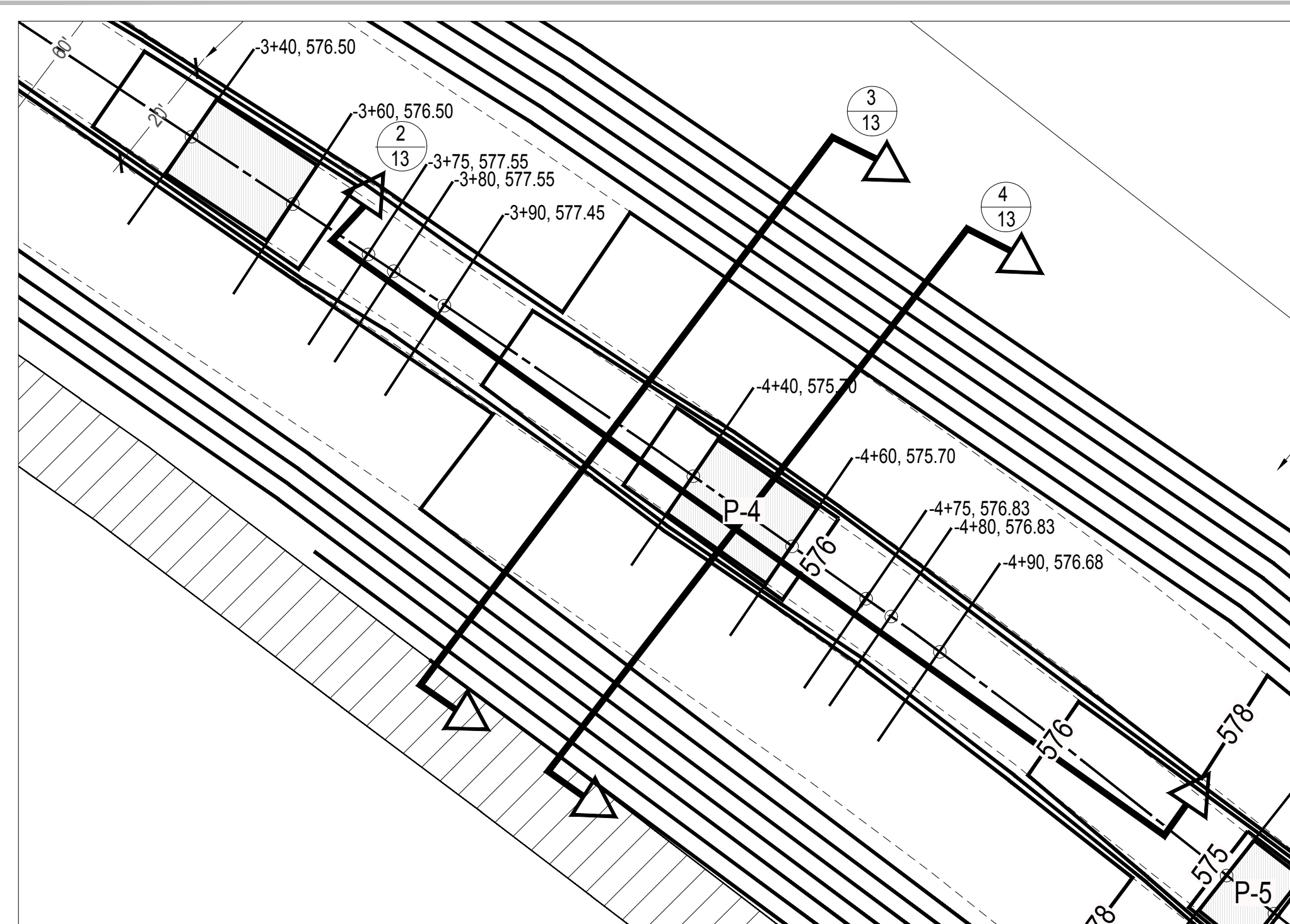
SCALE: AS SHOWN

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

NORTH

SHEET NUMBER  
**12**

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1 TYPICAL BED AND POOL PLAN

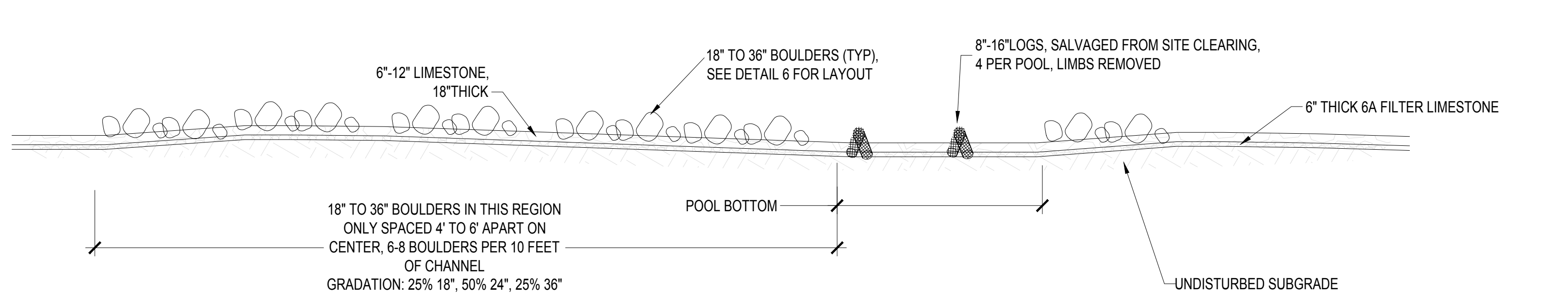
SCALE: 1" = 20' @ 22" x 34"

2 TYPICAL RIFFLE POOL PROFILE

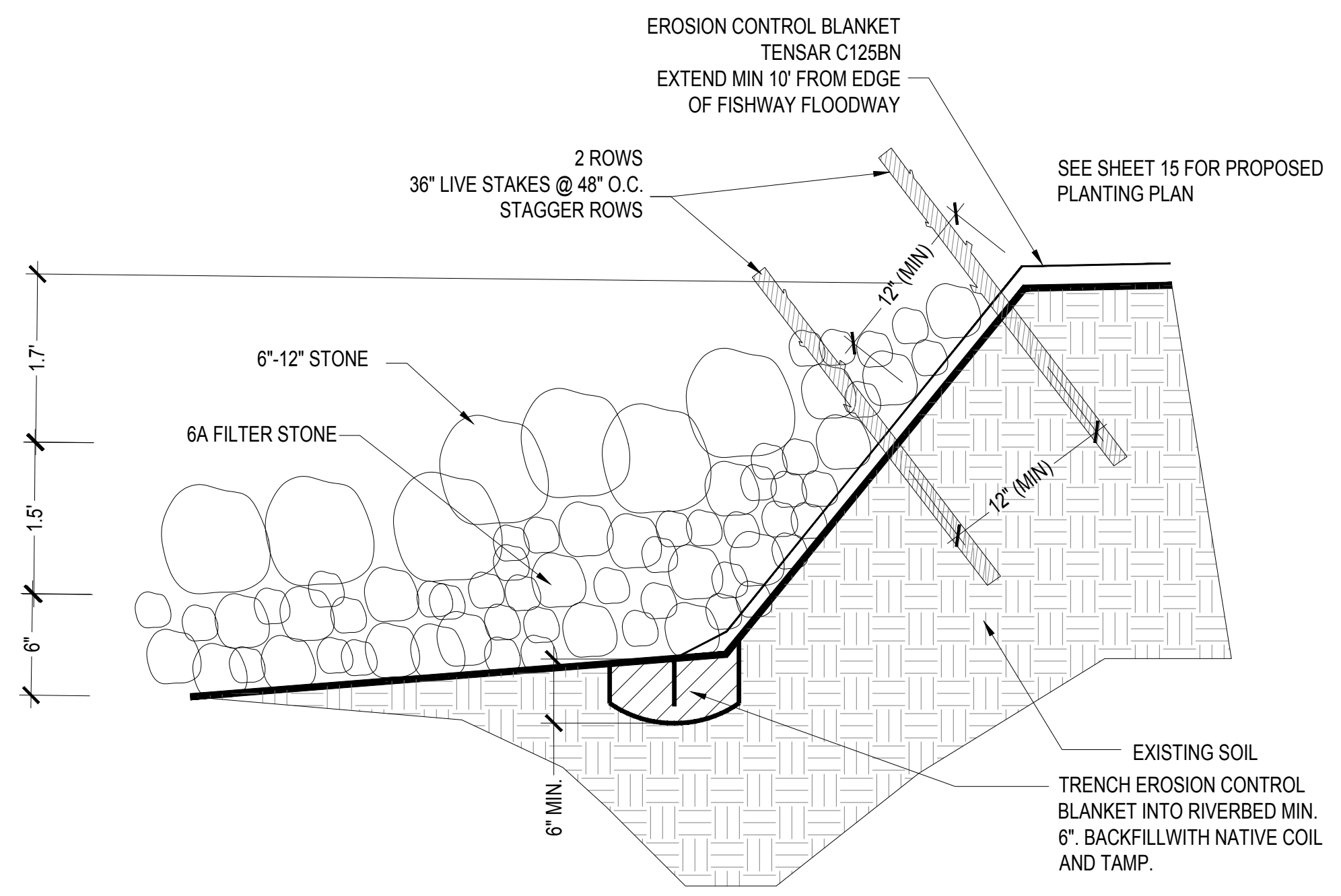
- CONSTRUCTION NOTES:
- EXCAVATE CHANNEL TO SUBGRADE BASED ON 24" THICK CHANNEL LINING.
  - PLACE 6" OF 6A FILTER STONE ALONG CHANNEL BOTTOM.
  - PLACE BOULDERS RANDOMLY WITH 4'-6" SPACING PER ENGINEER'S DIRECTION.
  - PLACE 18" OF 6"-12" STONE OVER 6A FILTER STONE AND AROUND BOULDERS.

100-YEAR FLOODPLAIN ELEVATION:  
589 AT PROPOSED FISHWAY

ORDINARY HIGH WATER MARK (OHWM):  
583 AT PROPOSED FISHWAY

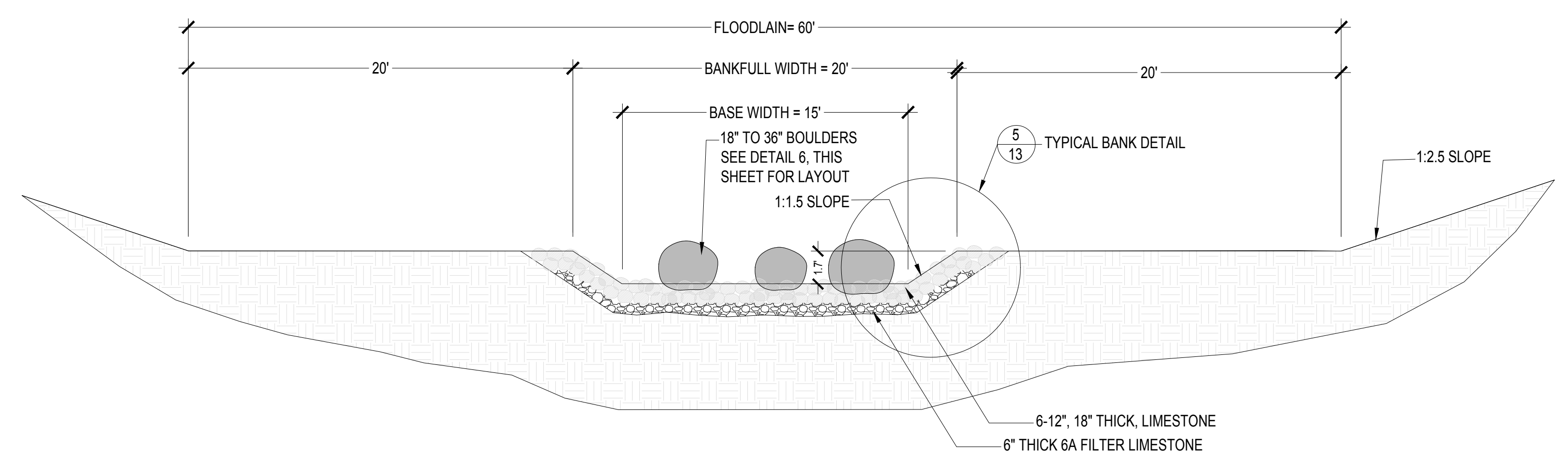


SCALE: 1" = 1' @ 22" x 34"



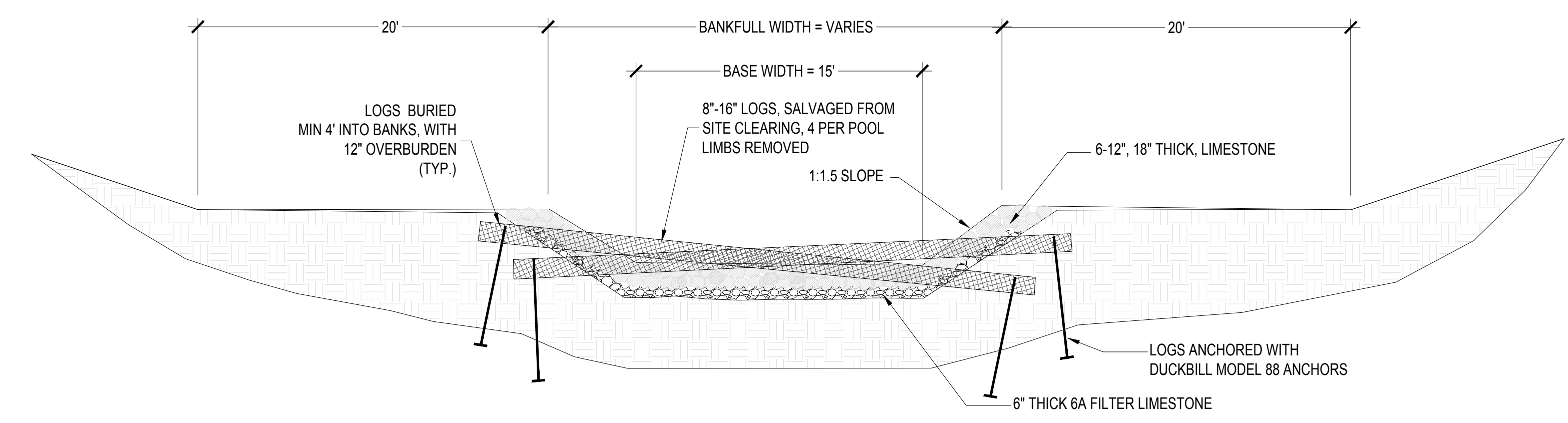
5 TYPICAL BANK DETAIL

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



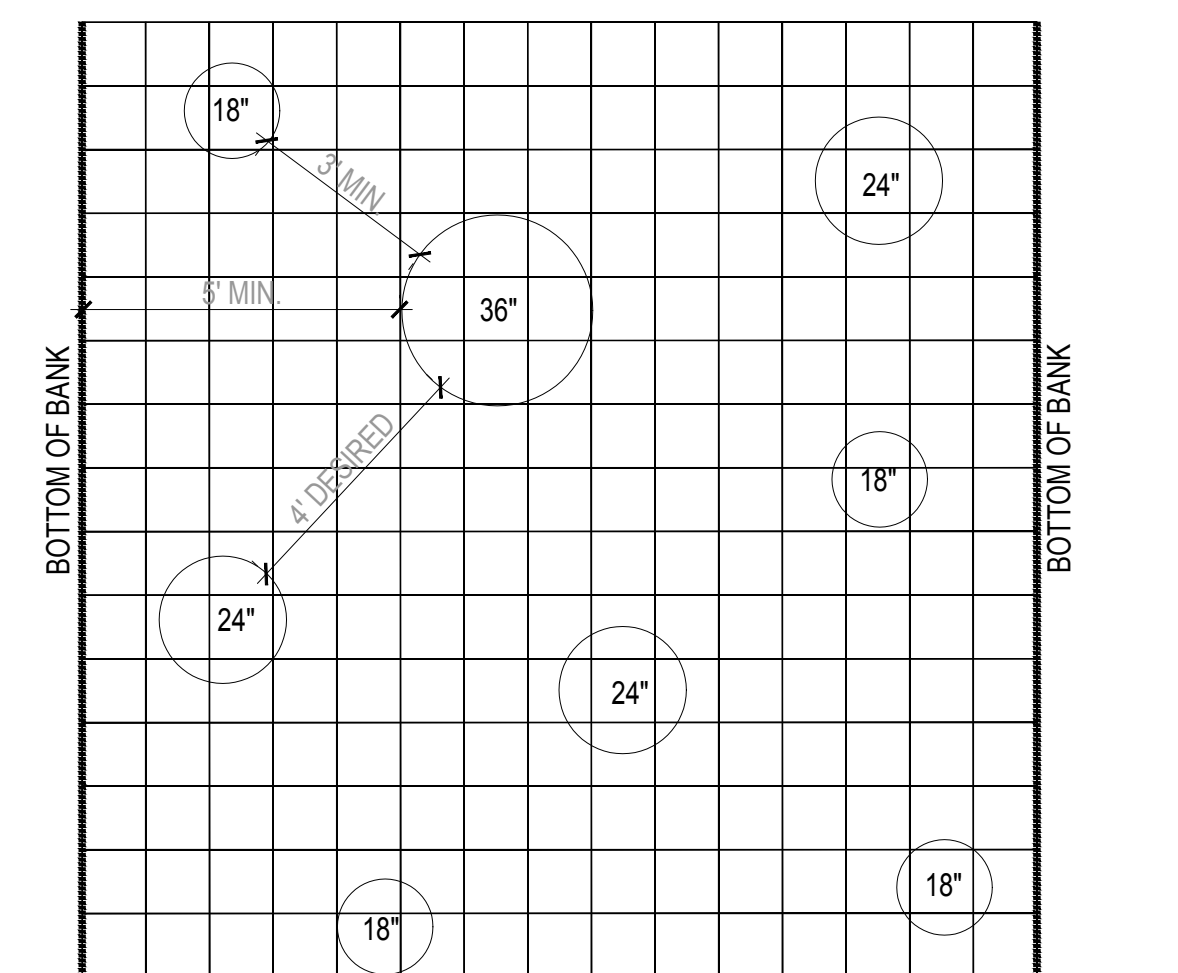
3 TYPICAL BED SECTION

SCALE: 1" = 5' @ 22" x 34"



4 TYPICAL POOL SECTION

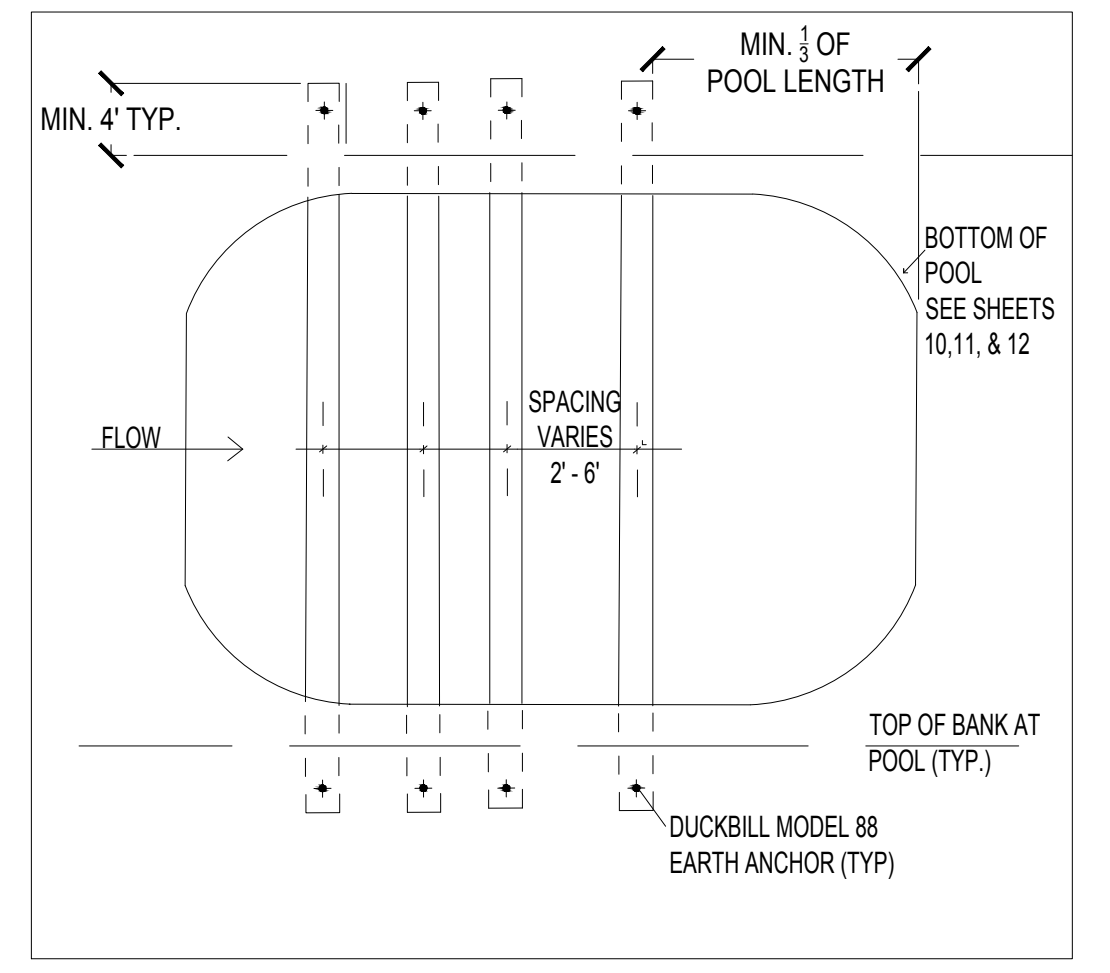
SCALE: 1" = 5' @ 22" x 34"



6 EXAMPLE BOULDER LAYOUT

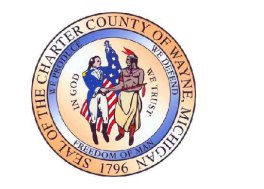
SCALE: 1" = 3' @ 22" x 34"

- NOTES:
- PLACE 8 BOULDERS PER 200 SQUARE FEET OF CHANNEL BED.
  - USE A MINIMUM SPACING OF 3', 4' DESIRED.
  - 36" BOULDERS SHALL BE PLACED A MINIMUM OF 5' FROM BOTTOM OF BANK.
  - PLACE AT LEAST ONE 36" BOULDER PER 200 SQUARE FEET OF CHANNEL BED.
  - 50% OF THE BOULDERS EVERY 200 SQUARE FEET OF CHANNEL BED SHALL BE 24" OR GREATER.



7 POOL LARGE WOODY DEBRIS PLAN DETAIL

NOT TO SCALE



**ROUGE RIVER AOC - HENRY FORD ESTATE DAM FISHWAY HABITAT RESTORATION PROJECT**

**ALLIANCE OF ROUGE COMMUNITIES**  
DEARBORN, WAYNE COUNTY, MICHIGAN

FOR BIDDING	10-2017
FINAL DESIGN	01-20-17
95% DRAWINGS	10-12-16
50% DRAWINGS	6-30-16

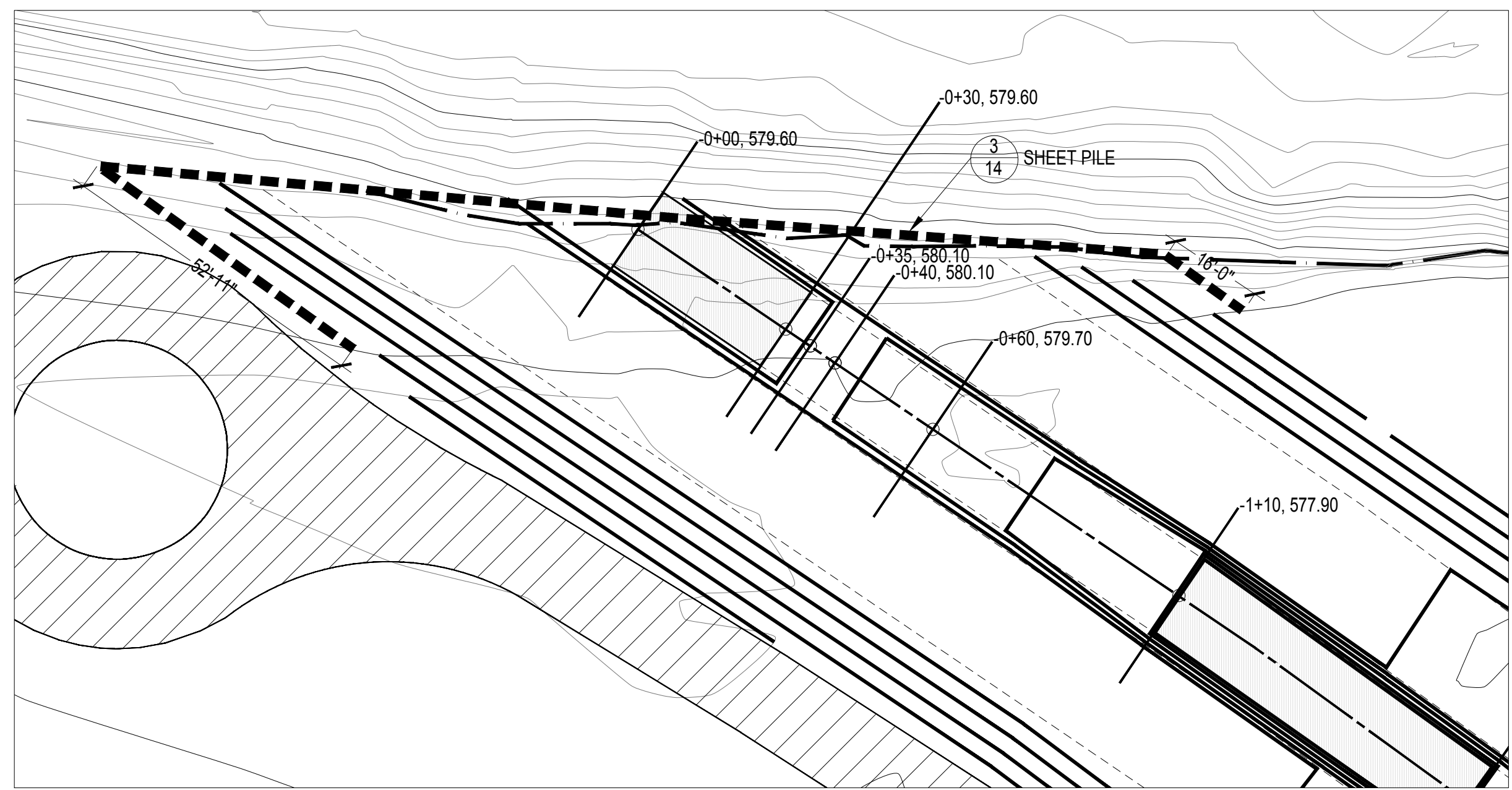
150646-0300	ECT PROJECT NUMBER
AB/MB	MB
DESIGNED BY	CHECKED BY
AB/SR	JO
DRAWN BY	APPROVED BY

**FISHWAY DETAILS**

SCALE: AS SHOWN

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

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1 EXIT DETAIL  
14

- SHEET PILE NOTES:**
1. SHEET PILE, PZ-22, GRADE 50 STEEL INSTALLED AT LOCATIONS SHOWN ON THE PLAN.
  2. INTENT OF SHEET PILE IS TO PROTECT FISHWAY EXCAVATION DURING CONSTRUCTION FROM ROUGE RIVER FLOWS.
  3. SHEET PILE TO BE INSTALLED WITH TOP OF WALL AT ELEVATION 585.
  4. SEE SHEET PILE DETAIL, 10' LONG SHEET PILE TO BE DRIVEN OR CUT TO PROPOSED GRADE AND LEFT IN PLACE WHEN FISHWAY CONSTRUCTION IS COMPLETE.

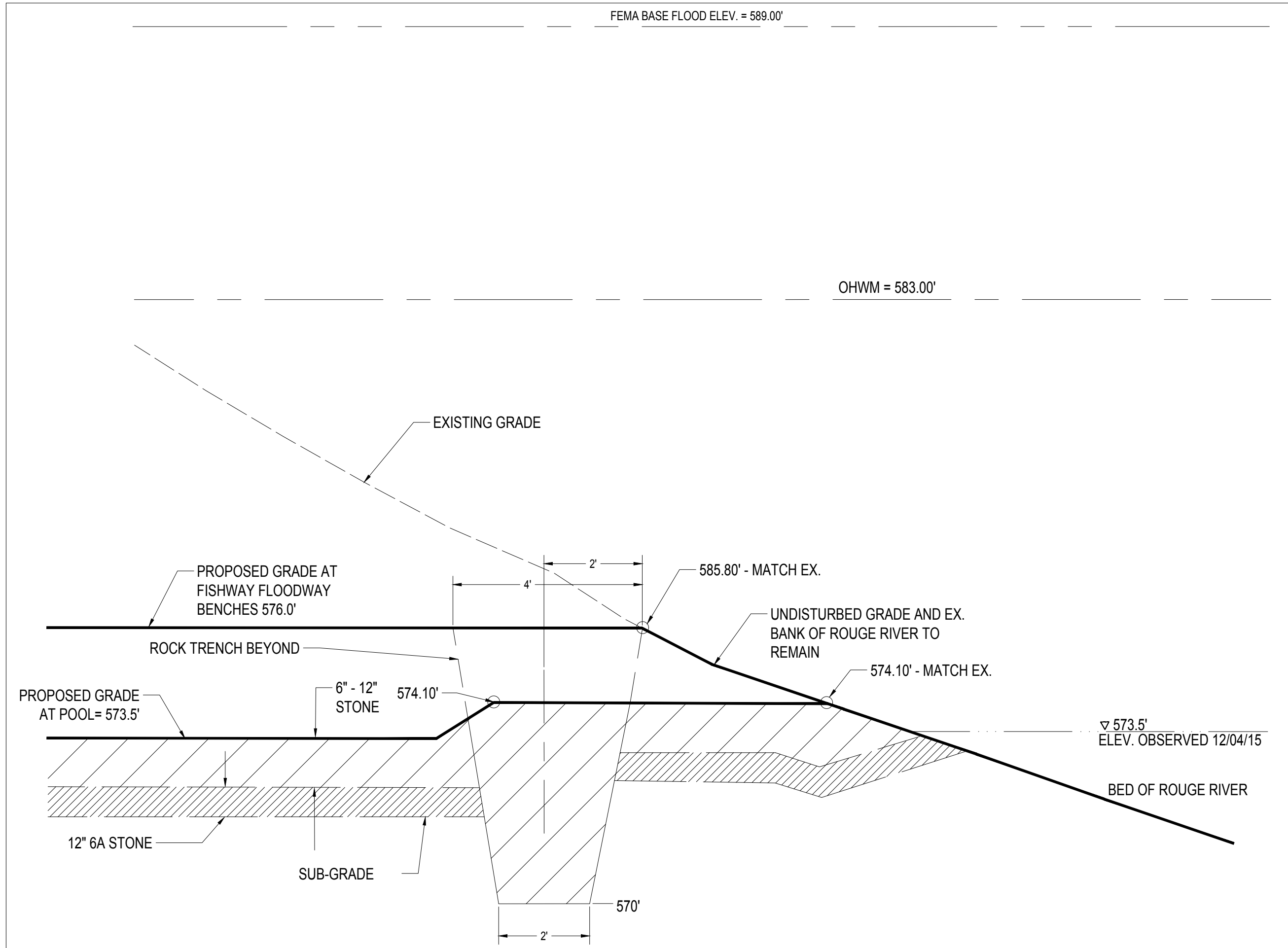
100-YEAR FLOODPLAIN ELEVATION:  
589 AT PROPOSED FISHWAY

ORDINARY HIGH WATER MARK  
(OHWM):  
583 AT PROPOSED FISHWAY

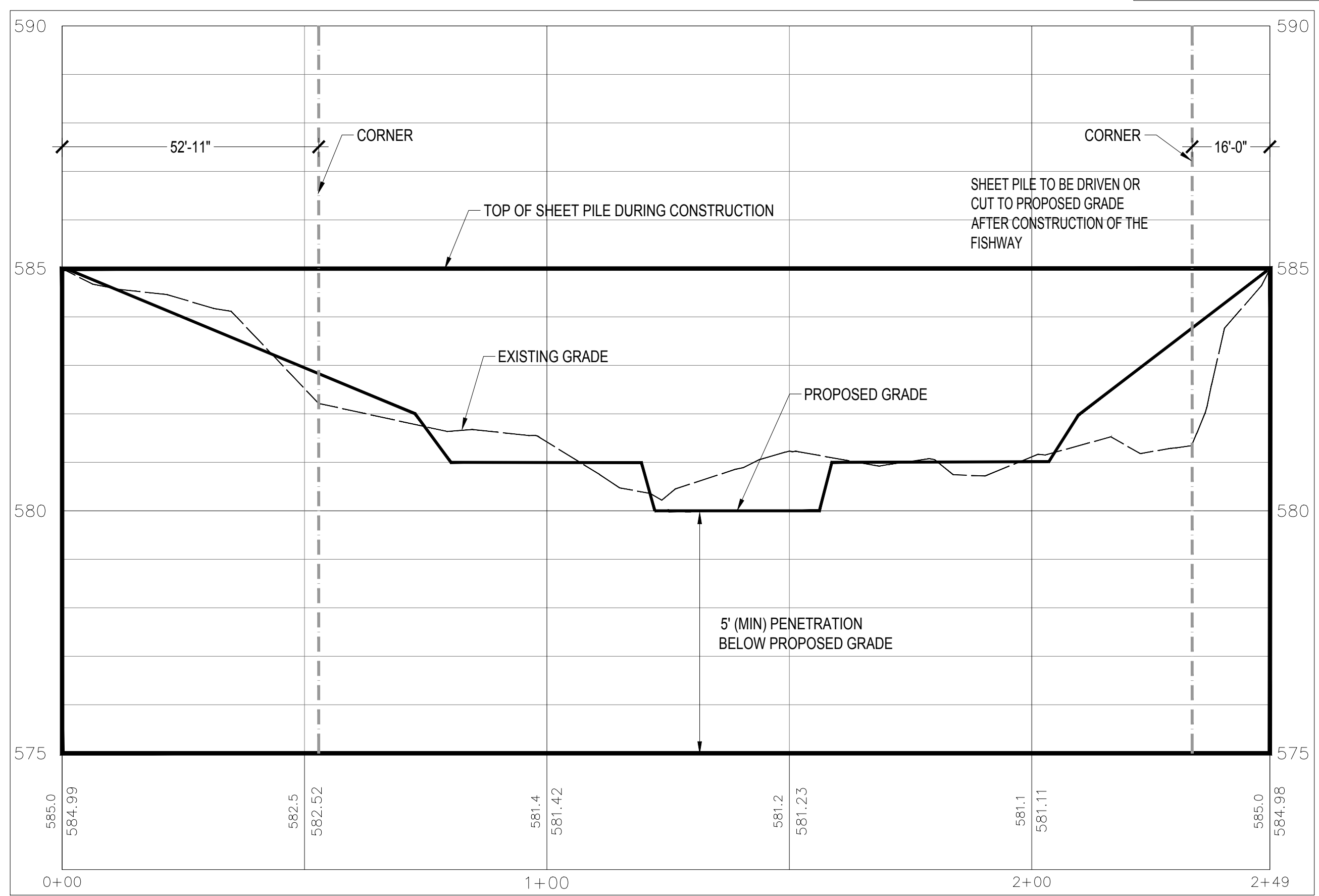
SCALE: 1" = 20' @ 22' x 34'

**LEGEND:**

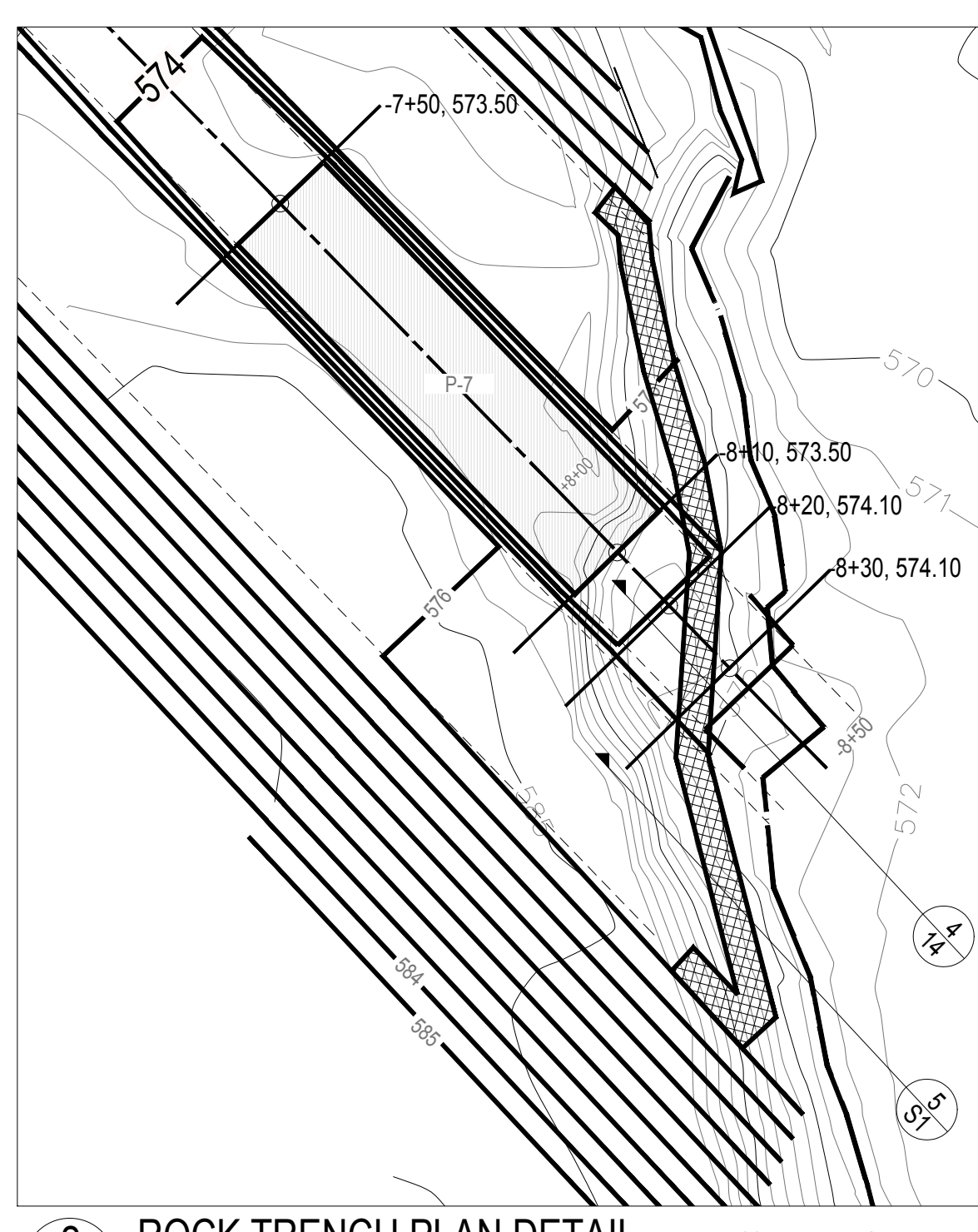
- 585 - EXISTING CONTOUR
- 584 - EXISTING CONTOUR
- EDGE OF WATER
- - - EXISTING WETLAND BOUNDARY
- PROPOSED CONTOUR
- ▨ PROPOSED POOL
- - - - - PROPOSED SHEET PILE



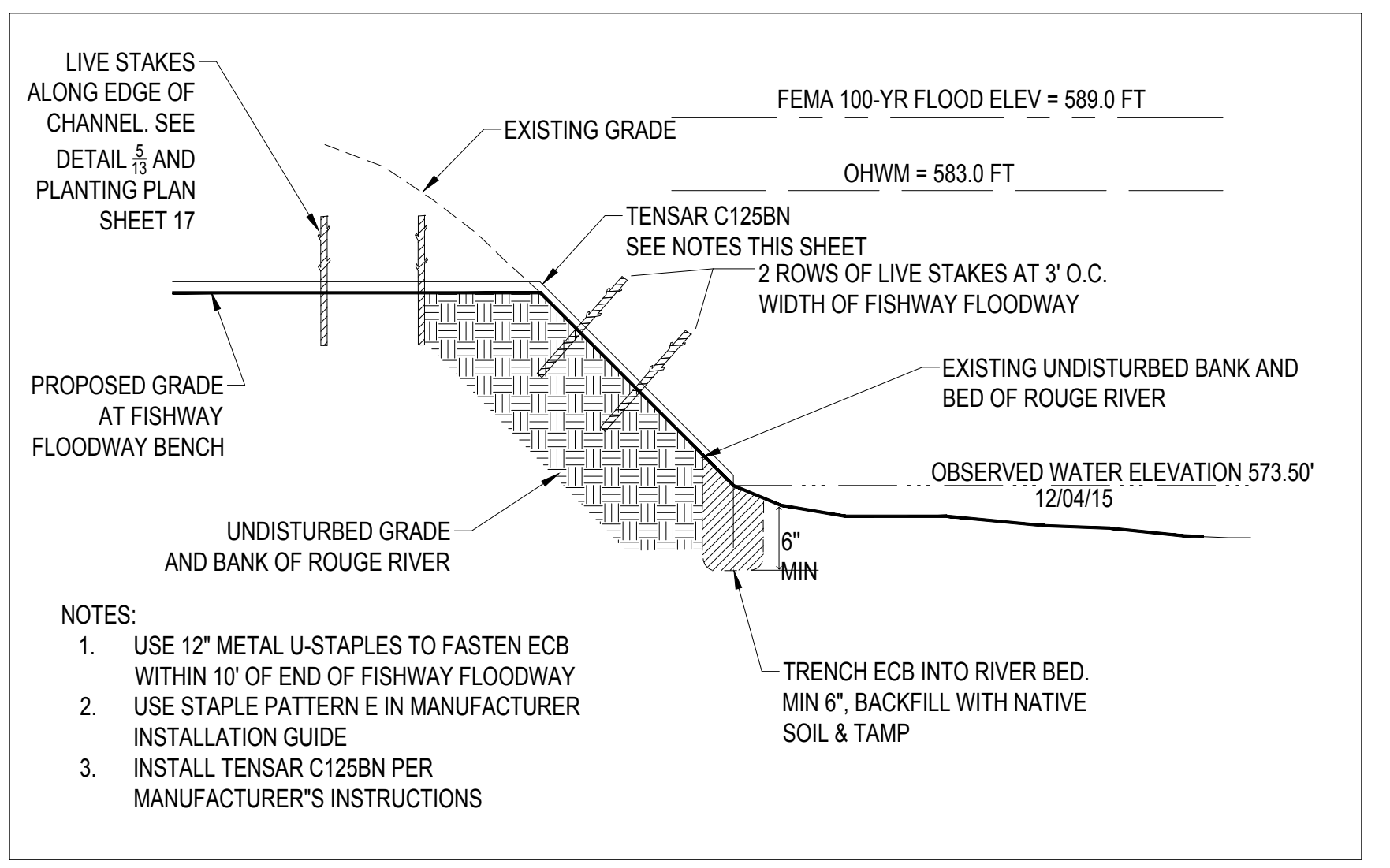
4 ROCK TRENCH DETAIL  
14



3 SHEET PILE DETAIL  
14



2 ROCK TRENCH PLAN DETAIL  
14



5 BANK STABILIZATION DETAIL  
14

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



**ROUGE RIVER  
AOC - HENRY  
FORD ESTATE  
DAM FISHWAY  
HABITAT  
RESTORATION  
PROJECT**

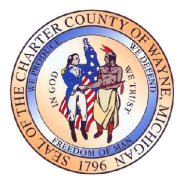
**ALLIANCE OF ROUGE  
COMMUNITIES**

DEARBORN,  
WAYNE COUNTY,  
MICHIGAN

FOR BIDDING	10-2017
FINAL DESIGN	01-20-17
95% DRAWINGS	10-12-16
50% DRAWINGS	6-30-16
150646-0300 ECT PROJECT NUMBER	
DESIGNED BY	MB
CHECKED BY	MB
DRAWN BY	JO
APPROVED BY	JO

**END  
DETAILS**

P:\Alliance of Rouge Communities\Grant Projects\2015 NOAA - HFE Fish Passage\CAD\ECT\_HFE\_Dam\pass\_6\_30\_16.rvt (Plot Style: HFE\_EX.ctb)



**ROUGE RIVER  
 AOC - HENRY  
 FORD ESTATE  
 DAM FISHWAY  
 HABITAT  
 RESTORATION  
 PROJECT**

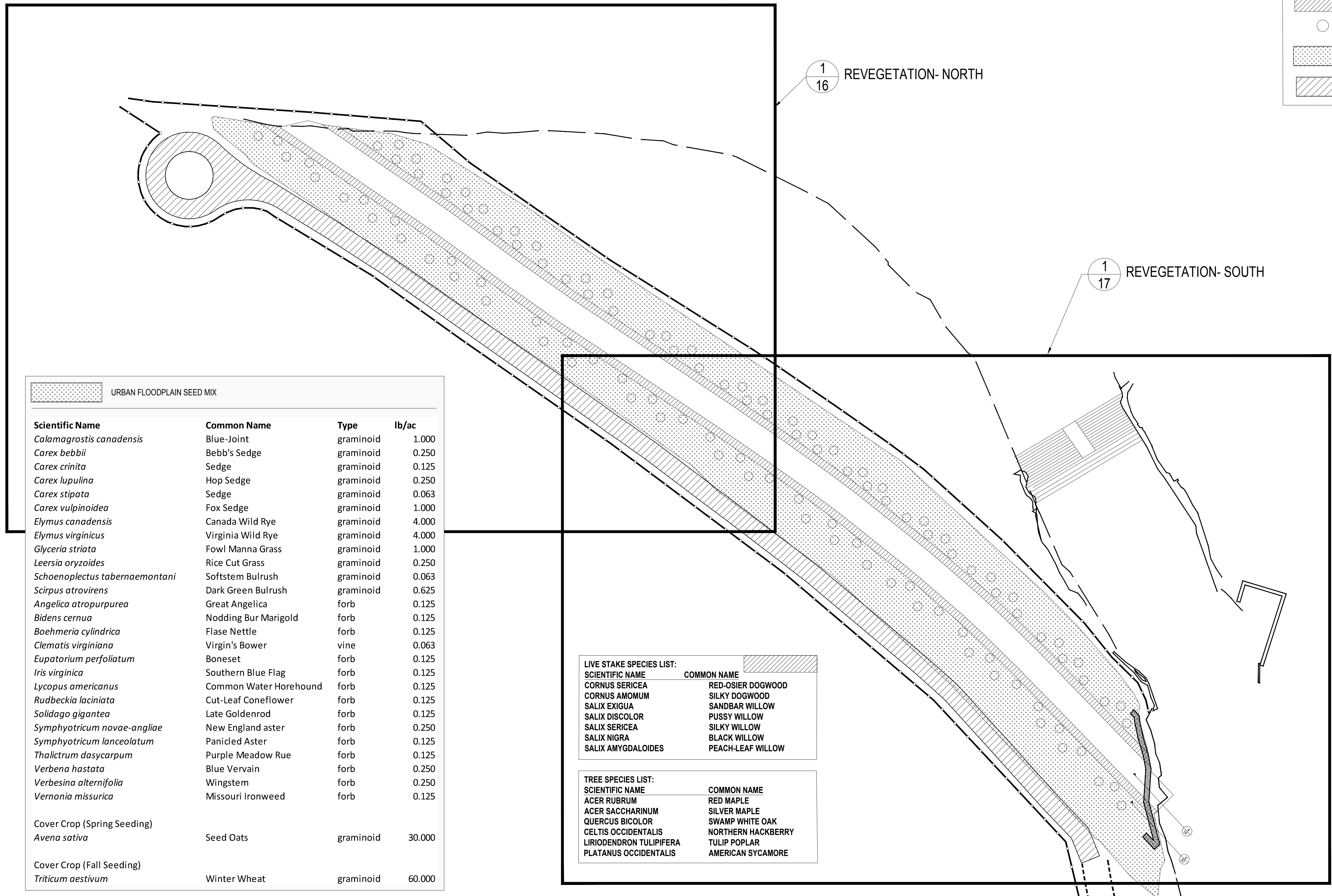
ALLIANCE OF ROUGE COMMUNITIES

DEARBORN,  
 WAYNE COUNTY,  
 MICHIGAN

**LEGEND:**

- EXISTING CONTOUR
- WATER SURFACE
- EXISTING WETLAND BOUNDARY
- PROPOSED CONTOUR
- PROPOSED LIVE STAKES AT BANKS
- PROPOSED LIVE STAKE GROUPS
- URBAN FLOODPLAIN SEED MIX
- ACCESS PATH SEED TO BE TURF

- NOTES:**
- 285 TREES ARE PROPOSED. SEE SHEET 16 AND 17 FOR PROPOSED TREE LOCATIONS.
  - ADDITIONAL 18 TREES TO BE PLANTED IN ACCESS ROAD AREA.



Scientific Name	Common Name	Type	lb/ac
<i>Calamagrostis canadensis</i>	Blue-Joint	graminoid	1.000
<i>Carex bebbii</i>	Bebb's Sedge	graminoid	0.250
<i>Carex crinita</i>	Sedge	graminoid	0.125
<i>Carex lupulina</i>	Hop Sedge	graminoid	0.250
<i>Carex stipata</i>	Sedge	graminoid	0.063
<i>Carex vulpinoidea</i>	Fox Sedge	graminoid	1.000
<i>Elymus canadensis</i>	Canada Wild Rye	graminoid	4.000
<i>Elymus virginicus</i>	Virginia Wild Rye	graminoid	4.000
<i>Glyceria striata</i>	Fowl Manna Grass	graminoid	1.000
<i>Leersia oryzoides</i>	Rice Cut Grass	graminoid	0.250
<i>Schoenoplectus tabernaemontani</i>	Softstem Bulrush	graminoid	0.063
<i>Scirpus atrovirens</i>	Dark Green Bulrush	graminoid	0.625
<i>Angelica atropurpurea</i>	Great Angelica	forb	0.125
<i>Bidens cernua</i>	Nodding Bur Marigold	forb	0.125
<i>Boehmeria cylindrica</i>	Flase Nettle	forb	0.125
<i>Clematis virginiana</i>	Virgin's Bower	vine	0.063
<i>Eupatorium perfoliatum</i>	Boneset	forb	0.125
<i>Iris virginica</i>	Southern Blue Flag	forb	0.125
<i>Lycopus americanus</i>	Common Water Horehound	forb	0.125
<i>Rudbeckia laciniata</i>	Cut-Leaf Coneflower	forb	0.125
<i>Solidago gigantea</i>	Late Goldenrod	forb	0.125
<i>Symphoricaric novae-angliae</i>	New England aster	forb	0.250
<i>Symphoricaric lanceolatum</i>	Panicled Aster	forb	0.125
<i>Thalictrum dasycarpum</i>	Purple Meadow Rue	forb	0.125
<i>Verbena hastata</i>	Blue Vervain	forb	0.250
<i>Verbesina alternifolia</i>	Wingstem	forb	0.250
<i>Vernonia missurica</i>	Missouri Ironweed	forb	0.125
Cover Crop (Spring Seeding)			
<i>Avena sativa</i>	Seed Oats	graminoid	30.000
Cover Crop (Fall Seeding)			
<i>Triticum aestivum</i>	Winter Wheat	graminoid	60.000

**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
SALIX AMYGDALOIDES	PEACH-LEAF WILLOW

**TREE SPECIES LIST:**

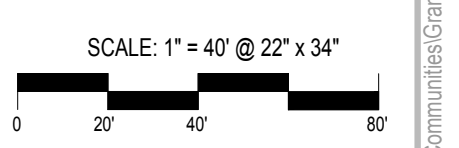
SCIENTIFIC NAME	COMMON NAME
ACER RUBRUM	RED MAPLE
ACER SACCHARINUM	SILVER MAPLE
QUERCUS BICOLOR	SWAMP WHITE OAK
CELTIS OCCIDENTALIS	NORTHERN HACKBERRY
LIRIODENDRON TULIPIFERA	TULIP POPLAR
PLATANUS OCCIDENTALIS	AMERICAN SYCAMORE

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90% DRAWINGS	6-30-16

150646-0300  
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AB/TH/MB	MB
DESIGNED BY	CHECKED BY
AB/SR	JO
DRAWN BY	APPROVED BY

**REVEGETATION  
 PLAN -  
 OVERVIEW**



P:\Alliance of Rouge Communities\Grant Projects\2015 NDMA - HFE Fish Passage\CA\DECT\_HFE\_Dam\years\_03\_30\_16.dwg (Plot Style: HFE-EX.ctb)



**ROUGE RIVER  
 AOC - HENRY  
 FORD ESTATE  
 DAM FISHWAY  
 HABITAT  
 RESTORATION  
 PROJECT**

**ALLIANCE OF ROUGE  
 COMMUNITIES**

**DEARBORN,  
 WAYNE COUNTY,  
 MICHIGAN**

**LEGEND:**

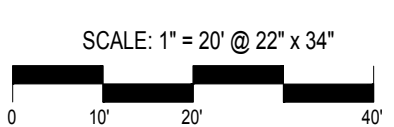
- EXISTING CONTOUR
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150646-0300	
ECT PROJECT NUMBER	
ABJ/TH/MB	MB
DESIGNED BY	CHECKED BY
ABJ/SR	JO
DRAWN BY	APPROVED BY

**REVEGETATION-  
 NORTH**

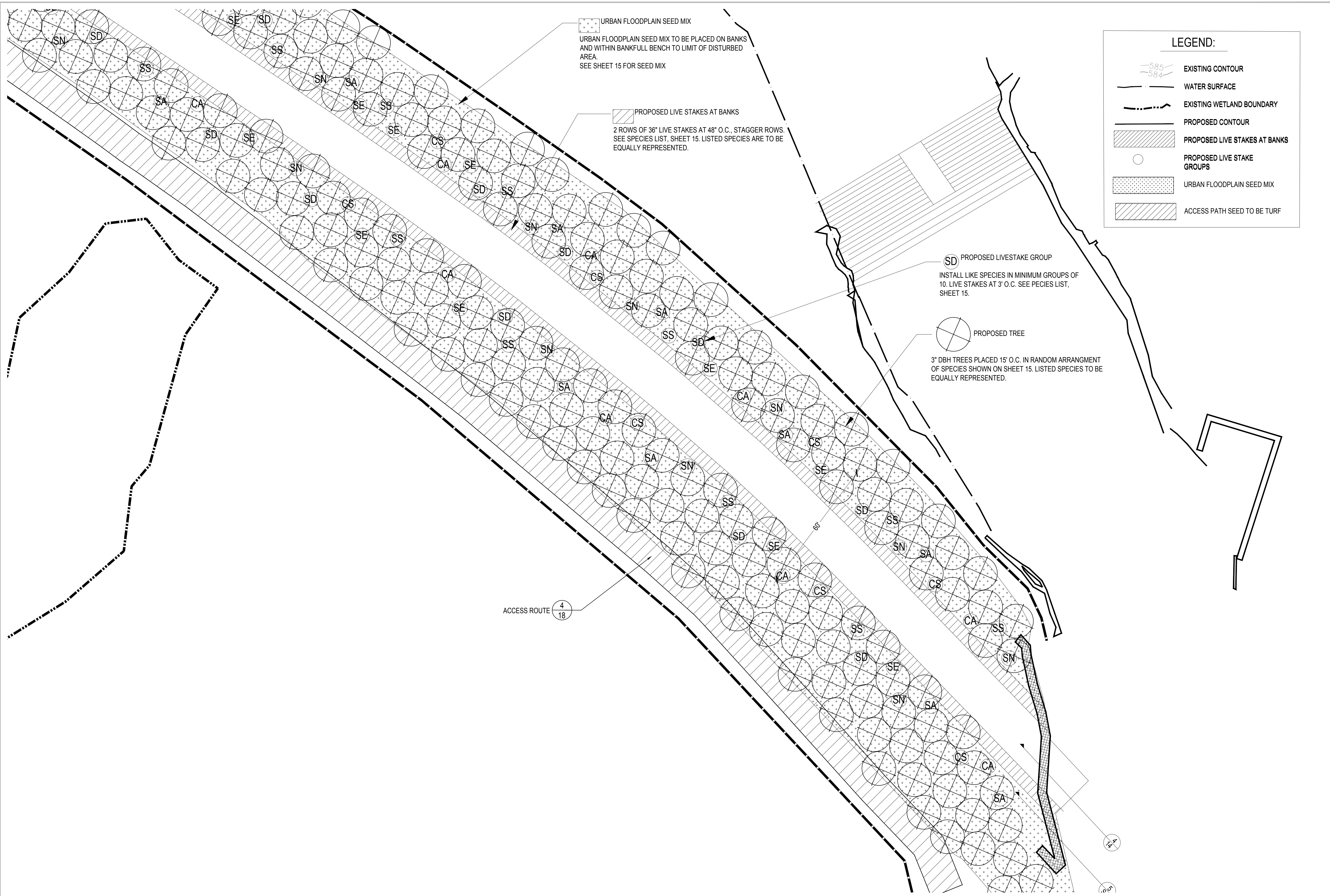


NORTH

SHEET NUMBER  
**16**

P:\Alliance of Rouge Communities\Grant Projects\2016 NOA - HFE Fish Passage\CAU\ECT\_LIFE\_DamBypass\_C3\_00\_16.dwg (Plot Style: HFE-ECT.ctb)





URBAN FLOODPLAIN SEED MIX  
 URBAN FLOODPLAIN SEED MIX TO BE PLACED ON BANKS AND WITHIN BANKFULL BENCH TO LIMIT OF DISTURBED AREA.  
 SEE SHEET 15 FOR SEED MIX

PROPOSED LIVE STAKES AT BANKS  
 2 ROWS OF 36" LIVE STAKES AT 48" O.C., STAGGER ROWS. SEE SPECIES LIST, SHEET 15. LISTED SPECIES ARE TO BE EQUALLY REPRESENTED.

SD PROPOSED LIVESTAKE GROUP  
 INSTALL LIKE SPECIES IN MINIMUM GROUPS OF 10. LIVE STAKES AT 3' O.C. SEE SPECIES LIST, SHEET 15.

PROPOSED TREE  
 3" DBH TREES PLACED 15' O.C. IN RANDOM ARRANGEMENT OF SPECIES SHOWN ON SHEET 15. LISTED SPECIES TO BE EQUALLY REPRESENTED.

ACCESS ROUTE 4/18

**LEGEND:**

- EXISTING CONTOUR
- WATER SURFACE
- EXISTING WETLAND BOUNDARY
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- PROPOSED LIVESTAKE GROUPS
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**ECT Environmental Consulting & Technology, Inc.**  
 2200 Commonwealth Blvd, Suite 300  
 Ann Arbor, Michigan 48105  
 734.769.3004  
 734.769.3164 fax  
 www.ectinc.com

Alliance of Rouge Communities  
**OURS TO PROTECT**  
 Working together, restoring the river

**ROUGE RIVER AOC - HENRY FORD ESTATE DAM FISHWAY HABITAT RESTORATION PROJECT**

**ALLIANCE OF ROUGE COMMUNITIES**  
 DEARBORN, WAYNE COUNTY, MICHIGAN

FOR BIDDING	10-2017
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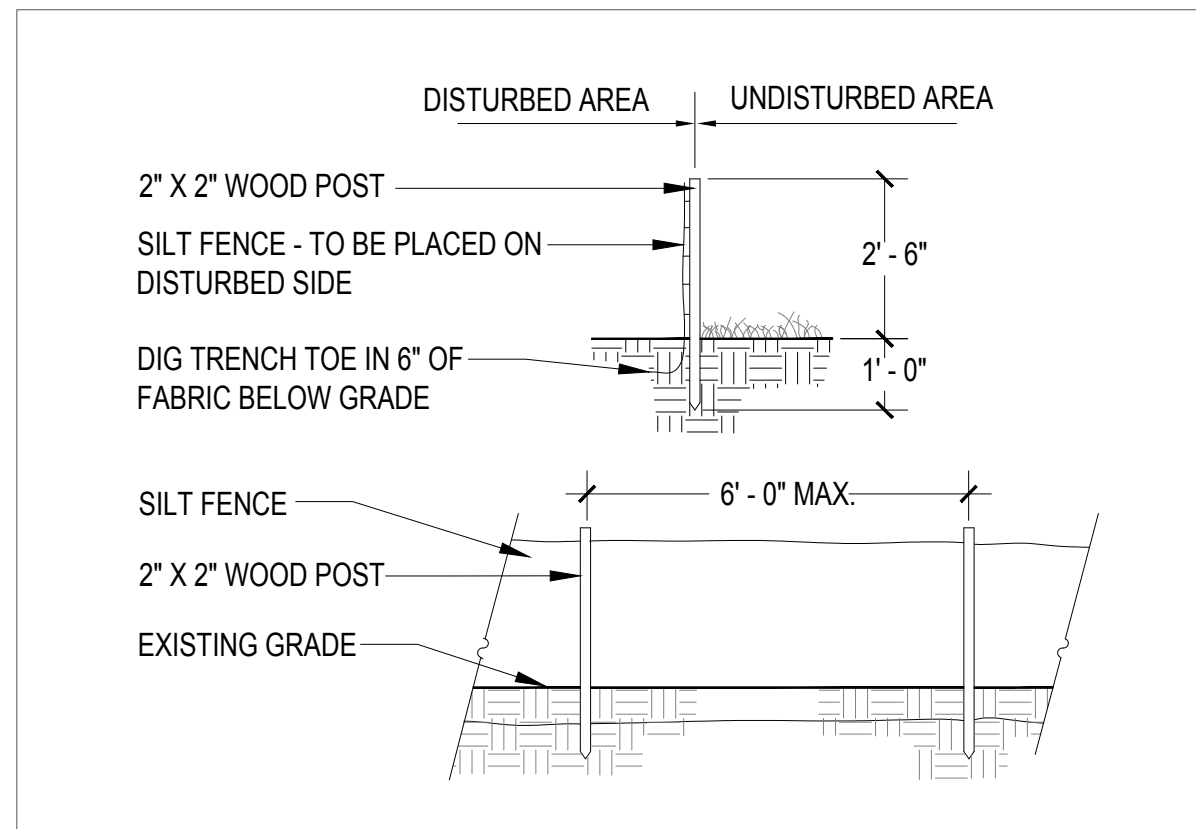
150646-0300  
 ECT PROJECT NUMBER  
 ABJ/TH/MB DESIGNED BY MB CHECKED BY  
 ABJ/SR DRAWN BY JO APPROVED BY

**REVEGETATION- SOUTH**

SCALE: 1" = 20' @ 22" x 34"

NORTH SHEET NUMBER  
**17**

P:\Alliance of Rouge Communities\Grant Projects\2015 NOA - HFE Fish Passage\CA\ECT\_LIFE\_DamBypass\_C3\_00\_16.dwg (Plot Style: HFE-ECT.ctb)



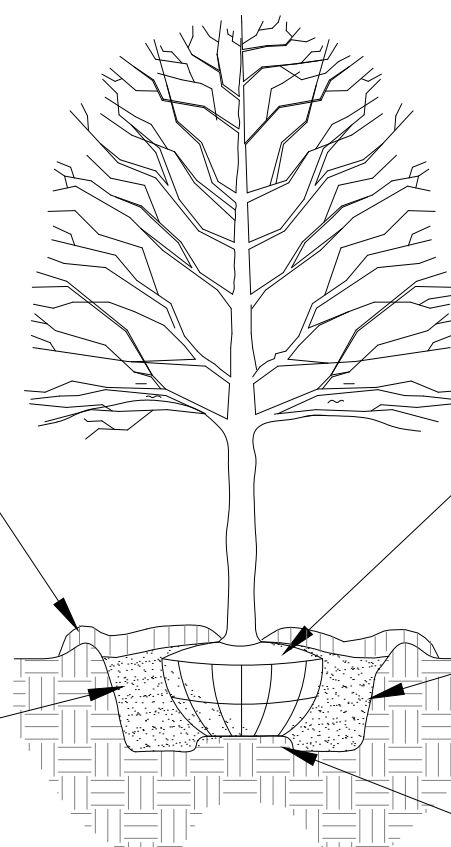
**1**  
**18** SILT FENCE  
NOT TO SCALE

NOTES:  
TREE SHALL BE PLANTED WITH TOP OF ROOT BALL AT OR SLIGHTLY ABOVE FINISH GRADE - NEVER LOWER.

PRUNE ONLY AS DIRECTED EXCEPT FOR REMOVING DEAD OR BROKEN BRANCHES; RETAIN NATURAL FORM; DO NOT CUT LEADER.

4" MULCH TO COVER ENTIRE PLANTING HOLE. TAPER MULCH TO TRUNK. CREATE CONTINUOUS 6" EARTH SAUCER.

SPECIFIED BACKFILL SOIL

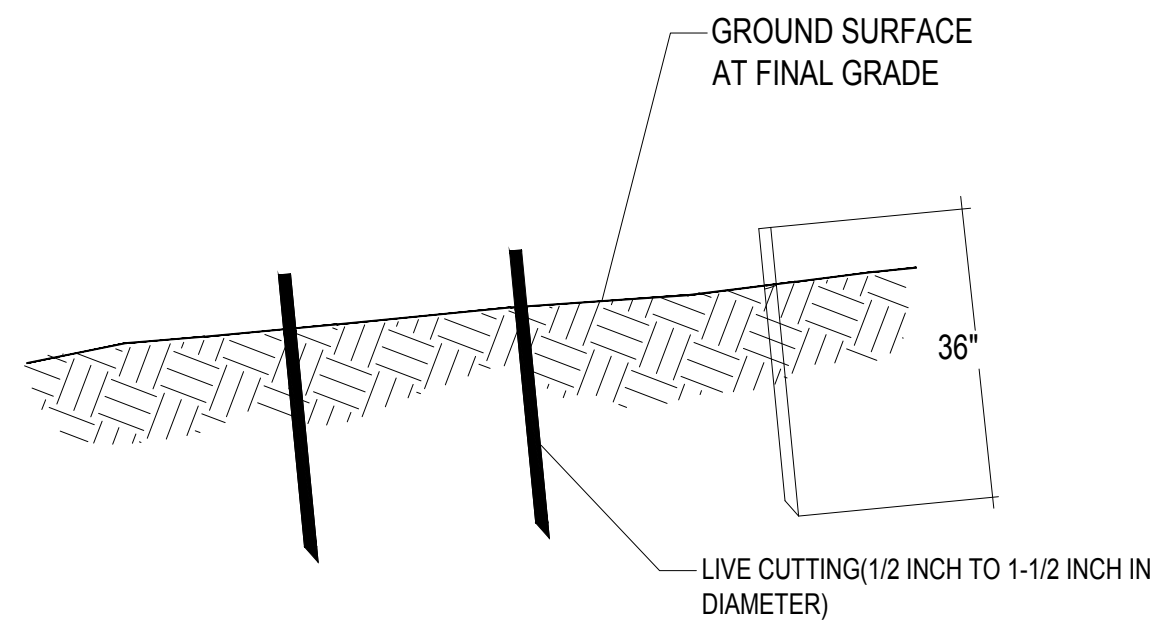


REMOVE TOP 1/3 OF BURLAP OR ENTIRE RAP IF NON-BIODEGRADABLE AFTER PLACING TREE IN PIT

SCARIFY BOTTOM AND SIDEWALLS OF PLANTING PIT.

6" EARTH PEDESTAL OF UNDISTURBED OR COMPACTED SOIL.

**2**  
**18** DECIDUOUS TREE PLANTING  
NOT TO SCALE



NOTES:

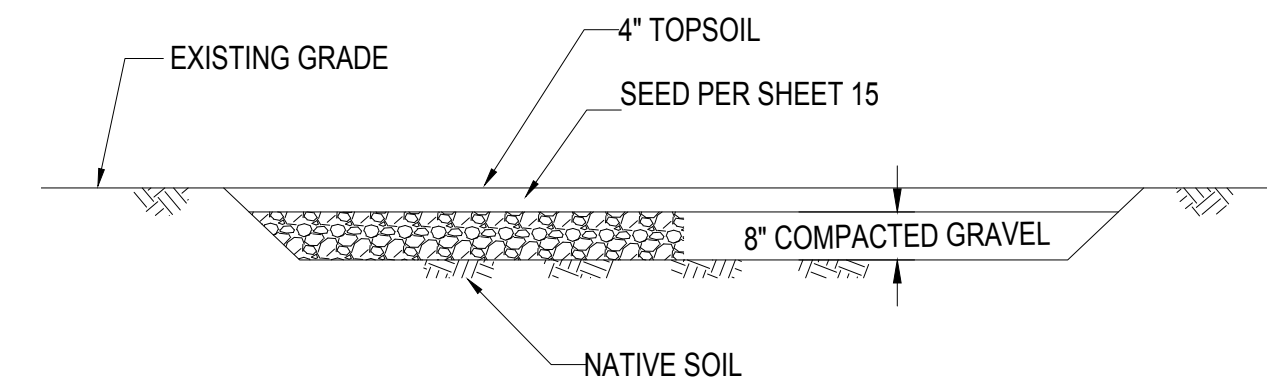
1. INSTALL IN MUDFLAT/TILL ZONE AS DIRECTED BY LANDSCAPE ECOLOGIST, DURING FIRST DORMANT SEASON FOLLOWING SEEDING

2. INSTALL LIVE STAKES AT RIGHT ANGLES PUSH INTO THE GROUND BY HAND. DEAD BLOW HAMMER AND PILOT HOLES AS NECESSARY.

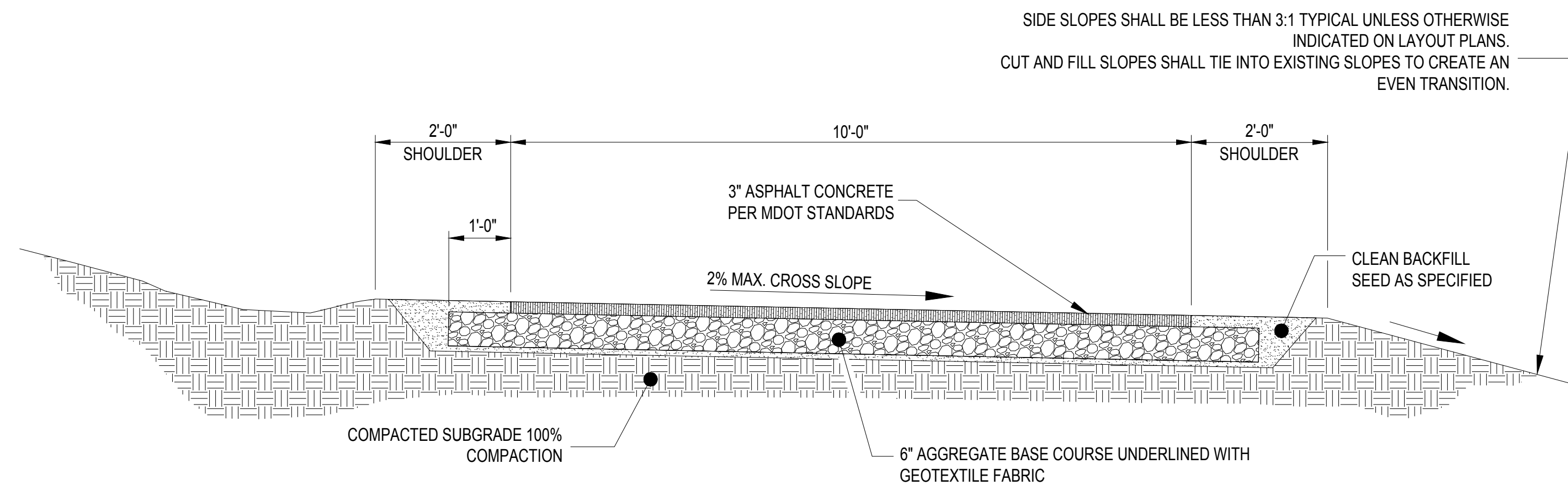
3. BURY FOUR-FIFTHS OF THE STAKE IN THE GROUND, AND FIRMLY PACK SOIL AROUND IT. ORIENT THE BUDS UP.

4. INSTALL STAKES 3 FEET APART IN TRIANGULAR SPACING PATTERN.

**3**  
**18** LIVE STAKE INSTALLATION  
NO SCALE



**4**  
**18** RESTORED ACCESS ROAD  
SCALE: 1" = 2'



NOTES:

1. CROSS SLOPE DIRECTION VARIES. SEE PLANS FOR DIRECTION OF SLOPE.

2. SHOULDERS TO MATCH CROSS SLOPE OF ASPHALT PATH.

3. CONTRACTOR IS RESPONSIBLE FOR RE-ESTABLISHING ALL SLOPES DISTURBED BY CONSTRUCTION.

4. NO UTILITY SURFACE COVERS/PLATES/MANHOLES (i.e. WATERLINE VALVE COVERS, ETC.) SHALL BE LOCATED WITHIN TRAIL AND SHALL BE MINIMUM 2 FEET FROM THE EDGE OF TRAIL.

5. ALL TRAILS SHALL BE LOCATED MINIMUM 5 FEET FROM THE BACK OF ANY CURB.

**5**  
**18** ASPHALT PATH

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150646-0300 ECT PROJECT NUMBER	
ABI/MB DESIGNED BY	MB CHECKED BY
ABI/SR DRAWN BY	JO APPROVED BY

**MISCELLANEOUS  
DETAILS**

SCALE: AS SHOWN

**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:  
MIDWESTERN CONSULTING  
3815 PLAZA DRIVE  
ANN ARBOR, MICHIGAN 48108  
(734) 995-0200 (PH)
3. THE SOIL LOG INFORMATION REPRESENTS POINT INFORMATION. PRESENTATION OF THIS INFORMATION IN NO WAY INFERS THAT SUBSURFACE CONDITIONS ARE THE SAME OTHER THAN THE EXACT LOCATION OF THE BORINGS.
4. STORAGE OF EQUIPMENT AND CONSTRUCTION MATERIALS SHALL BE RESTRICTED TO DESIGNATED STAGING AREAS AS INDICATED ON THE PLANS, UNLESS OTHERWISE APPROVED BY ENGINEER.
5. 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.
6. ALL CONSTRUCTION ACTIVITIES SHALL BE LIMITED TO LIMIT OF DISTURBANCE LINE. WORK BEYOND THESE LIMITS SHALL BE AS DIRECTED BY ENGINEER.
7. 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.
8. ALL WORK SHALL BE COMPLETED BETWEEN THE HOURS OF 7:00AM AND 7:00PM. ALL WORK SHALL BE COMPLETED MONDAY THROUGH SATURDAY.
9. CONSTRUCTION ACCESS TO THE SITES FOR ALL ACTIVITIES WILL BE FROM HURON PARKWAY AS INDICATED ON THE SITE ACCESS AND TRAFFIC CONTROL PLAN. NO OTHER ACCESS IS ALLOWED WITHOUT WRITTEN PERMISSION FROM THE OWNER.
10. ALL MATERIALS REMOVED, EXCEPT WHERE OTHERWISE INDICATED ON THE PLANS, SHALL BE LEGALLY DISPOSED OF OFF SITE.
11. ALL EXCESS SOIL AND FILL GENERATED DURING REQUIRED EXCAVATION AS SHOWN ON DRAWINGS SHALL BE LEGALLY DISPOSED OF OFF-SITE.
12. THE CONTRACTOR SHALL OBTAIN PERMITS AS REQUIRED FOR THE PROJECT, INCLUDING THE SOIL EROSION AND SEDIMENT CONTROL PERMIT FROM WAYNE COUNTY.
13. THE MDEQ/USACE PERMIT HAS BEEN ACQUIRED. ALL WORK SHALL BE DONE TO MEET THE REQUIREMENTS OF THE MDEQ AND/OR USACE PERMITS ISSUED FOR THIS PROJECT. A COPY OF THE PERMIT IS INCLUDED IN THE CONTRACT DOCUMENTS.

**CLEARING AND GRUBBING NOTES**

1. REVIEW CLEARING LIMITS AND TREE REMOVALS WITH PROJECT ENGINEER PRIOR TO BEGINNING WORK.
2. ALL SILT FENCE AND PROTECTIVE FENCE SHALL BE INSTALLED PRIOR TO CLEARING OPERATIONS. ALL FENCING SHALL BE MAINTAINED THROUGHOUT DURATION OF PROJECT. FENCING SHALL BE REMOVED ONLY UPON APPROVAL BY ENGINEER.
3. ALL PLANT MATERIAL NOT MARKED FOR REMOVAL SHALL BE DISTURBED AS LITTLE AS POSSIBLE DURING THE CLEARING AND CONSTRUCTION OPERATIONS. NO EXCAVATION SHALL BE DONE WITHIN THE DRIP LINE (LIMIT OF OVERHANGING BRANCHES) OF TREES TO BE SAVED, UNLESS SPECIFICALLY APPROVED BY THE ENGINEER. THE LOWER BRANCHES OF ALL TREES TO REMAIN SHALL NOT BE REMOVED, OR DAMAGED BY CONSTRUCTION EQUIPMENT. AVOID COMPACTION OF ROOTS.
4. HYDRO AXE AND/OR SIMILAR CLEARING EQUIPMENT SHALL NOT BE PERMITTED ON SITE.

**GRADING AND LAYOUT NOTES**

1. ALL PROPOSED ELEVATIONS SHOWN ARE FINISHED GRADE. FINAL DESIGN GRADES MAY BE ADJUSTED TO MINIMIZE GRADING ACCORDINGLY.
2. CONTRACTOR SHALL PROVIDE GRADE VERIFICATION STAKES AT ALL PROPOSED SPOT ELEVATIONS SHOWN ON THE PLANS AND EVERY 50 FEET ALONG PROPOSED CONTOURS AS DIRECTED BY THE ENGINEER.
3. THE CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING VEGETATION ON THE ADJACENT SLOPES. ALL DISTURBED AREAS SHALL BE REVEGETATED AND RESTORED TO EXISTING CONDITIONS.
4. ALL FILL SHALL BE AS SPECIFIED. ALL IMPORTED FILL SOIL SOURCES SHALL BE APPROVED BY THE ENGINEER IN WRITING PRIOR TO DELIVERY TO THE PROJECT SITE.

**STAGING/ ACCESS NOTES:**

1. EQUIPMENT ACCESS AND STAGING AND MATERIALS STORAGE CAN OCCUR WITHIN THE LIMITS OF DISTURBANCE IN ADDITION TO DESIGNATED STAGING AREAS. NO ADDITIONAL VEGETATION CLEARING FOR ACCESS OR STAGING IS PERMITTED WITHOUT APPROVAL OF THE ENGINEER AND OWNER.
2. NO MATERIAL STORAGE OR EQUIPMENT STAGING IS PERMITTED ON ANY PORTION OF MICHIGAN AVENUE INCLUDING AREAS CLOSED TO TRAFFIC.
3. CONTRACTOR SHALL PROVIDE ADEQUATE PROTECTION OVER EXISTING ASPHALT PEDESTRIAN PATH TO PREVENT PHYSICAL DAMAGE OR CHEMICAL DAMAGE FROM LEAKING PETROLEUM PRODUCTS. REPAIR OF DAMAGED PEDESTRIAN PATH SHALL BE AT CONTRACTOR'S EXPENSE UNLESS SPECIFICALLY ACCOUNTED FOR UNDER CONTRACTOR'S SITE RESTORATION LINE ITEM.

**GENERAL EARTHWORK NOTES:**

1. CONTRACTOR SHALL PROVIDE COORDINATION OF COMPACTION SOIL TESTING WITH OWNER OR OWNER'S REPRESENTATIVE DURING ALL BACKFILL PLACEMENT WORK.
2. DO NOT PLACE OR COMPACT FILL MATERIAL DURING WET OR FREEZING WEATHER THAT PREVENTS ACHIEVEMENT OF SPECIFIED COMPACTION REQUIREMENTS.

**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.

**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.

**REVEGETATION NOTES:**

**MAINTENANCE AND WARRANTY PERIOD:**

1. WARRANTY PERIOD: WARRANT THAT ALL TREES, SHRUBS, SEEDING, AND PLUG PLANTINGS INSTALLED UNDER THIS CONTRACT WILL BE HEALTHY AND IN FLOURISHING CONDITION OF ACTIVE GROWTH FOR ONE (1) FULL GROWING SEASON (APRIL THROUGH NOVEMBER) FROM DATE OF FINAL ACCEPTANCE. THE CONTRACTOR SHALL RESPOND WITHIN TWO (2) WEEKS OF WRITTEN REQUESTS BY THE OWNER FOR REPLACEMENT OR REPAIR. IF THE CONTRACTOR FAILS TO RESPOND WITHIN THIS TIME, THE OWNER MAY PROCEED WITH REPLACEMENT WORK AND BILL THE CONTRACTOR.
2. ALL DELAYS IN COMPLETION OF PLANTING OPERATIONS WHICH EXTEND THE PLANTING INTO MORE THAN ONE PLANTING SEASON SHALL EXTEND THE WARRANTY PERIOD CORRESPONDINGLY.
3. REPLACEMENTS: AS SOON AS WEATHER CONDITIONS PERMIT, REPLACE, WITHOUT COST TO OWNER, ALL DEAD PLANTS AND ALL PLANTS NOT IN A VIGOROUS, THRIVING CONDITION, AS DETERMINED BY THE CONSULTANT DURING AND AT THE END OF THE WARRANTY PERIOD.
4. PATCHY OR BARE AREAS (IN EXCESS OF 8 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.
5. INCORRECT MATERIALS: DURING WARRANTY PERIOD, REPLACE AT NO COST TO OWNER ALL PLANTS REVEALED AS BEING UNTRUE TO NAME. PROVIDE REPLACEMENTS OF A SIZE AND QUALITY TO MATCH THE PLANTED MATERIALS AT THE TIME THE MISTAKE IS DISCOVERED.
6. ALL PLANT STOCK SHALL BE WATERED BY THE CONTRACTOR TO ENSURE THE HEALTH AND VIGOR OF THE PLANTED MATERIALS. THE CONTRACTOR SHALL WATER AS NEEDED BASED ON NATURAL RAINFALL DURING THE WARRANTY PERIOD. WATERING SHALL CONTINUE SO SEEDLINGS DO NOT DRY OUT ONCE WATERING HAS BEGUN. THE WATERING SHALL BE DONE FROM SURFACE METHODS AT A PRESSURE NOT TO EXCEED THE INFILTRATION RATE OF THE SOIL, LIMITING RUNOFF DURING THE WATERING PERIOD. EACH AREA WILL BE WATERED WITH SUFFICIENT WATER TO COMPLETELY SATURATE THE ROOT ZONE. THE CONTRACTOR SHALL INSPECT ALL PLANTS FOR INSECT INFESTATION AND DAMAGE.
7. EROSION SHALL BE REPAIRED BY THE CONTRACTOR.
8. PROTECTION FROM TRAFFIC AND EROSION IN NEWLY SEEDED AREAS AND THE MITIGATION AREAS IS THE RESPONSIBILITY OF THE CONTRACTOR. SAFETY FENCES AND/OR OTHER BARRIER METHODS WITH APPROPRIATE SIGNAGE MAY BE USED FOR ONE YEAR FROM COMPLETION OF CONSTRUCTION ACTIVITIES. ALL COSTS ASSOCIATED WITH THIS IS INCLUSIVE OF CONTRACTOR'S PRICING.
9. NOTIFY THE OWNER PRIOR TO AND FOLLOWING ANY MAINTENANCE ACTIVITY.
10. FINAL ACCEPTANCE OF WORK WILL BE SUBJECT TO ACCEPTANCE BY PROJECT MANAGER AND OWNER AT THE END OF GUARANTEE PERIOD.

**NATIVE PLANTINGS:**

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. NATIVE PLANTINGS INCLUDE ALL TREES, SHRUBS, AND PLUGS INSTALLED AS PART PF THIS PROJECT.
2. PLANTS SHALL BE NURSERY GROWN IN ACCORDANCE WITH GOOD HORTICULTURAL PRACTICES AND MUST MEET APPLICABLE REQUIREMENTS OF ICBN AND ICNCP. 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 ROOT STOCKS 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 ENVIROMENT 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 WHERE PLUGS ARE PRESENT, 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.
10. FIELD ADJUST PLANTINGS TO DIVERSIFY SPECIES ACROSS THE PLANTING AREAS AND TO MEET FINISH GRADE OF THE STREAMBANKS WITH 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 ONE YEAR AND UNIFORM IN COLOR AND TEXTURE.

**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. SEEDBED PREPARATION: CUT ANY EXISTING VEGETATION TO 4 (FOUR) INCH HEIGHT AND APPLY HERBICIDE AS NECESSARY. PRIOR TO SOWING NATIVE SEED, LIGHTLY SCARIFY SO THAT THE BED IS SMOOTH AND FREE OF LARGE CLUMPS. SEED BED SHALL BE FIRM, BUT NOT COMPACT. SEED IMMEDIATELY AFTER SCARIFYING. DO NOT FERTILIZE.
4. ALL SEEDED AREAS SHALL BE HYDROSEEDED. A HYDROMULCH CONSISTING OF CELLULOSE OR SIMILAR MULCH WITH TACKIFIER SUITABLE FOR HYDROSEEDING SHALL BE USED AS A SEEDING METHOD. NO STRAW MULCH SHALL BE USED.
5. ALL WATER USED IN HYDROMULCH SHALL BE FREE OF SUBSTANCES DETRIMENTAL TO PLANT GROWTH AND SHALL BE SUITABLE FOR DISCHARGE INTO SURFACE WATERS BASED ON LOCAL, STATE, AND FEDERAL REGULATORY REQUIREMENTS. SEEDING METHOD SHALL ENSURE COMPLETE COVERAGE OF DESIGNATED AREA. RE-SEED AREAS WITH GAPS IN SEEDING AT NO ADDITIONAL COST TO OWNER.
6. DO NOT SOW SEED WHERE STANDING WATER IS PRESENT.
7. SOW NATIVE SEED AT A SPECIES RATE OF POUNDS PER ACRE INDICATED ON THE DRAWING. LIGHTLY RAKE TO INCORPORATE SEED INTO SOIL. DO NOT COVER SEED MORE THAN 1/4 INCH WITH SOIL. SEED DRILLING IS ALSO ACCEPTABLE.
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.

**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 ROUGE 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. ROUGE RIVER HAS A VERY SHORT RESPONSE TIME TO STORM RUNOFF.
5. 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 THE ROUGE RIVER 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.

**SITE RESTORATION AND CLEAN-UP:**

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.



## ROUGE RIVER AOC - HENRY FORD ESTATE DAM FISHWAY HABITAT RESTORATION PROJECT

### ALLIANCE OF ROUGE COMMUNITIES

DEARBORN,  
WAYNE COUNTY,  
MICHIGAN


FOR BIDDING	10-2017
FINAL DESIGN	01-20-17
95% DRAWINGS	10-12-16
50% DRAWINGS	6-30-16

150646-0300	
ECT PROJECT NUMBER	
AB/MB DESIGNED BY	MB CHECKED BY
AB/SR DRAWN BY	JO APPROVED BY

## NOTES

SCALE: AS SHOWN

NORTH



SHEET NUMBER

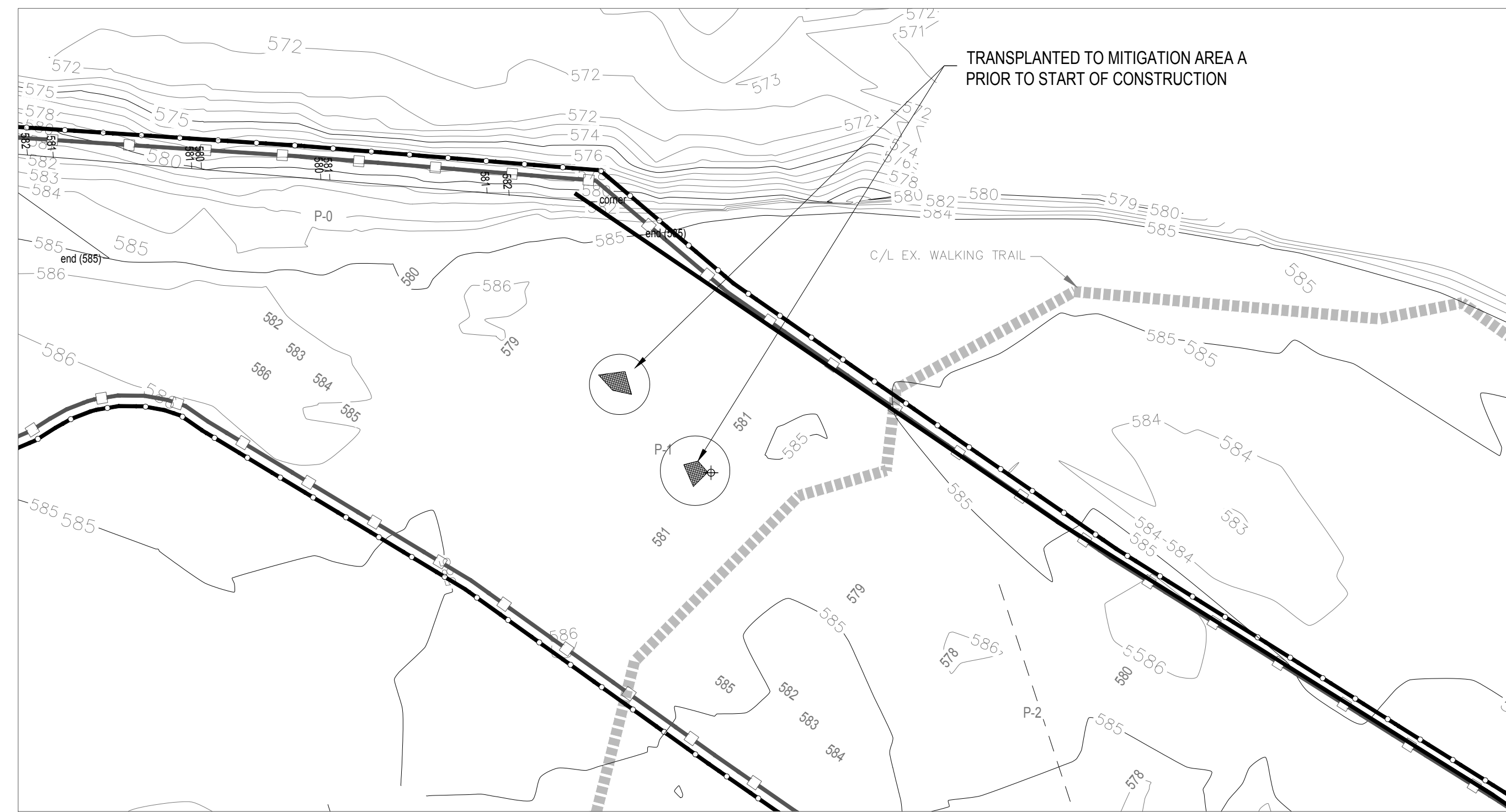
19

THREATENED PLANT MITIGATION NOTES

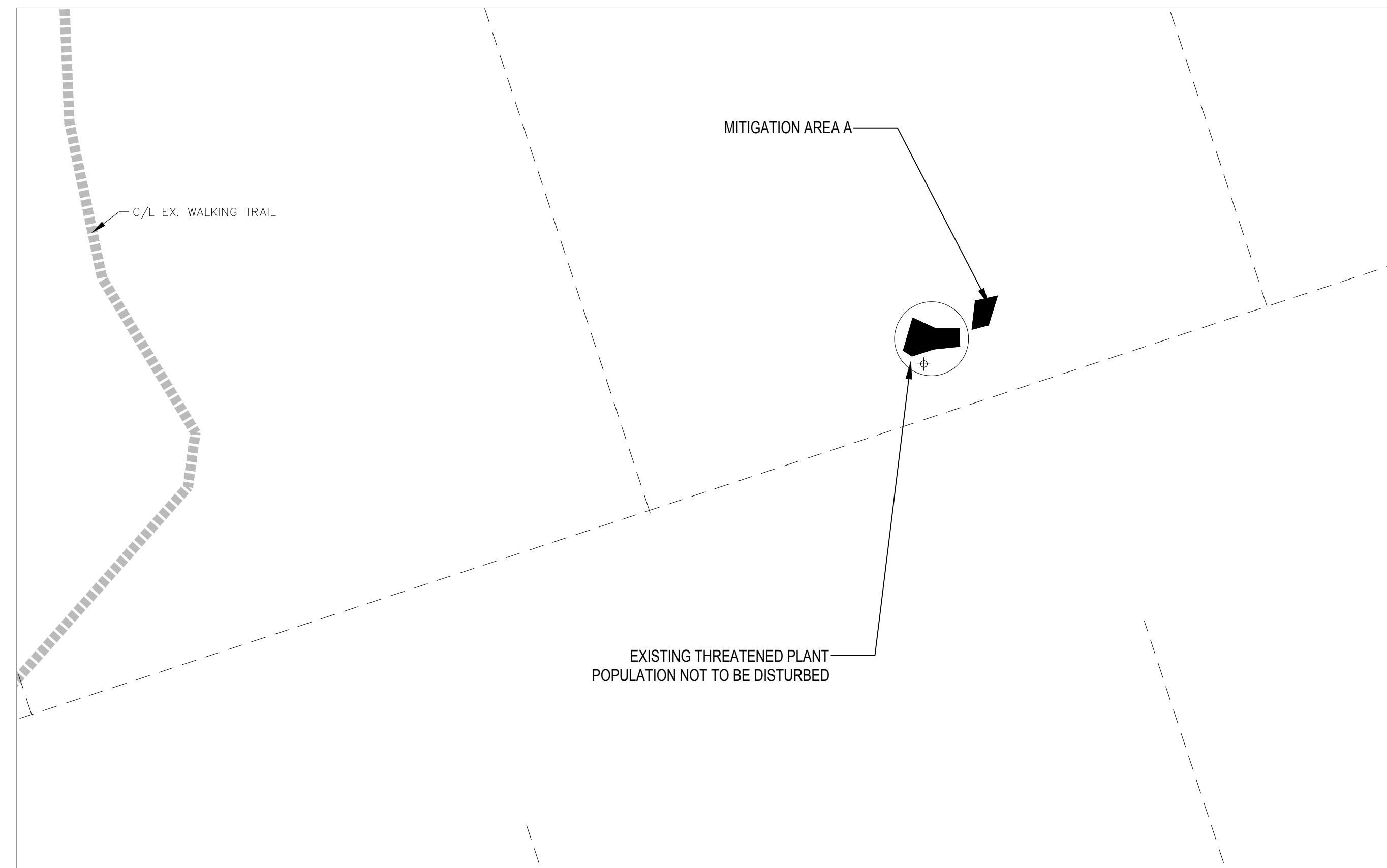
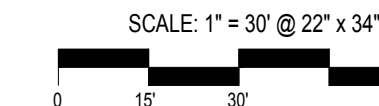
1. ALL THREATENED PLANT MITIGATION ACTIVITIES SHALL BE CONDUCTED BY AN APPROVED THREATENED PLANT SPECIALIST WITH A CURRENT STATE OF MICHIGAN NURSERY LICENSE AND A MINIMUM OF 10 YEARS OF EXPERIENCE COLLECTING SEED FROM AND TRANSPLANTING WILD THREATENED OR ENDANGERED PLANT POPULATIONS.
2. ACCEPTABLE THREATENED PLANT SPECIALIST NURSERIES INCLUDE, BUT ARE NOT LIMITED TO:  
WILDTYPE NATIVE PLANT NURSERY, LTD. - MASON, MICHIGAN 517-244-1140
3. IN ACCORDANCE WITH PART 365, ENDANGERED SPECIES PROTECTION, OF THE NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION ACT (ACT 451 OF THE MICHIGAN PUBLIC ACTS OF 1994), THREATENED PLANT SPECIALIST IS RESPONSIBLE FOR SECURING A STATE OF MICHIGAN THREATENED/ENDANGERED SPECIES PERMIT ISSUED BY THE DEPARTMENT OF NATURAL RESOURCES WILDLIFE DIVISION PRIOR TO INITIATION OF ALL WORK INVOLVING THREATENED PLANT MATERIAL.
4. IN ORDER TO PREVENT THE INTRODUCTION AND SPREAD OF INVASIVE SPECIES, ALL THREATENED PLANT SITE PREPARATION, SEED COLLECTION, TRANSPLANTING, AND INSTALLATION EQUIPMENT AND TRANSPORT VEHICLES MUST BE THOROUGHLY CLEANED AND INSPECTED PRIOR TO SITE ACCESS.
5. IN AUGUST, THREATENED PLANT SPECIALIST SHALL INSPECT THREATENED PLANT POPULATIONS 1, 2, AND 3 FOR SIGNS OF SEED MATURATION, COVER FLOWER HEADS TO PROTECT AGAINST SEED PREDATION, AND PREPARE MITIGATION AREA A TO RECEIVE TRANSPLANTS SUCH THAT INVASIVE PLANT SPECIES COVERAGE IS LESS THAN 5%.
6. IN SEPTEMBER, THREATENED PLANT SPECIALIST SHALL COLLECT MATURE SEED FROM THREATENED PLANT POPULATIONS 1, 2, AND 3 AND PROPAGATE THE SEED FOR INSTALLATION OF CONTAINERIZED THREATENED PLANT MATERIAL THE FOLLOWING GROWING SEASON. IMMEDIATELY FOLLOWING SEED COLLECTION, THREATENED PLANT SPECIALIST SHALL TRANSPLANT ALL INDIVIDUALS OF THE THREATENED PLANT SPECIES FROM POPULATIONS 1 AND 2 TO THE RECIPIENT MITIGATION AREA A.
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10. THREATENED PLANT SPECIALIST SHALL PROTECT ALL THREATENED PLANT MITIGATION AREAS, INCLUDING TRANSPLANTING AND PROPAGATED MATERIAL INSTALLATION SITES, FROM DAMAGE BY VEHICULAR OR PEDESTRIAN TRAFFIC BY STAKING OFF THE OUTERMOST BOUNDARY AT 5-FOOT INTERVALS WITH SURVEY LATH OR AN EQUIVALENT MATERIAL. STAKING SHALL BE REMOVED BY THE THREATENED SPECIES SPECIALIST UPON COMPLETION OF FINAL MONITORING.
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12. THE THREATENED PLANT MONITORING/MAINTENANCE PERIOD SHALL COINCIDE WITH THE MULTI-YEAR MONITORING PERIOD REQUIRED BY THE STATE OF MICHIGAN THREATENED/ENDANGERED SPECIES PERMIT, TYPICALLY FOR THREE YEARS POST-TRANSPLANTING. DURING THIS PERIOD, THREATENED PLANT SPECIALIST IS RESPONSIBLE FOR WATERING THREATENED PLANT MATERIALS, CONTROL OF INVASIVE PLANTS SUCH THAT INVASIVE SPECIES VEGETATIVE COVER REMAINS BELOW 5% WITHIN MITIGATION AREAS, AND ANY CORRECTIVE ACTIONS REQUIRED BY THE MICHIGAN DEPARTMENT OF NATURAL RESOURCES WILDLIFE DIVISION.17

THREATENED PLANT MITIGATION NOTES

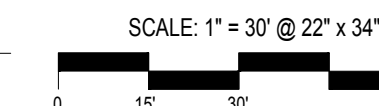
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1 M-1 THREATENED PLANT MITIGATION PLAN - NORTH



2 M-1 THREATENED PLANT MITIGATION PLAN - SOUTH



Area ID	Area (ft <sup>2</sup> )	Existing Number of Plants	Action to be Taken
Population 1	26	10	Will be impacted; Transplant to Mitigation Area A
Population 2	35	10	Will be impacted; Transplant to Mitigation Area A
Population 3	125	~90	To remain undisturbed
Mitigation Area A	101	N/A	Receive Population 1 & 2 transplants & ~40 propagated plugs



**ROUGE RIVER  
AOC - HENRY  
FORD ESTATE  
DAM FISHWAY  
HABITAT  
RESTORATION  
PROJECT**

**ALLIANCE OF ROUGE  
COMMUNITIES**

**DEARBORN,  
WAYNE COUNTY,  
MICHIGAN**

FOR BIDDING	10-2017
150646-0300 ECT PROJECT NUMBER	
AB/MB DESIGNED BY	MB CHECKED BY
AB/SR DRAWN BY	JO APPROVED BY

**THREATENED PLANT  
MITIGATION PLAN  
AND DETAILS**

SCALE: AS SHOWN

P:\Alliance of Rouge Communities\Grant Projects\2017 NOAA - HFE Fish Passage\CA\PROJECT\_HFE\_DamBypass\_6.30.16.dwg (Plot Style: HFE.Ext.ctb)

**ROUGE RIVER AOC - HENRY FORD ESTATE DAM FISHWAY HABITAT RESTORATION PROJECT**

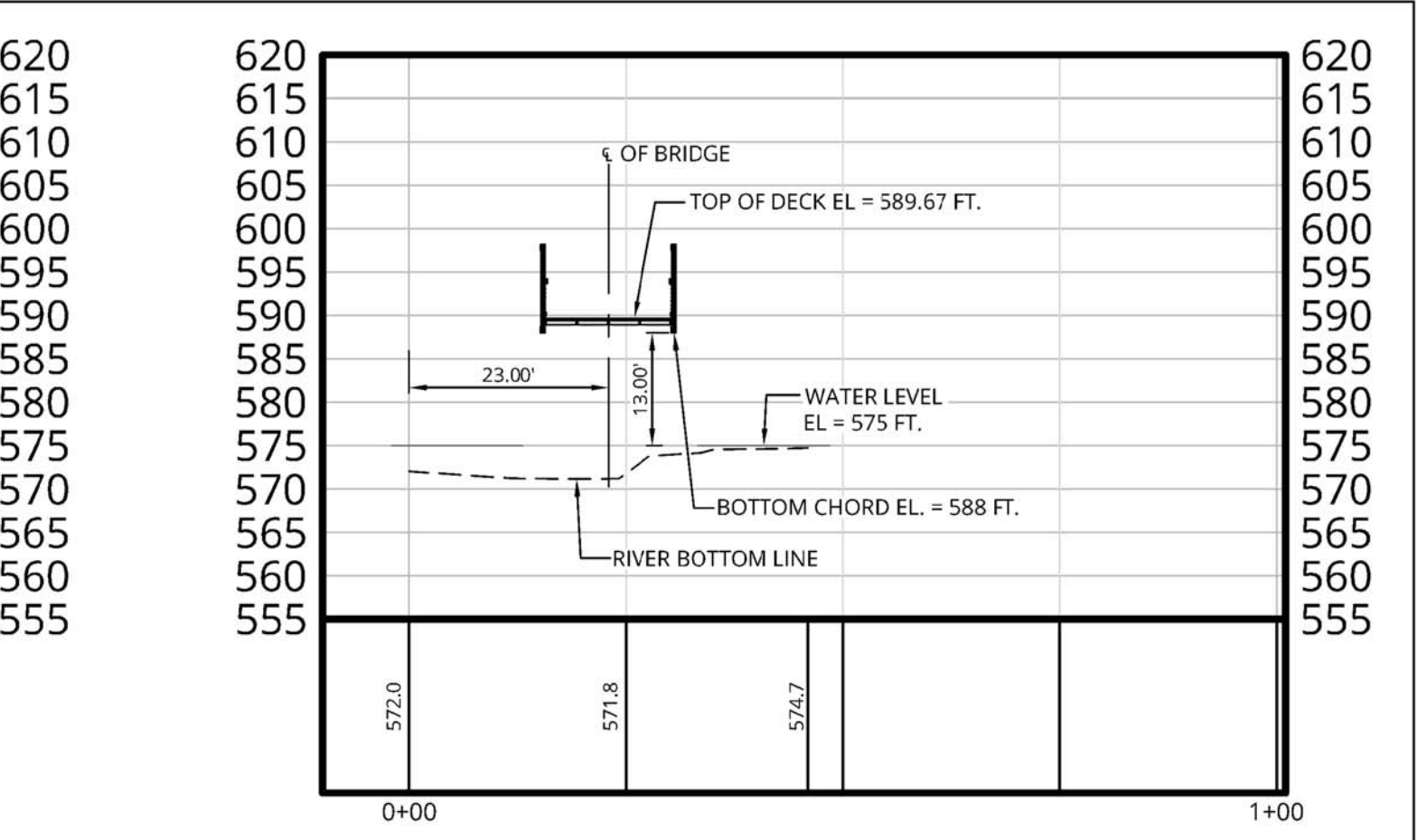
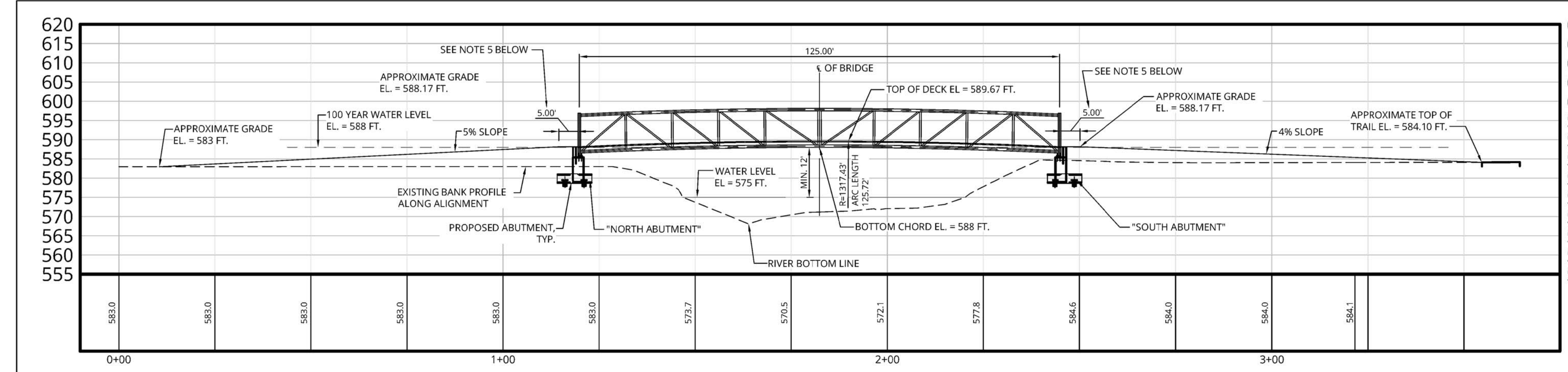
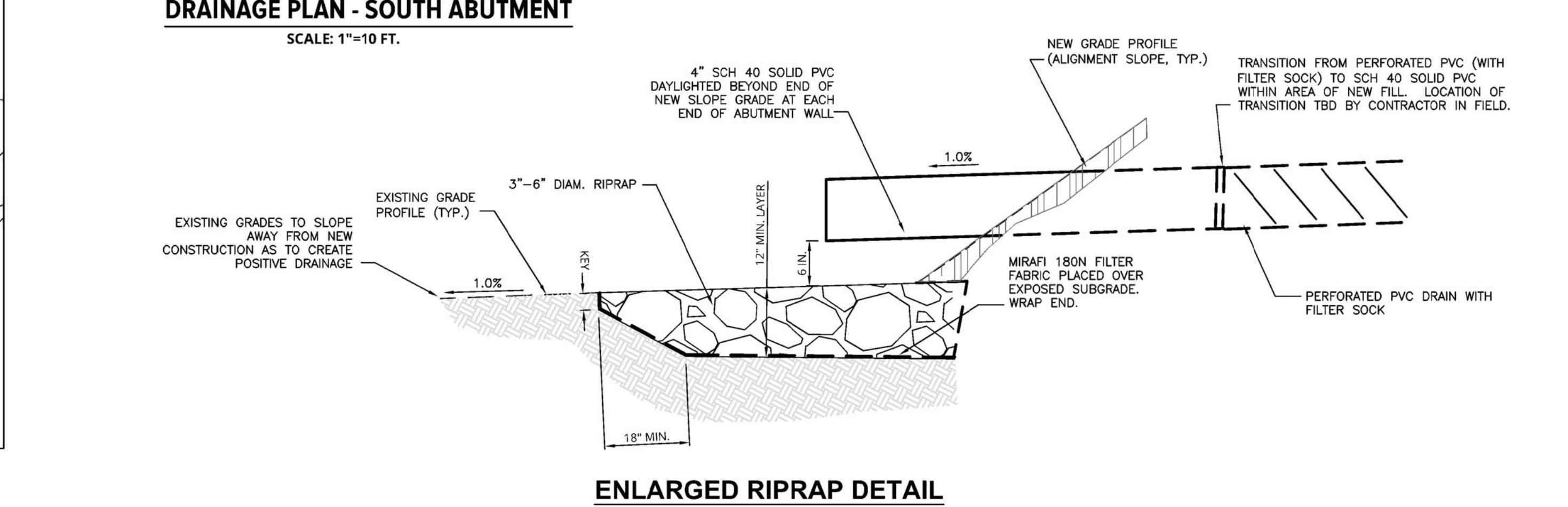
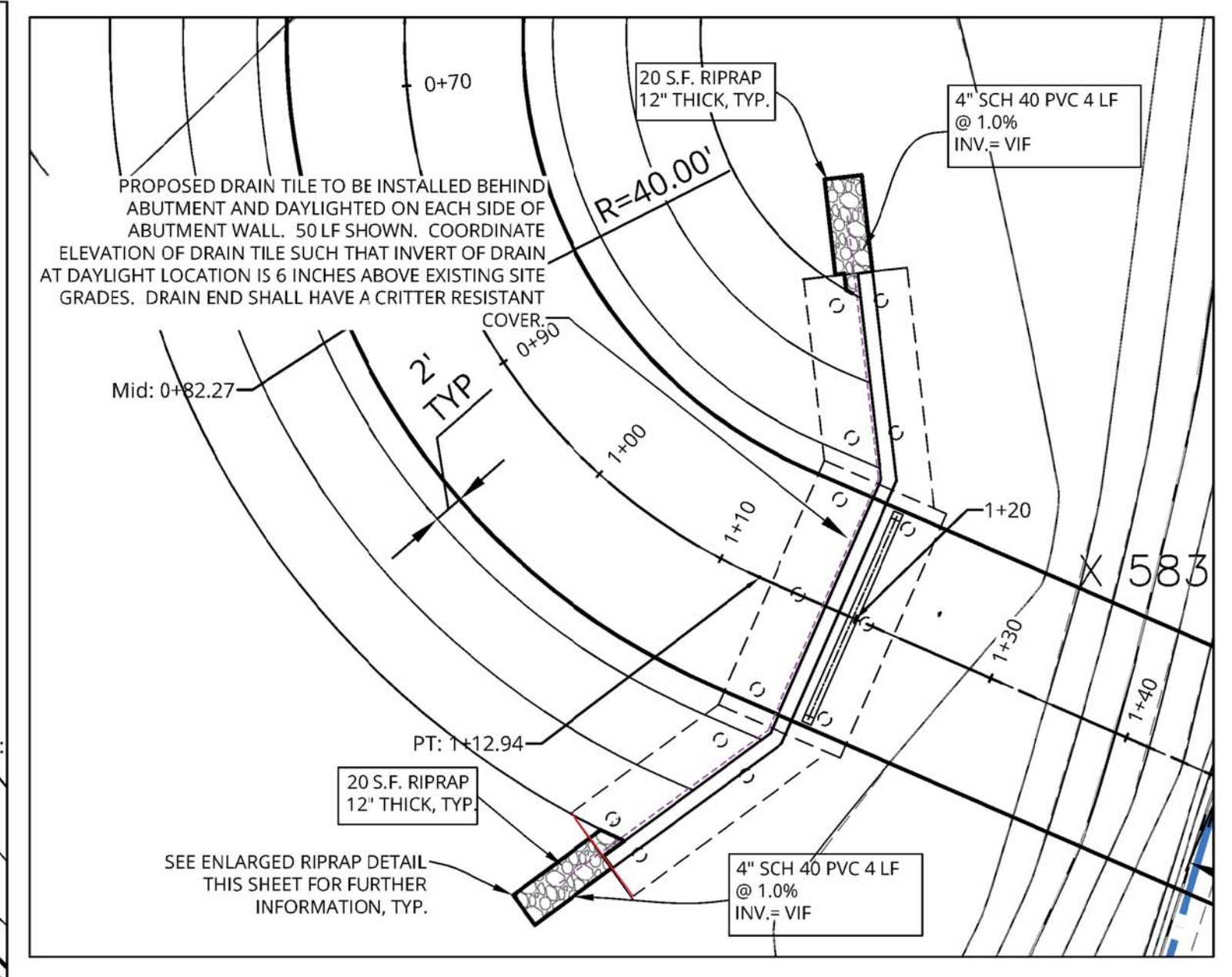
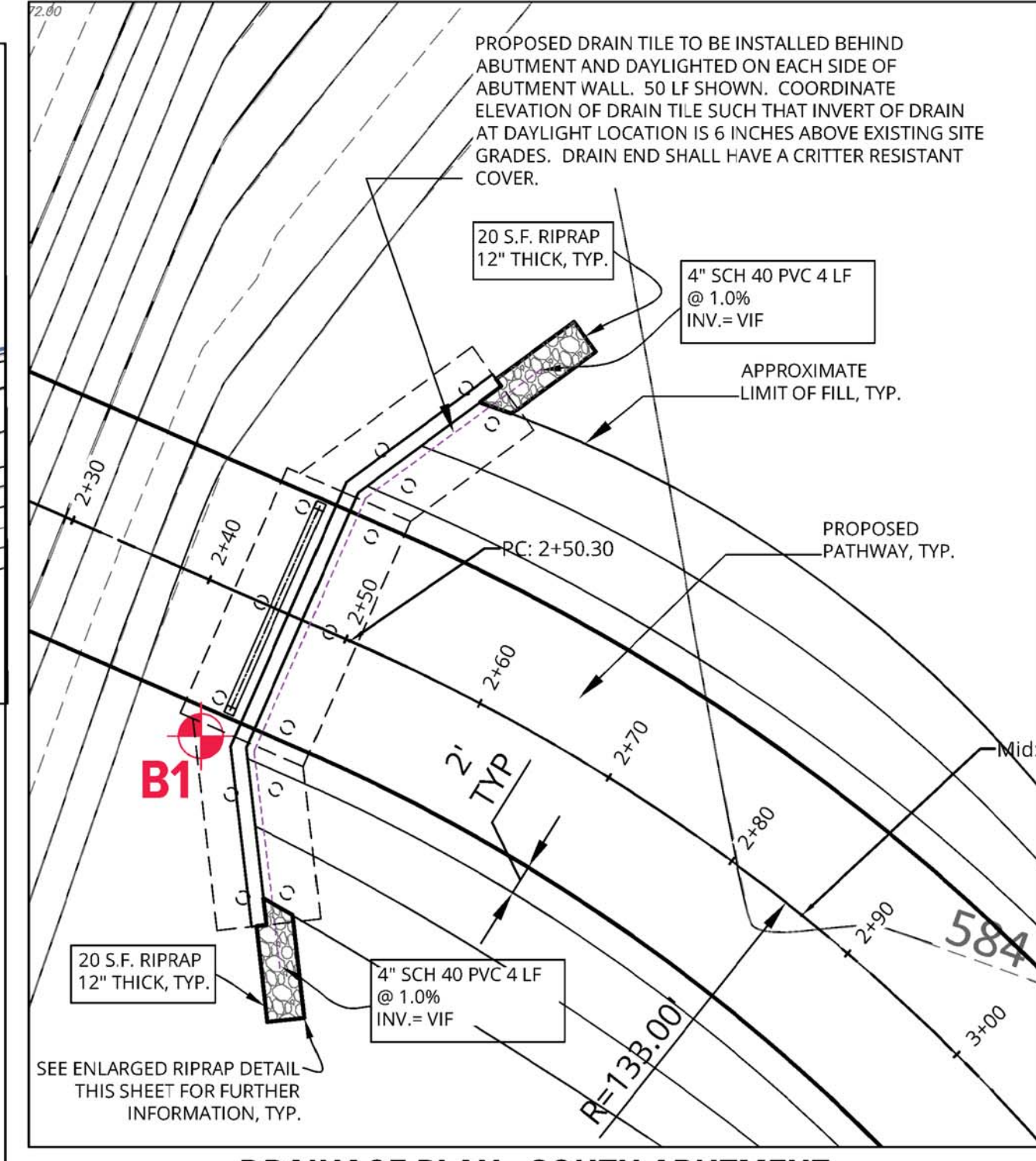
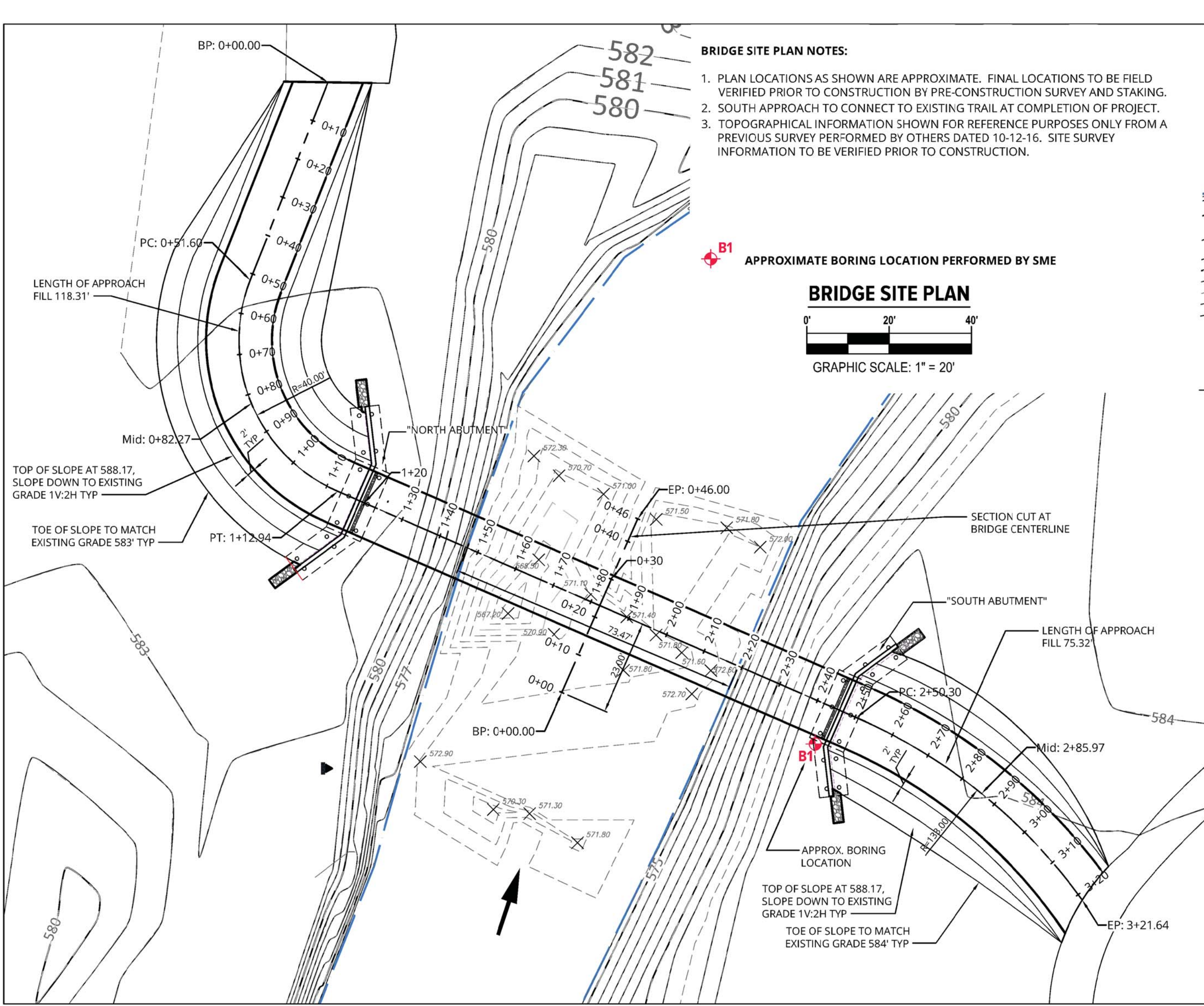
ALLIANCE OF ROUGE COMMUNITIES

DEARBORN, WAYNE COUNTY MICHIGAN

FOR BIDDING OCTOBER 2017  
 PRELIMINARY BID SET FEB. 2017  
 ECT PROJECT NUMBER  
 MCD/JF DESIGNED BY MCD/JF CHECKED BY  
 GBK DRAWN BY MCD/JF APPROVED BY

**BRIDGE SITE PLAN AND BRIDGE PROFILE VIEWS**

SCALE: AS NOTED



**BRIDGE SITE PROFILE NOTES:**

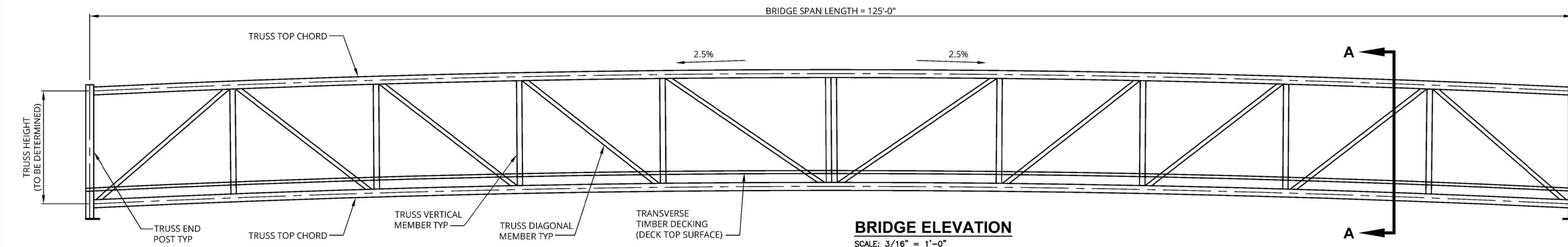
1. SITE PROFILE AS SHOWN TO PROVIDE STRUCTURE CLEARANCE OVER WATERWAY AND PATHWAY CLEARANCE TO 100-YEAR FLOOD ELEVATION. ELEVATIONS SHOWN ARE APPROXIMATE AND EXISTING ELEVATION INFORMATION FROM PREVIOUS SURVEY BY OTHERS.
2. GRADES SHOWN ARE APPROXIMATE TO MAINTAIN APPROACHES AT 5% GRADE OR LESS BETWEEN STRUCTURE AND EXISTING TRAIL ON SOUTH SIDE, AND BETWEEN STRUCTURE AND PROPOSED TRAIL ON NORTH SIDE.
3. ABUTMENT DETAILS AND SEAT ELEVATIONS NOT SHOWN FOR CLARITY. SEE APPROPRIATE PLAN SHEETS FOR ABUTMENT PLAN, ELEVATIONS AND DETAILS.
4. WATER ELEVATION ASSUMED AT 575 FEET, BASED ON PREVIOUS SURVEY INFORMATION, DATED 10/12/2016.
5. KEEP FINAL GRADE OF APPROACHES ON EACH SIDE OF NEW STRUCTURE LEVEL FOR 5 FEET PRIOR TO BEGINNING SLOPE OF ALIGNMENT DOWN TO EXISTING GRADES.

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

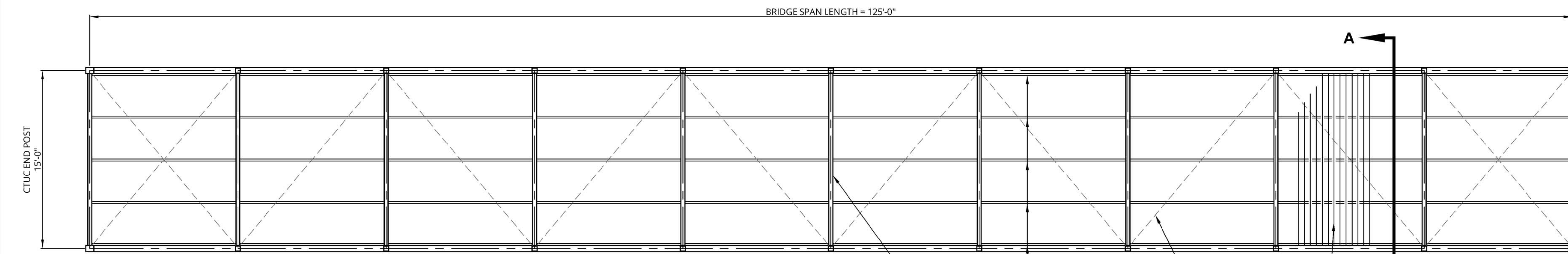
**ROUGE RIVER  
 AOC - HENRY  
 FORD ESTATE  
 DAM FISHWAY  
 HABITAT  
 RESTORATION  
 PROJECT**

**ALLIANCE OF ROUGE  
 COMMUNITIES**

**DEARBORN, WAYNE COUNTY  
 MICHIGAN**



**BRIDGE ELEVATION**  
 SCALE: 3/16" = 1'-0"



**BRIDGE PLAN**  
 SCALE: 3/16" = 1'-0"

TRANSVERSE TIMBER DECKING (DECK TOP SURFACE). GAP AS REQUIRED TO ACCOUNT FOR SWELL. REFER TO DESIGN REQUIREMENTS AND SPECIFICATIONS FOR DECKING TYPE.



**BRIDGE DESIGN REQUIREMENTS: PRE-FABRICATED STEEL PRATT TRUSS**

SEE PROJECT SPECIFICATIONS FOR FULL DESIGN CRITERIA. BRIDGE DETAILS SHOWN THIS SHEET ARE NOT FOR CONSTRUCTION, BUT ARE SHOWN TO PROVIDE OVERALL REQUIREMENTS FOR THE STRUCTURE. BRIDGE MANUFACTURER TO PROVIDE SHOP DRAWINGS FOR STRUCTURE MEETING THE DESIGN REQUIREMENTS AS SHOWN THIS SHEET AND IN PROJECT SPECIFICATIONS.

**GEOMETRY:** AS SHOWN ON THIS SHEET:

1. SINGLE 125-FOOT CLEAR SPAN LENGTH CENTER TO CENTER BEARINGS / END POSTS
2. 15-FOOT, 0-INCHES WIDTH CENTER TO CENTER BEARINGS / END POSTS
3. 14-FOOT, 0-INCHES CLEAR DISTANCE BETWEEN TOP RAILINGS
4. TRUSS HEIGHT TO BE PROVIDED BY MANUFACTURER
5. TRUSS AND DECK CAMBER TO MINIMUM 2.5% SLOPE FROM MID-SPAN TO ABUTMENTS, OR AS SPECIFIED BY MANUFACTURER
6. NO SKEW; STRUCTURE PERPENDICULAR TO ABUTMENT SEAT / STEM, BACKWALL AND BEARINGS
7. LOCATED ON SITE AS SHOWN ON SHEET GC1.1 REGARDING PLAN AND ELEVATION RELATIVE TO RIVER AND APPROACHES
8. MAINTAIN MINIMUM 12-FOOT CLEARANCE OVER WATER AT MIDSPAN AND TOP OF DECK ELEVATION AT 588.0-FOET THROUGHOUT CROSSING
9. PLAN AND ELEVATION LAYOUTS AS SHOWN ON SHEET GC1.1 ARE TO MEET WATER CLEARANCE AND FLOOD LEVEL ELEVATIONS, INCLUDING NECESSARY APPROACH SLOPING TO MEET EXISTING TRAIL SOUTH OF THE STRUCTURE AND PROPOSED TRAIL NORTH OF THE STRUCTURE.

**LOADING:** SEE PROJECT SPECIFICATIONS FOR FULL DESIGN CRITERIA

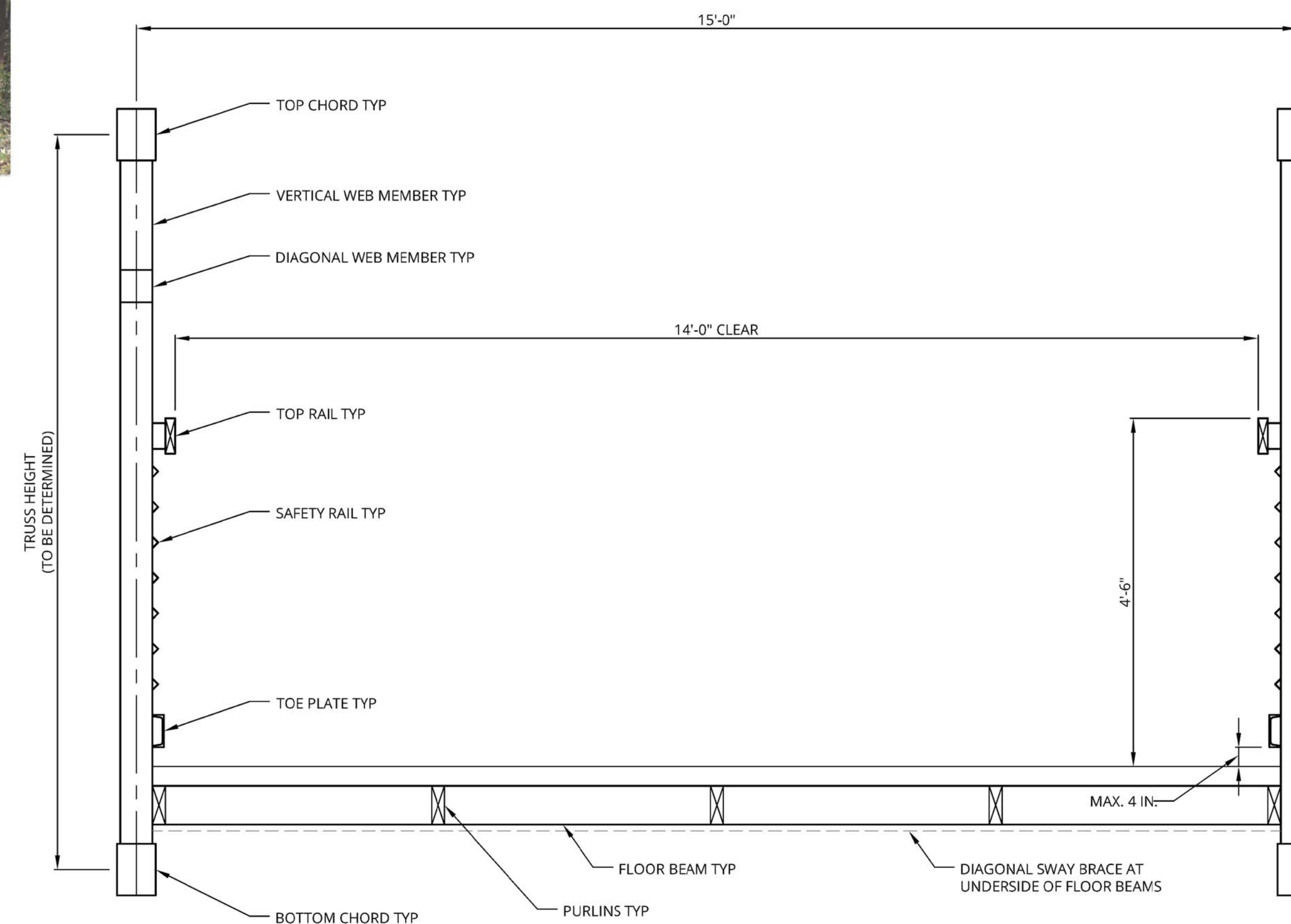
1. STRUCTURE DEAD LOADING: TOTAL STRUCTURE WEIGHT
2. VEHICULAR LIVE LOADING: H-10 SINGLE 2-AXLE VEHICLE (10 TONS, OR 20,000 LBS), WITH ALLOWANCE FOR LIGHTER SINGLE VEHICLE PLUS TRAILER, TOTALING 20,000 LBS OVER 4 AXLES; PLUS IMPACT LOADING ALLOWANCE (30%)
3. PEDESTRIAN LIVE LOADING: 85 PSF (APPLIED TO DECKING)
4. HORIZONTAL WIND LOADING: 25 PSF (APPLIED TO NET VERTICAL SURFACE)
5. UPLIFT WIND LOADING (OVERTURNING FORCES): 20 PSF (APPLIED TO DECKING)
6. SNOW / ICE LOADING: 20 PSF (APPLIED TO DECKING AND TRUSSES)
7. SEISMIC LOADING: NOT REQUIRED

**MATERIALS:**

1. TRUSS AND RELATED STRUCTURAL COMPONENTS, INCLUDING BEARINGS (U.N.O.), TO BE BUILT FROM ASTM A588 "WEATHERING STEEL". MEMBER SIZE, THICKNESS AND GEOMETRY AS SPECIFIED BY MANUFACTURER.
2. SINGLE LAYER TRANSVERSE (PERPENDICULAR TO TRUSS ORIENTATION) TIMBER DECKING DESIGNED FOR APPLICABLE LOADING NOTED ABOVE TO BE TREATED DENSE SOUTHERN YELLOW PINE, ATTACHED TO STRUCTURE PURLINS. TIMBER DECKING SHALL BE GAPPED ACCORDINGLY TO ACCOUNT FOR SWELL.
3. RAILING COMPONENTS AS SPECIFIED BY MANUFACTURER, COMPATIBLE WITH MAIN STRUCTURE

**RAILINGS:**

1. TOP RAIL HEIGHT OF 4'-6" FROM TOP OF DECK SURFACE
2. TOE RAIL WITH MAXIMUM 4-INCHES CLEAR FROM TOP OF DECK SURFACE
3. MID-RAILS OR PICKETS (TBD) SPACED SUCH THAT 4-INCH DIAMETER SPHERE CANNOT PASS
4. ALL RAILING ELEMENTS TO WITHSTAND 200-LB FORCE IN ANY DIRECTION
5. APPROACH GUIDE RAILINGS AT FOUR CORNERS OF STRUCTURE TO BE SIMILAR IN APPEARANCE TO BRIDGE RAILING, INSTALLED AS SHOWN ON PLAN VIEW, SHEET GC1.1. APPROACH RAILING SEGMENTS TO BE CONNECTED TO MAIN TRUSSES WITH TRANSITION RAILINGS.
6. EACH ABUTMENT WILL REQUIRE AN APPROACH RAILING ON EACH SIDE AND ALL RAILINGS SHALL BE INSTALLED ON THE TOP OF THE ABUTMENT WINGWALLS AT THE SIDES OF THE TRAIL. RAILINGS TO MATCH SLOPE OF WINGWALLS. APPROACH RAILINGS SHALL MATCH STYLE OF RAILING USED ON MAIN BRIDGE. CONTRACTOR TO SUBMIT RAILING PLAN AND LAYOUT DRAWINGS INCLUDING FASTENING DETAILS FOR REVIEW AND COMMENT PRIOR TO CONSTRUCTION.



**BRIDGE SECTION A-A**  
 SCALE: 3/4" = 1'-0"

- ELEVATION NOTES:**
1. ELEVATION SHOWN FOR REFERENCE PURPOSES ONLY, NOT FOR CONSTRUCTION. MANUFACTURER TO DESIGN TRUSS MEMBERS, LAYOUT OF TRUSS MEMBERS, AND TRUSS HEIGHT.
  2. BOTH TRUSSES AND DECK TO BE CAMBERED TO PROVIDE 2.5% SLOPE FROM MIDSPAN TO ABUTMENTS. IN ADDITION TO NECESSARY DEAD LOAD CAMBER AND MANUFACTURER REQUIREMENTS.
  3. DECK POSITION WITHIN TRUSSES RELATIVE TO TOP AND BOTTOM CHORDS TO REMAIN CONSISTENT THROUGHOUT STRUCTURE.

- PLAN NOTES:**
1. BRIDGE FLOORBEAMS, PURLINS AND DIAGONAL BRACING SHOWN FOR REFERENCE PURPOSES ONLY, NOT FOR CONSTRUCTION. MANUFACTURER TO DESIGN DECK SUPPORTING ELEMENTS AND THEIR LAYOUT.
  2. BRIDGE DECKING SHOWN FOR REFERENCE PURPOSES ONLY, NOT FOR CONSTRUCTION. MANUFACTURER TO DESIGN DECKING. MATERIAL TYPE HAS BEEN PROVIDED ELSEWHERE.
  3. PLAN SHOWING BRIDGE SPAN AND WIDTH FOR PLACEMENT OF STRUCTURE POINT LOADS TO ABUTMENTS AT BEARINGS. TRUSS BEARINGS NOT SHOWN. MANUFACTURER TO DESIGN TRUSS BEARINGS.

**SECTION NOTES:**

1. BRIDGE ELEMENTS IN SECTION SHOWN FOR REFERENCE PURPOSES ONLY, NOT FOR CONSTRUCTION. MANUFACTURER TO DESIGN TRUSS MEMBERS, DECK SUPPORTING MEMBERS, DECKING MATERIAL, AND SAFETY RAILINGS, AND THEIR LAYOUT.
2. TOP RAIL TO BE DESIGNED AND INSTALLED FOR 4'-6" HEIGHT, AS SHOWN, WITH 14'-0" CLEARANCE BETWEEN RAILS AS SHOWN. BOTTOM RAIL TO BE DESIGNED AND INSTALLED FOR 4" MAXIMUM CLEARANCE ABOVE DECK SURFACE. INTERMEDIATE OR SAFETY RAILS TO BE DESIGNED AND INSTALLED SUCH THAT A 4" DIAMETER SPHERE CANNOT PASS BETWEEN RAILING ELEMENTS. ALL RAILINGS TO BE DESIGNED TO WITHSTAND A POINT LOAD FORCE OF 200 POUNDS IN ANY DIRECTION.
3. ADDITIONAL BRACING NOT SHOWN TO BE DESIGNED BY MANUFACTURER AS REQUIRED.
4. FRAMING AND CONNECTION DETAILS TO BE DESIGNED AND PROVIDED BY MANUFACTURER ON SHOP DRAWINGS.

FOR BIDDING: OCTOBER 2017 .MCD  
 PRELIMINARY BID SET FEB. 2017 .MCD

150646-0300  
 ECT PROJECT NUMBER  
 DESIGNED BY: MCD/JF CHECKED BY: MCD/JF  
 DRAWN BY: GBK APPROVED BY: MCD/JF

**BRIDGE  
 ELEVATION, PLAN  
 AND SECTION**

SCALE: AS NOTED

NORTH  
  
 SHEET NUMBER  
**GC1.2**

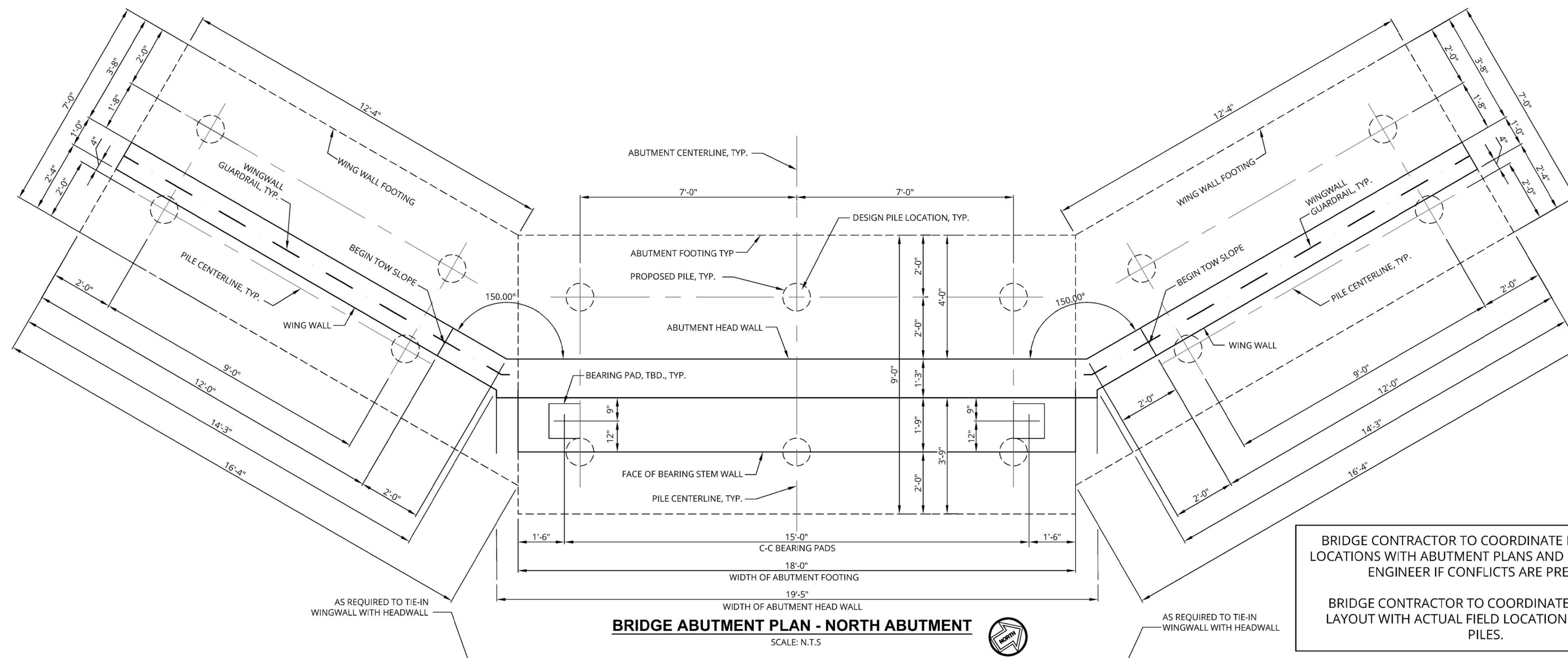


3 WORKING DAYS  
 BEFORE YOU DIG  
 CALL MISS DIG  
 1-800-482-7171

**ROUGE RIVER  
 AOC - HENRY  
 FORD ESTATE  
 DAM FISHWAY  
 HABITAT  
 RESTORATION  
 PROJECT**

**ALLIANCE OF ROUGE  
 COMMUNITIES**

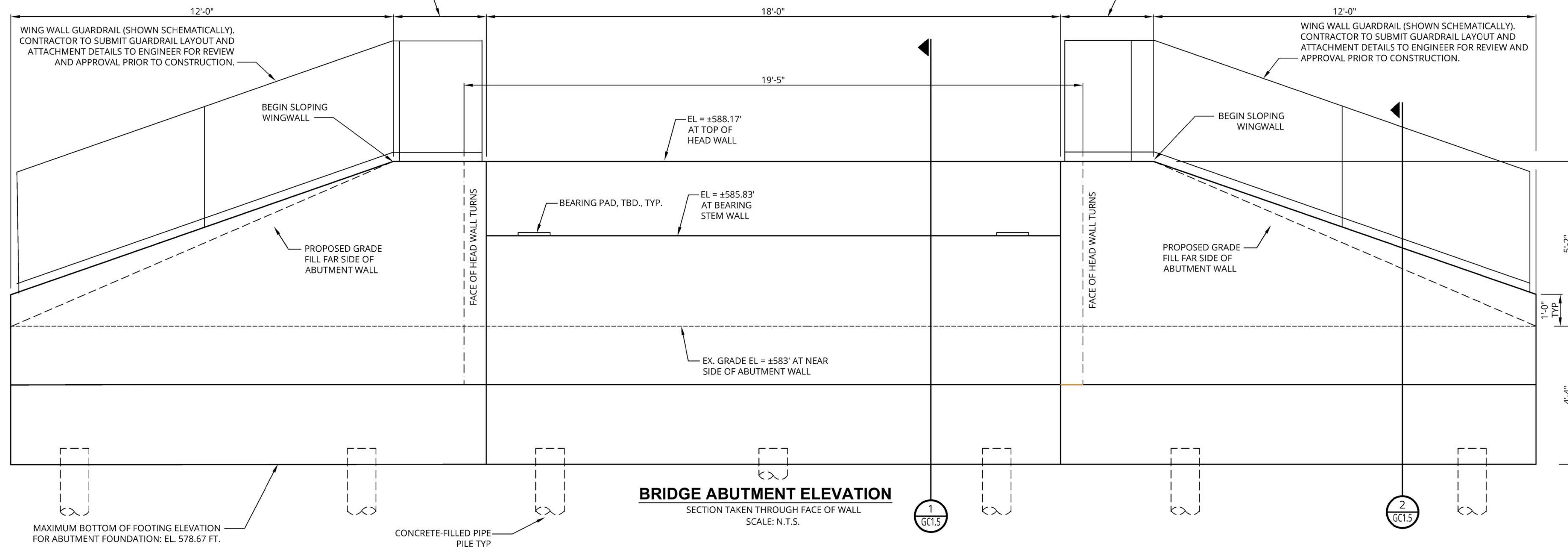
**DEARBORN, WAYNE COUNTY  
 MICHIGAN**



BRIDGE CONTRACTOR TO COORDINATE BEARING PAD LOCATIONS WITH ABUTMENT PLANS AND NOTIFY DESIGN ENGINEER IF CONFLICTS ARE PRESENT.

BRIDGE CONTRACTOR TO COORDINATE ABUTMENT LAYOUT WITH ACTUAL FIELD LOCATION OF BEARING PILES.

**BRIDGE ABUTMENT PLAN - NORTH ABUTMENT**  
 SCALE: N.T.S.



**BRIDGE ABUTMENT ELEVATION**  
 SECTION TAKEN THROUGH FACE OF WALL  
 SCALE: N.T.S.

MAXIMUM BOTTOM OF FOOTING ELEVATION FOR ABUTMENT FOUNDATION: EL. 578.67 FT.



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

FOR BIDDING OCTOBER 2017	MCD
PRELIMINARY BID SET FEB. 2017	MCD
150646-0300 ECT PROJECT NUMBER	
DESIGNED BY	MCD/JF
CHECKED BY	MCD/JF
DRAWN BY	GBK
APPROVED BY	MCD/JF

**BRIDGE NORTH  
 ABUTMENT AND WING  
 WALL DETAILS**

SCALE: AS NOTED

NORTH  
  
 SHEET NUMBER  
**GC1.3**

P:\Alliance of Rouge Communities\Grant Projects\2015 NGA-A - HFE Fish Passage\CA\DECT\_HFE\_DamBypass\_6.30.15.dwg (Plot Style: HFE.EX.ctb)

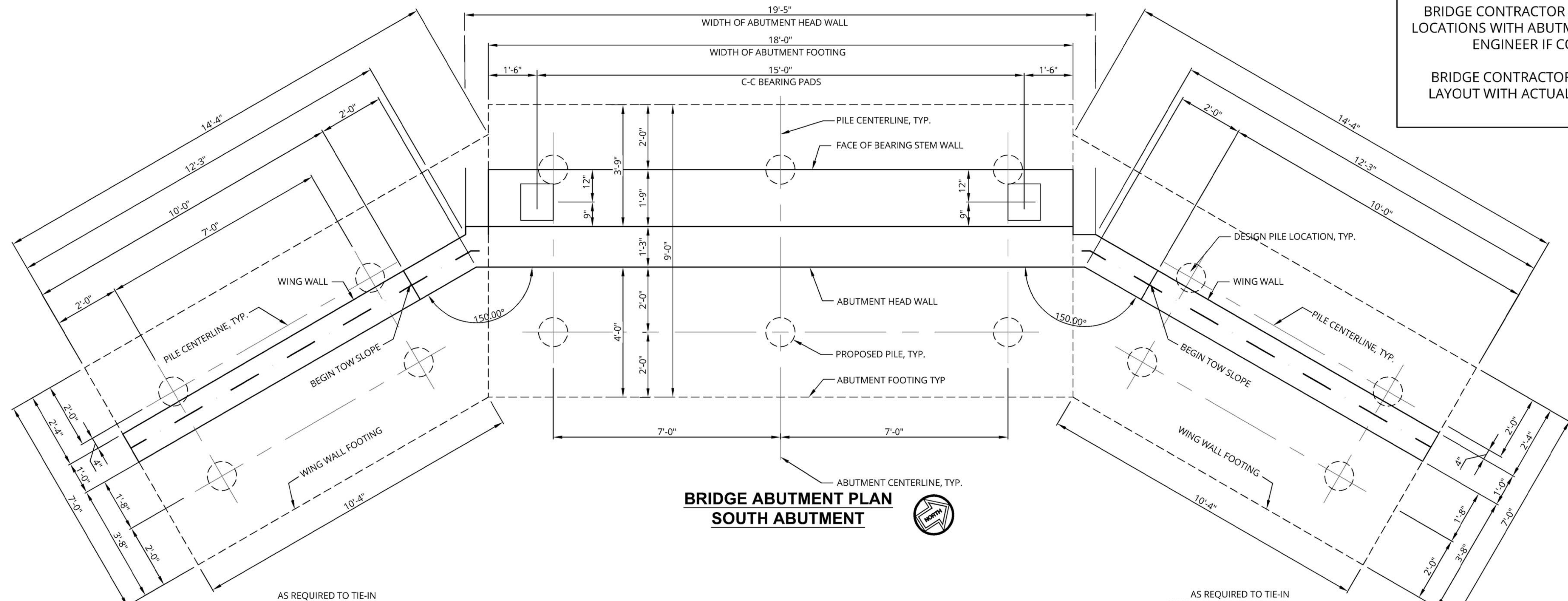
**ROUGE RIVER  
 AOC - HENRY  
 FORD ESTATE  
 DAM FISHWAY  
 HABITAT  
 RESTORATION  
 PROJECT**

**ALLIANCE OF ROUGE  
 COMMUNITIES**

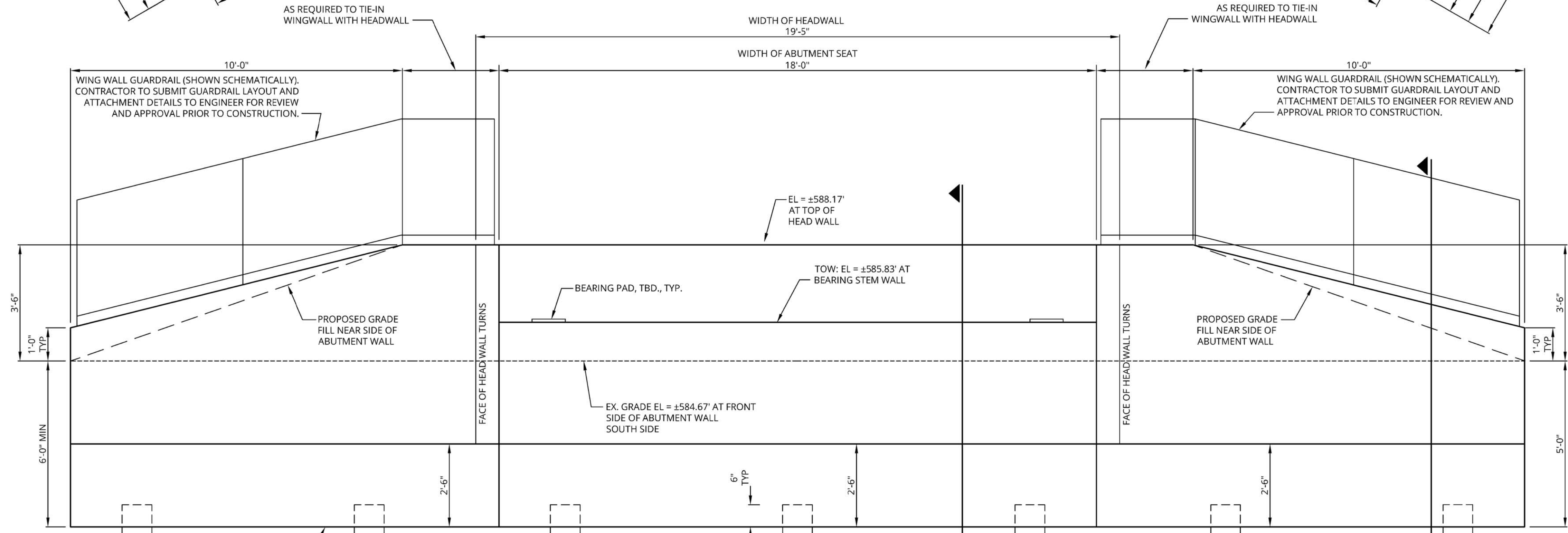
**DEARBORN, WAYNE COUNTY  
 MICHIGAN**

BRIDGE CONTRACTOR TO COORDINATE BEARING PAD LOCATIONS WITH ABUTMENT PLANS AND NOTIFY DESIGN ENGINEER IF CONFLICTS ARE PRESENT.

BRIDGE CONTRACTOR TO COORDINATE ABUTMENT LAYOUT WITH ACTUAL FIELD LOCATION OF BEARING PILES.



**BRIDGE ABUTMENT PLAN  
 SOUTH ABUTMENT**



**BRIDGE ABUTMENT ELEVATION  
 SOUTH ABUTMENT  
 LOOKING SOUTH**  
 SECTION TAKEN THROUGH FACE OF WALL  
 SCALE: N.T.S.

MAXIMUM BOTTOM OF FOOTING ELEVATION FOR ABUTMENT FOUNDATION: 578.67 FT.

CONCRETE-FILLED PIPE-PILE TYP.

FOR BIDDING OCTOBER 2017	.MCD
PRELIMINARY BID SET FEB. 2017	.MCD
150646-0300	ECT PROJECT NUMBER
MCD/JF	DESIGNED BY
MCD/JF	CHECKED BY
GBK	DRAWN BY
MCD/JF	APPROVED BY

**BRIDGE SOUTH  
 ABUTMENT AND  
 WING WALL DETAILS**

SCALE: AS NOTED



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

P:\Alliance of Rouge Communities\Grant Projects\2015 NOAA - HFE Fish Passage\CA\DECT\_HFE\_DamBypass\_6.30.15.dwg (Plot Style: HFE.EX.DWG)



**ROUGE RIVER  
 AOC - HENRY  
 FORD ESTATE  
 DAM FISHWAY  
 HABITAT  
 RESTORATION  
 PROJECT**

**ALLIANCE OF ROUGE  
 COMMUNITIES**

DEARBORN, WAYNE COUNTY  
 MICHIGAN

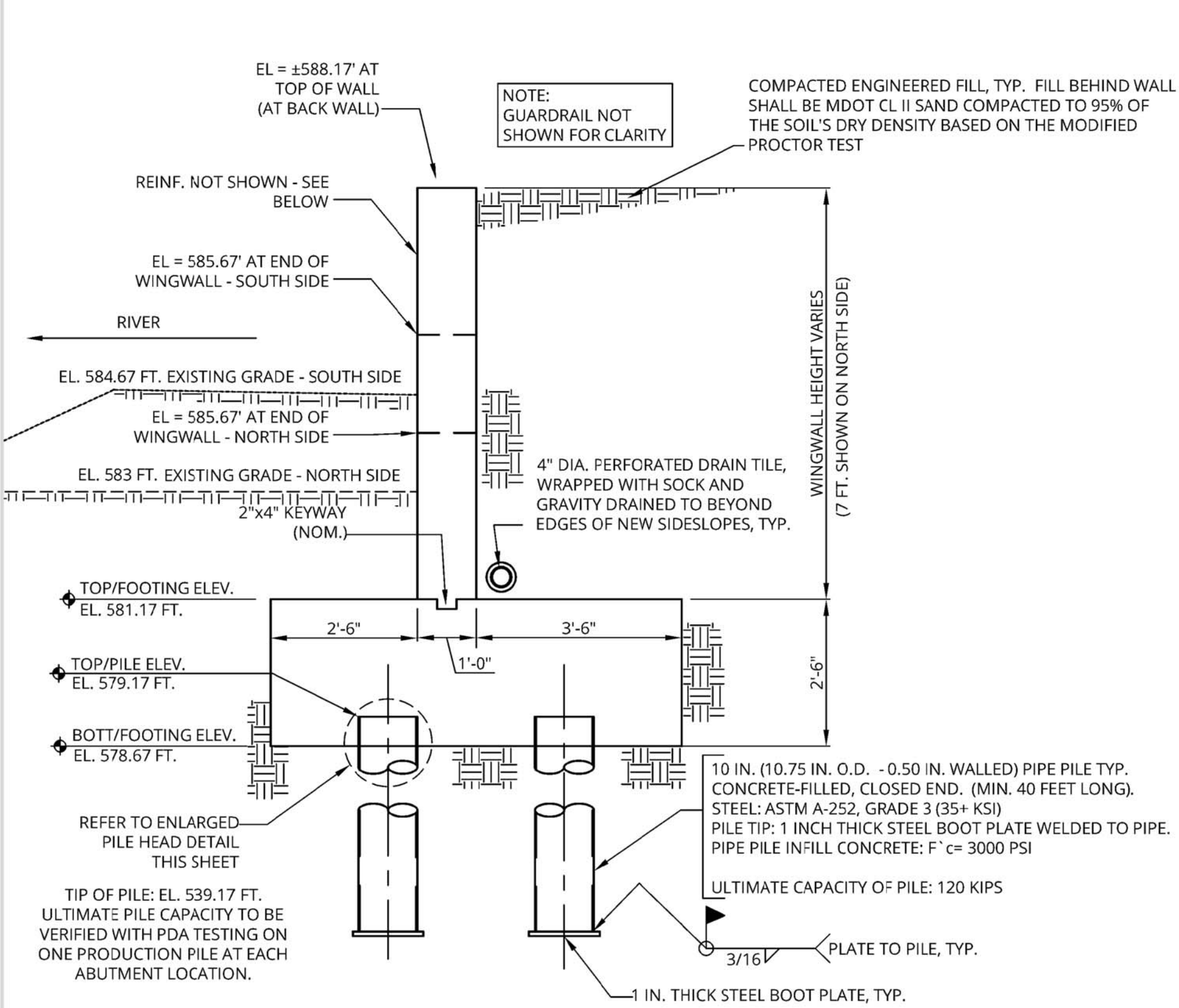
FOR BIDDING OCTOBER 2017 .MCD  
 PRELIMINARY BID SET FEB. 2017 .MCD

150646-0300  
 ECT PROJECT NUMBER  
 MCD/JF DESIGNED BY MCD/JF CHECKED BY  
 GBK DRAWN BY MCD/JF APPROVED BY

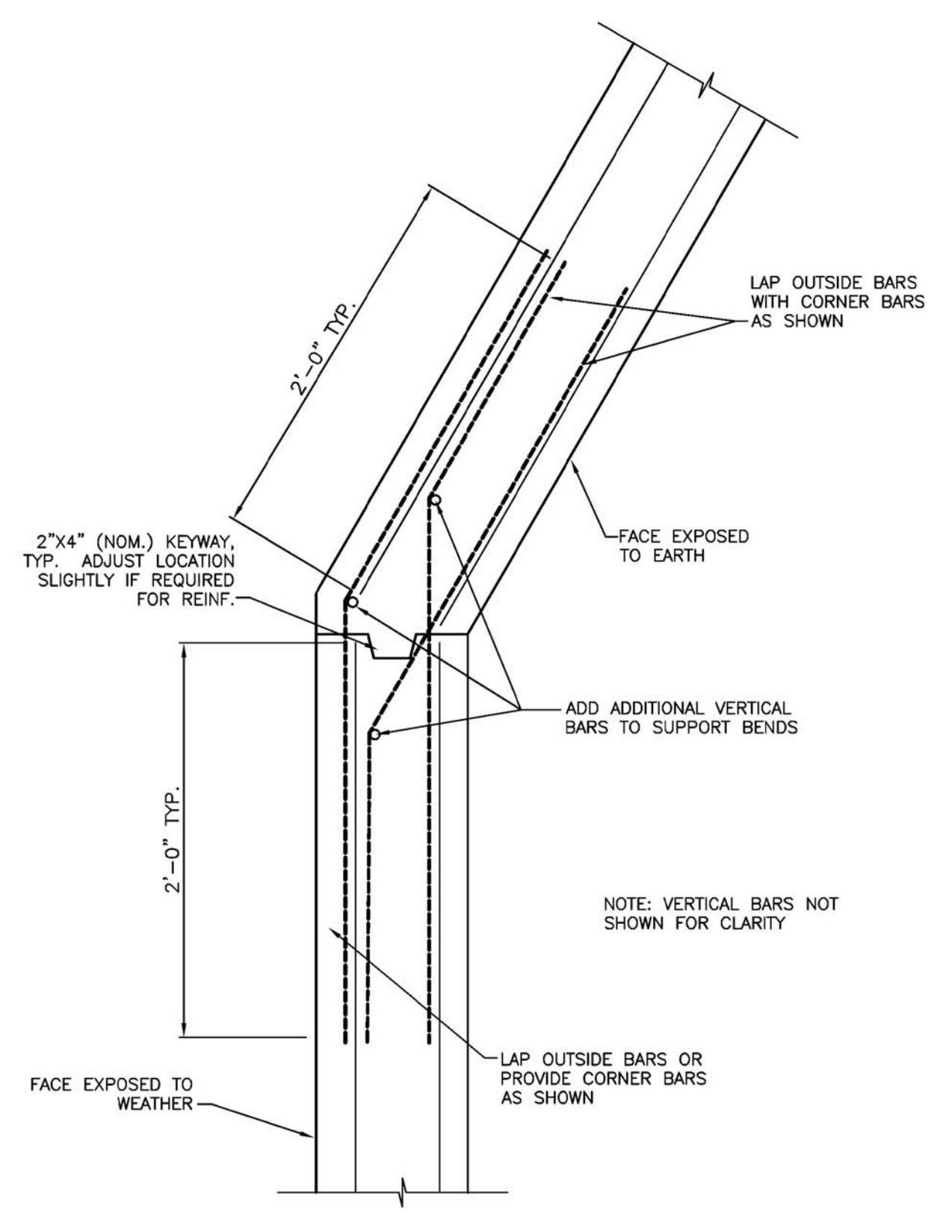
**BRIDGE ABUTMENT  
 AND WING WALL  
 DETAILS**

SCALE: AS NOTED

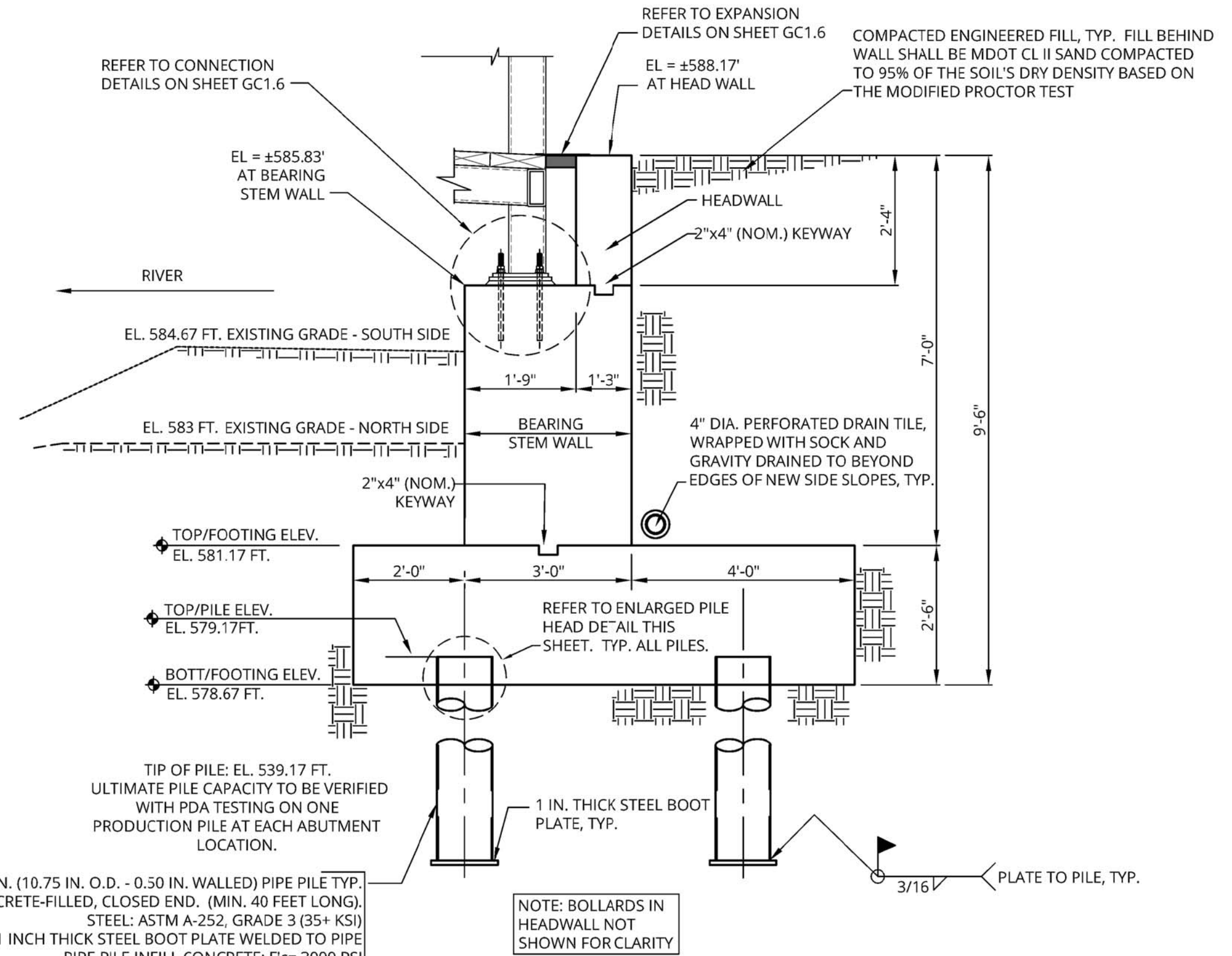
NORTH  
  
 SHEET NUMBER  
**GC1.5**



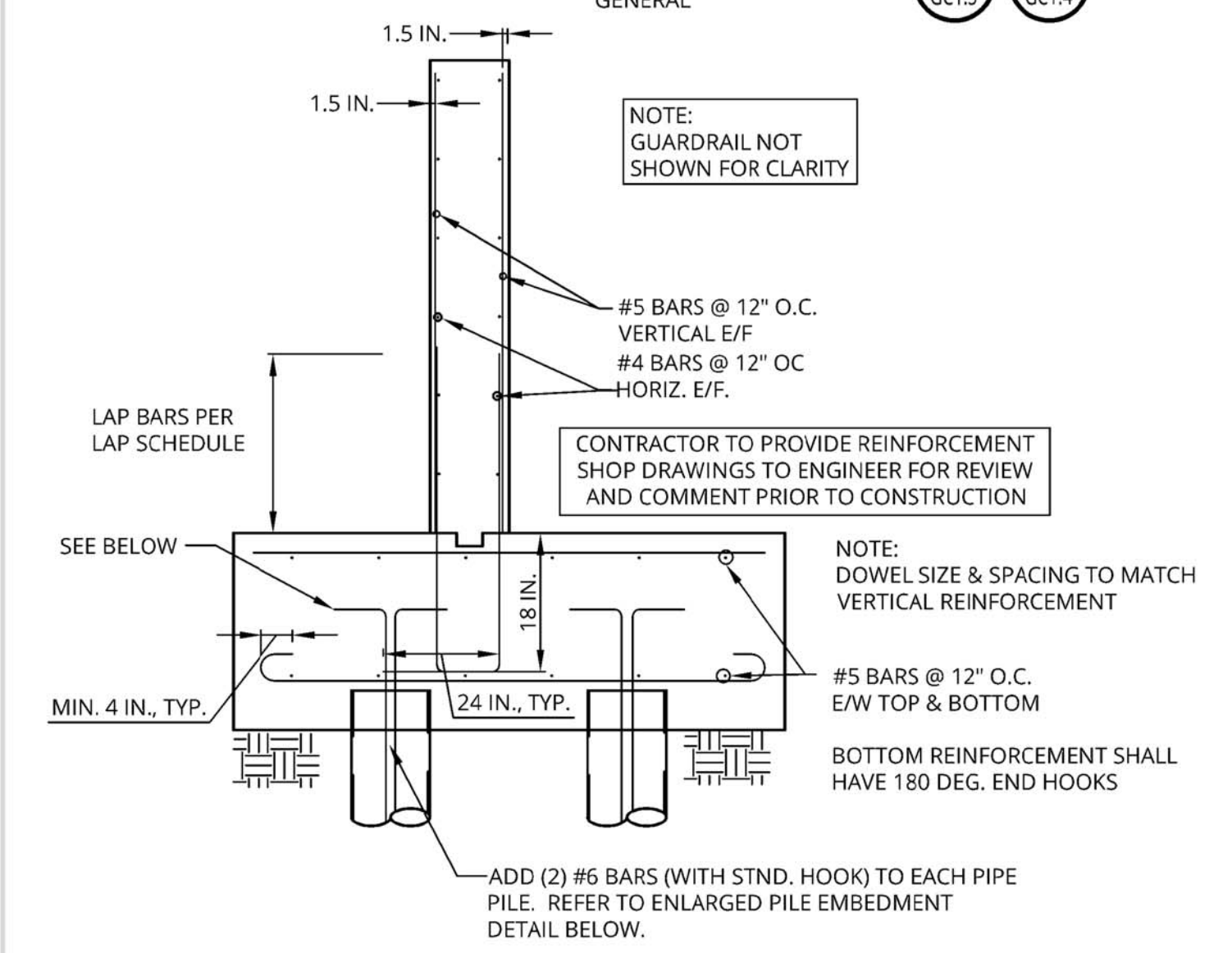
**BRIDGE WINGWALL SECTION** 2 GC1.3 2 GC1.4  
 GENERAL



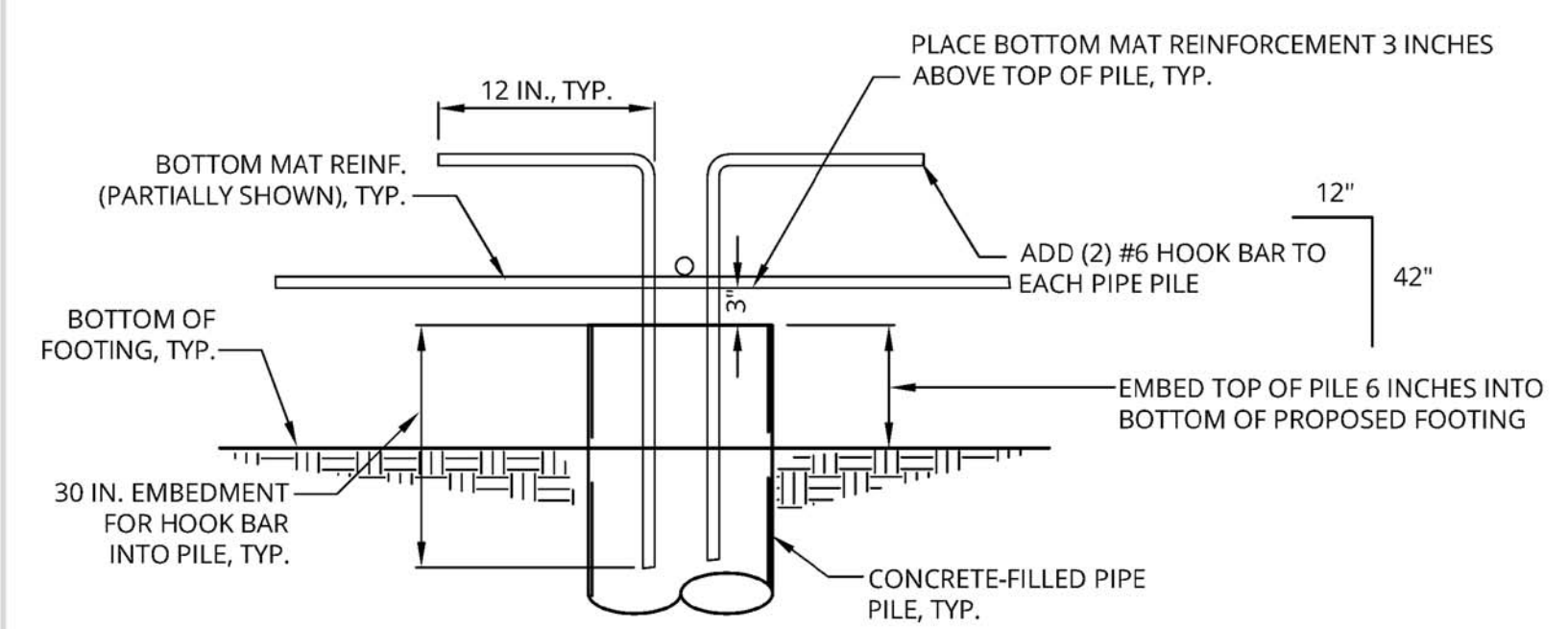
**TYPICAL HORIZONTAL CORNER  
 REINFORCEMENT DETAIL**  
 NOT TO SCALE



**BRIDGE ABUTMENT SECTION** 1 GC1.3 1 GC1.4  
 GENERAL



**BRIDGE WINGWALL SECTION** 2 GC1.3 2 GC1.4  
 REINFORCEMENT



**ENLARGED PILE EMBEDMENT DETAIL** 3 GC1.5

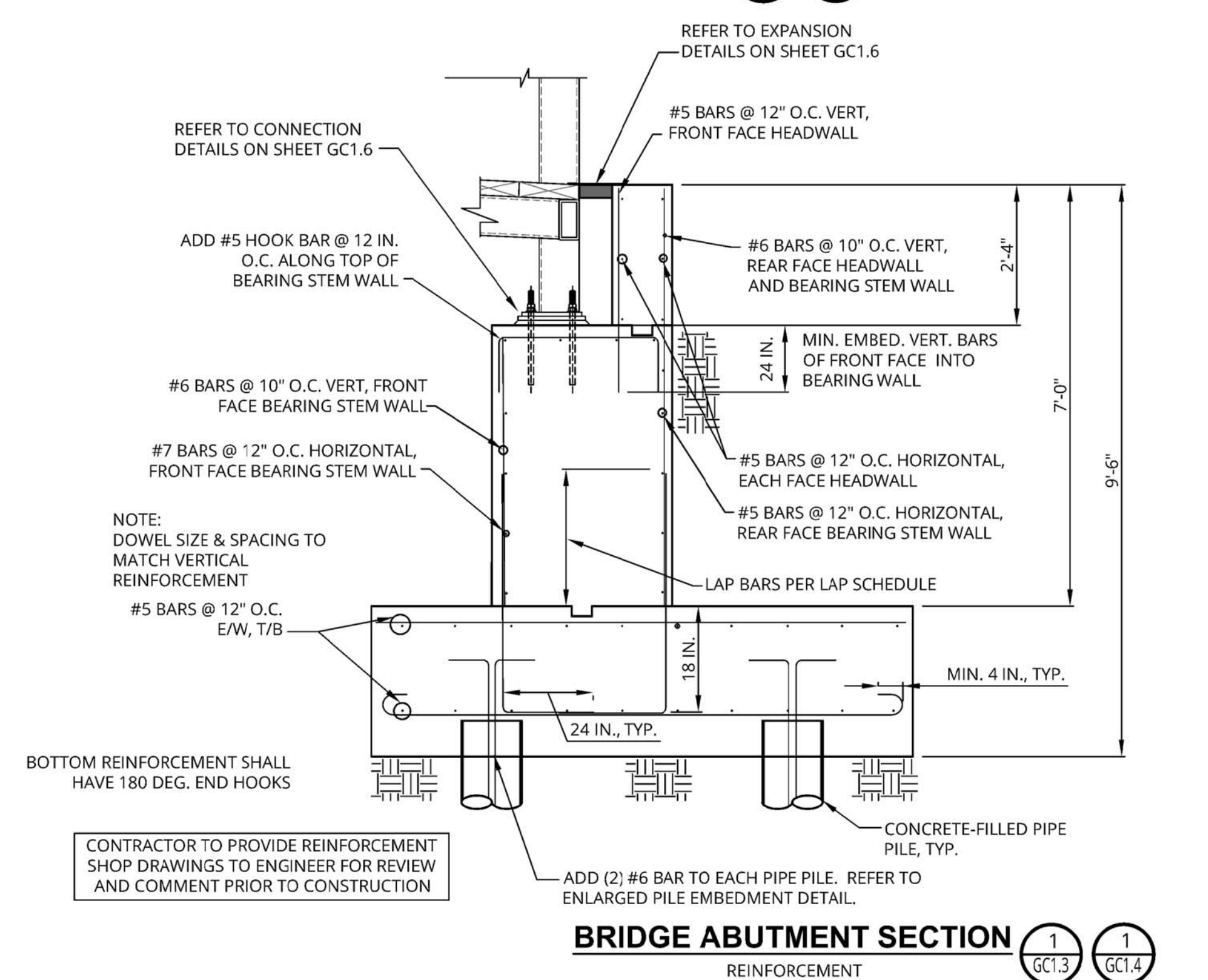
**EXTERIOR CONCRETE GENERAL NOTES**

- BACKFILLING OPERATION AGAINST RETAINING WALLS MAY OCCUR AFTER THE CONCRETE HAS OBTAINED 75% OF ITS 28 DAY DESIGN STRENGTH.
- PROVIDE DOWELS FOR ALL WALLS. DOWELS ARE TO BE EMBEDDED INTO THE FOUNDATION. DOWELS SHALL BE THE SAME SIZE AND SPACING AS VERTICAL WALL REINFORCING.
- DETAILING, FABRICATION AND PLACEMENT OF CONCRETE CONSTRUCTION SHALL CONFORM TO AMERICAN CONCRETE INSTITUTE (ACI) "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE", ACI 318 AND 315.
- CONCRETE SHALL BE NORMAL WEIGHT AND SHALL DEVELOP 28 DAY COMPRESSIVE STRENGTHS AS FOLLOWS, UNLESS OTHERWISE NOTED:
  - CONTINUOUS WALL FOOTINGS: 4000 PSI
  - WALLS AND CONCRETE EXPOSED TO FREEZING AND THAWING: 4000 PSI
- CONCRETE EXPOSED TO WEATHER OR FREEZING SHALL BE AIR-ENTRAINED. MINIMUM AIR ENTRAINMENT SHALL BE 6% +/- 1.5%.
- REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60. ALL BARS SHALL BE MARKED SO THEIR IDENTIFICATION CAN BE MADE WHEN THE FINAL IN-PLACE INSPECTION OCCURS.
- MILL CERTIFICATES SHALL BE REQUIRED FOR ALL REINFORCING STEEL.
- PROVIDE THE FOLLOWING MINIMUM COVER FOR REINFORCING STEEL IN CAST-IN-PLACE (NON-PRESTRESSED) CONCRETE, UNLESS OTHERWISE NOTED:
  - UNFORMED SURFACES IN CONTACT WITH EARTH: 3"
  - FORMED SURFACES EXPOSED TO EARTH, WEATHER OR WATER PROOFING/DAMP-PROOFING:
 

#6 AND LARGER:	2"
#5 AND SMALLER:	1.5"
- WHEN REINFORCING STEEL IS NOTED CONTINUOUS IN FOOTING AND WALLS, SPLICE REINFORCING STEEL ONLY WHEN UNAVOIDABLE DUE TO STOCK LENGTHS UNLESS OTHERWISE NOTED. STAGGER ALL SPLICES A MINIMUM OF 4'-0". LOCATE THE TOP BAR SPLICES WITHIN THE MIDDLE HALF OF SPAN AND BOTTOM BAR SPLICES AT SUPPORTS OR BETWEEN SUPPORT AND 1/3 OF SPAN, UNLESS OTHERWISE NOTED.
- TENSION LAP SPLICE LENGTH FOR REINFORCING BARS SHALL BE PER THE MOST CURRENT ACI CODE.
- CONTRACTOR RESPONSIBLE FOR THE WALL CONSTRUCTION SHALL PROVIDE SHOP DRAWINGS PRODUCED IN ACCORDANCE WITH ACI 315, INDICATING REINFORCING SIZE, LENGTH, LOCATION, SHAPE, AND SPACING. THESE SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND COMMENT.
- PROVIDE MIN. 3/4" CHAMFER ON ALL EXPOSED CORNERS OF CONCRETE.
- CONSOLIDATE CONCRETE USING INTERNAL VIBRATORS.

REINFORCING BAR LAP SPLICE AND DEVELOPMENT LENGTHS SHALL BE IN ACCORDANCE WITH ACI 318-14, WITH MINIMUM LENGTHS AS FOLLOWS, U.N.O.:

REINFORCING BAR SIZE:	#3	#4	#5	#6	#7	#8	#9	#10
STRAIGHT DEVELOPMENT LENGTH, IN.:	14	18	22	26	30	36	44	56
STRAIGHT LAP LENGTH, IN.:	16	22	28	32	38	46	60	74

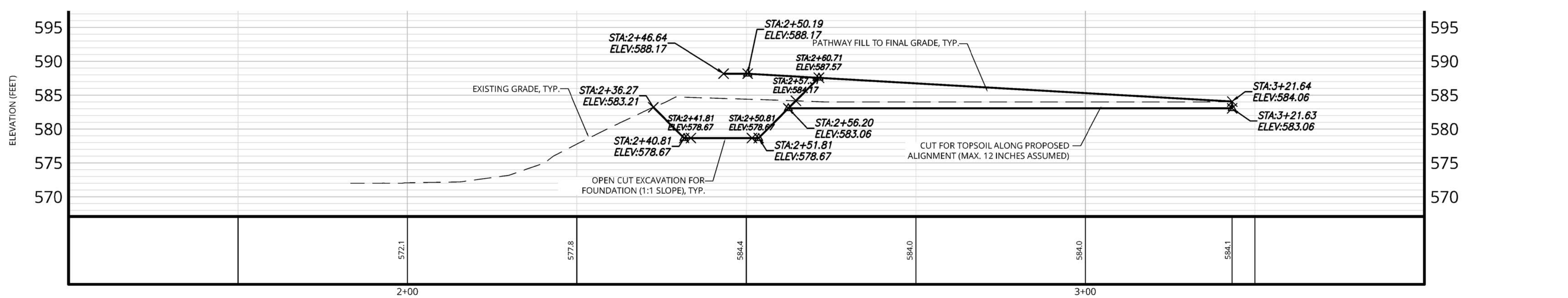
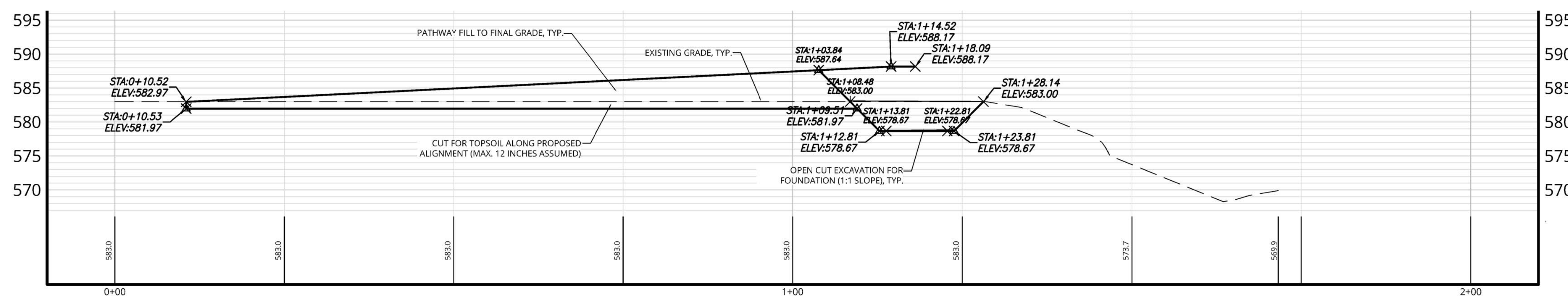
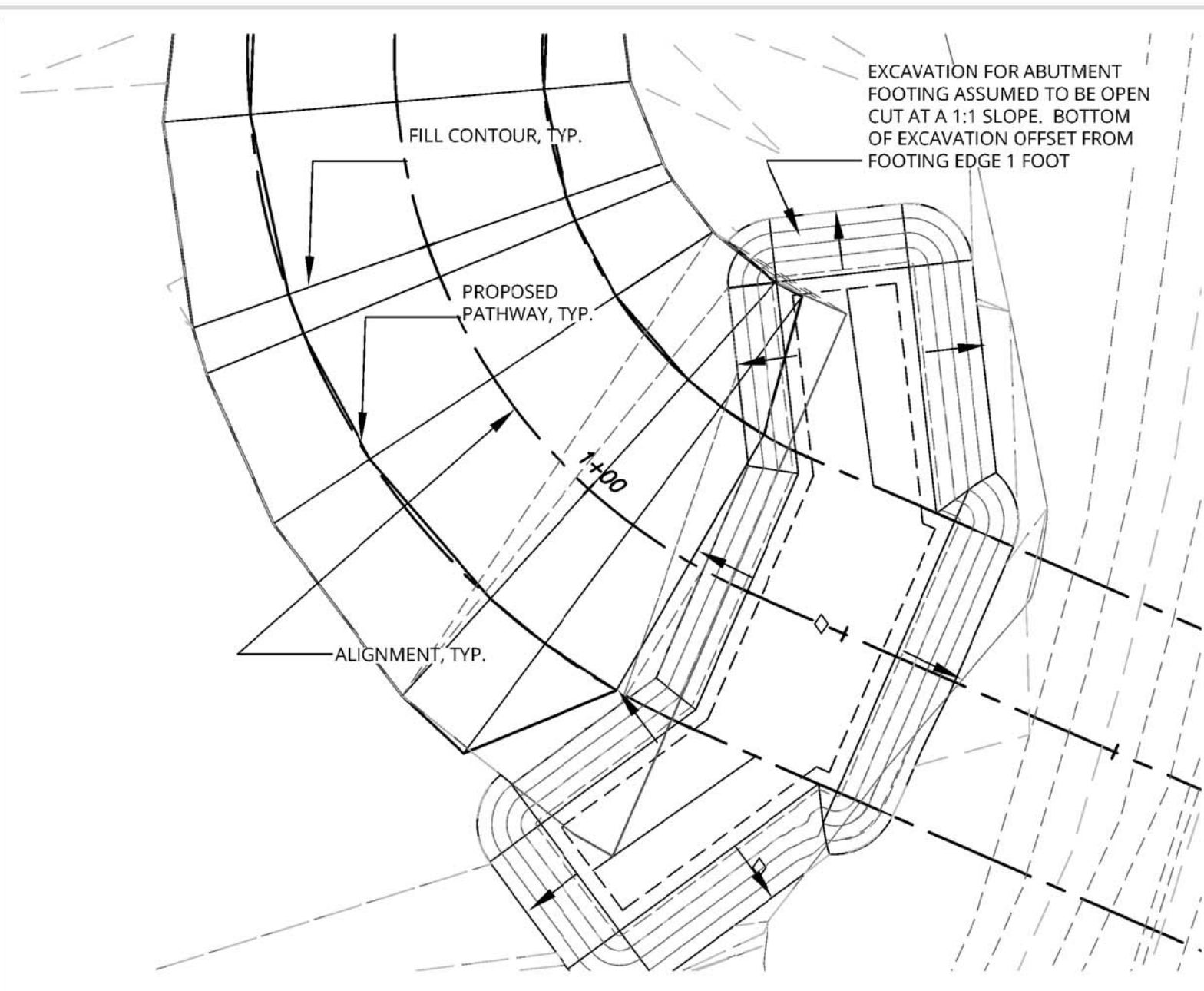
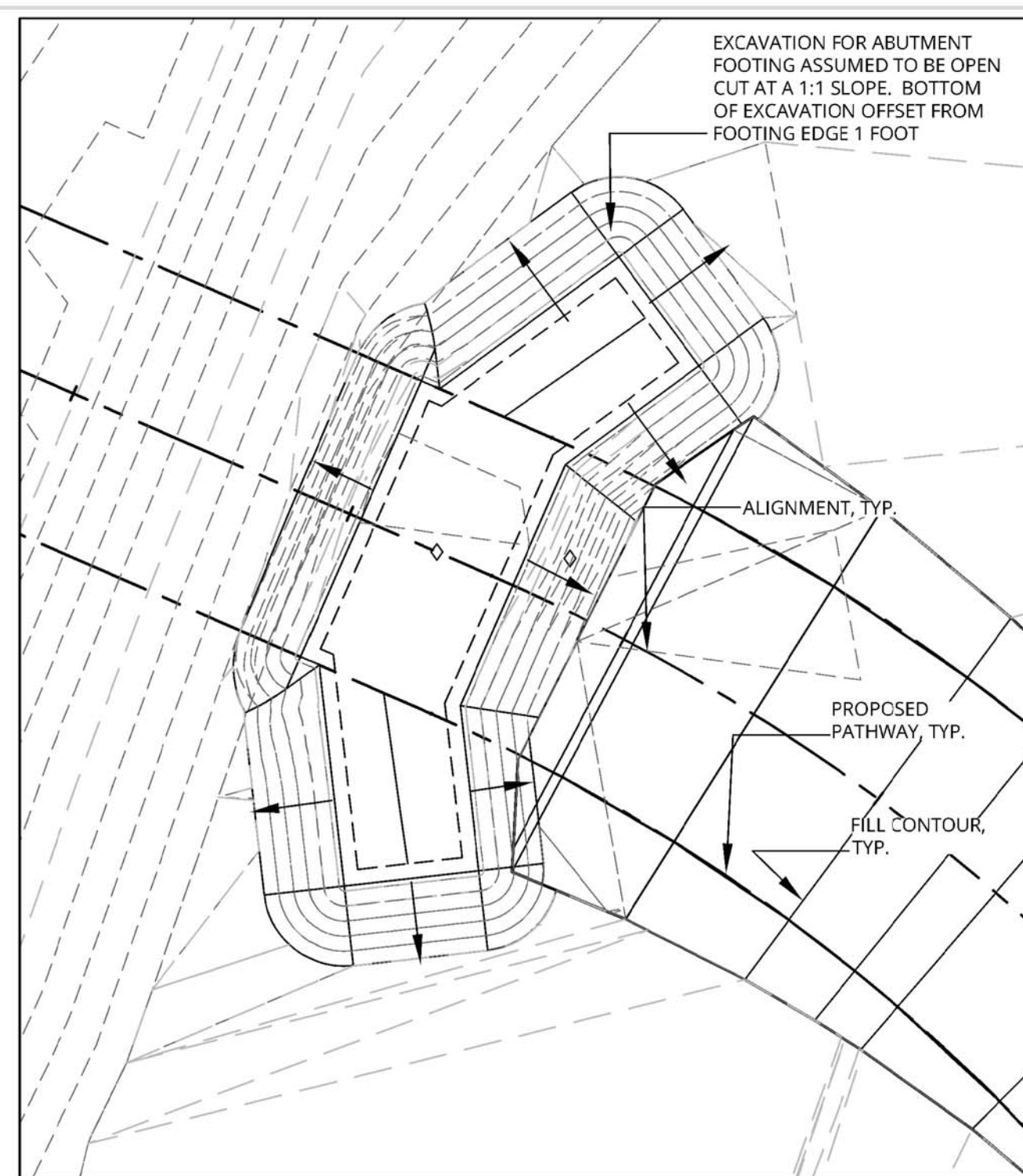
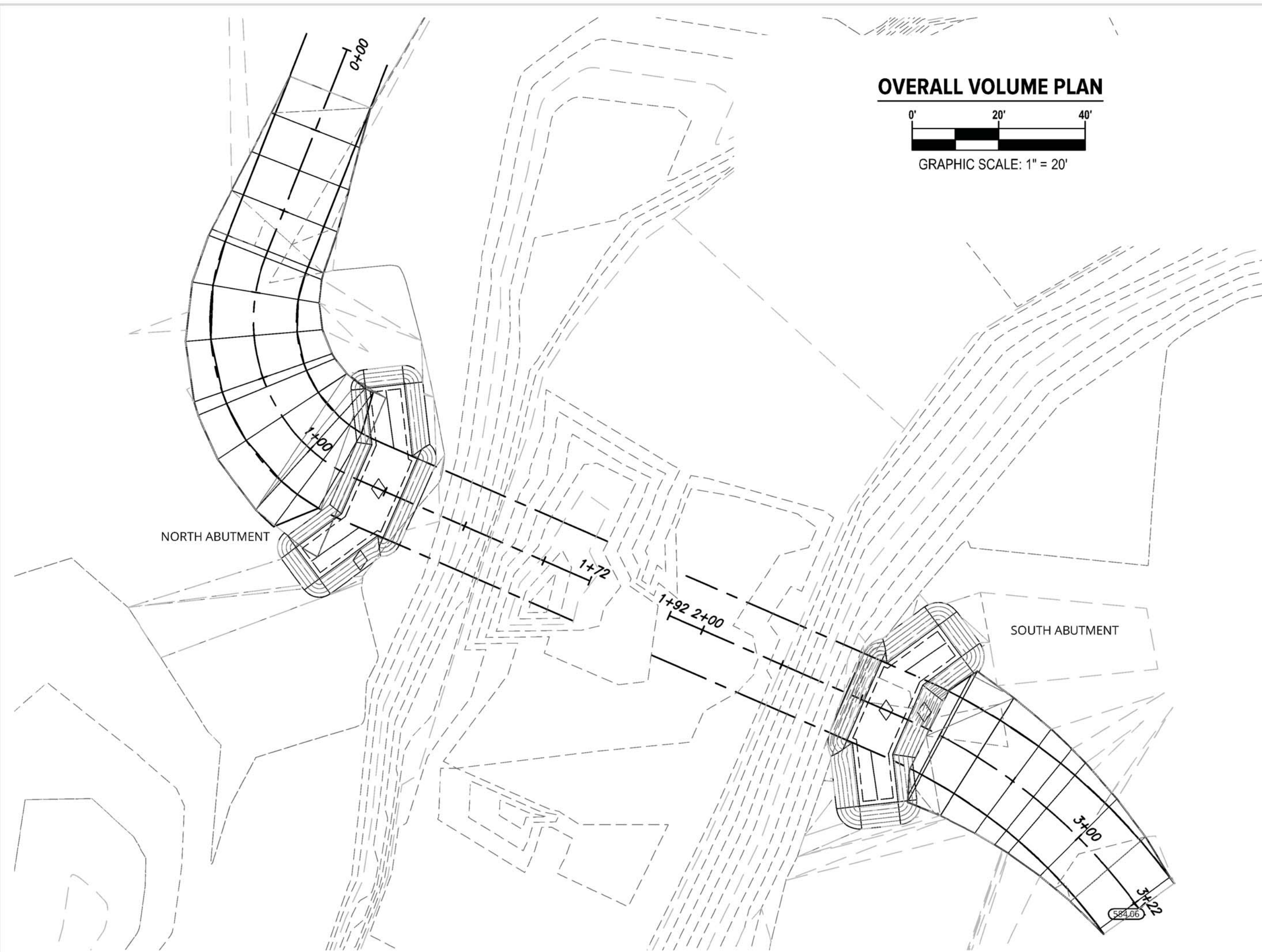


**BRIDGE ABUTMENT SECTION** 1 GC1.3 1 GC1.4  
 REINFORCEMENT

NOTE  
 DETAILS ARE NOT TO SCALE







**FOR INFORMATIONAL PURPOSES ONLY**