

CITY OF MUSKEGON

IN COOPERATION WITH

PLAN AND PROFILE OF PROPOSED

LAKESHORE TRAIL REPAIRS AND SHORELINE RESTORATION

NOTE:
THE IMPROVEMENTS COVERED BY THESE PLANS SHALL BE DONE IN ACCORDANCE WITH THE MICHIGAN DEPARTMENT OF TRANSPORTATION 2012 STANDARD SPECIFICATIONS FOR CONSTRUCTION, CITY OF MUSKEGON STANDARD SPECIFICATIONS AND THE 2011 MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. THESE IMPROVEMENTS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE 2011 AASHTO GUIDELINES.

MDOT STANDARD PLANS TO BE INCLUDED:

- R-92-C STEEL GRATES FOR END SECTIONS
- R-96-E SOIL EROSION & CONTROL MEASURES
- INDICATES SPECIAL DETAIL INCLUDED IN PROPOSAL/PLANS

UTILITIES

ELECTRIC
JOEL BROWN
CONSUMERS ENERGY
700 E STERNBERG ROAD
NORTON SHORES, MI 49441
(231) 332-2682

TELEPHONE
DAVID B. FLERMOEN
FRONTIER COMMUNICATIONS
860 TERRACE STREET
MUSKEGON MI 49440
(231) 727-1319

NATURAL GAS
VINCENT DUCA
DTE ENERGY
2359 OLTHOFF DRIVE
MUSKEGON MI 49444
(231) 578-0488 (CELL)

CABLE
COMCAST
TBA

WATER & SEWER
DAVE BAKER
CITY OF MUSKEGON - DPW
1350 E KEATING AVENUE
MUSKEGON MI 49442
(231) 724-4100

RAILROAD
SCOTT KNIGHT - ROADMASTER
MICHIGAN SHORE RAILROAD
311 E. WESTERN AVE.
MUSKEGON, MI 49442
(616) 293-0564

SHEET INDEX

SHEET	DESCRIPTION
1.	TITLE SHEET
2.	STA 52+00 TO 55+00 PLAN & CROSS SECTION
3.	STA 59+00 TO 67+50 PLAN & CROSS SECTION
4.	STA 72+00 TO 74+00 PLAN & CROSS SECTION

3 WORKING DAYS
EXCLUDING SAT, SUN & HOLIDAYS
**BEFORE YOU DIG
CALL MISS DIG**

Know what's below.
Call before you dig.

CONSTRUCTION INCLUDES APPROXIMATELY 800 FEET OF SHORELINE RESTORATION AND 1,100 FEET OF HMA BIKE PATH REMOVAL AND RECONSTRUCTION ON A LIMITED ACCESS SITE ALONG MUSKEGON LAKE SHORELINE IN THE CITY OF MUSKEGON, MUSKEGON COUNTY.

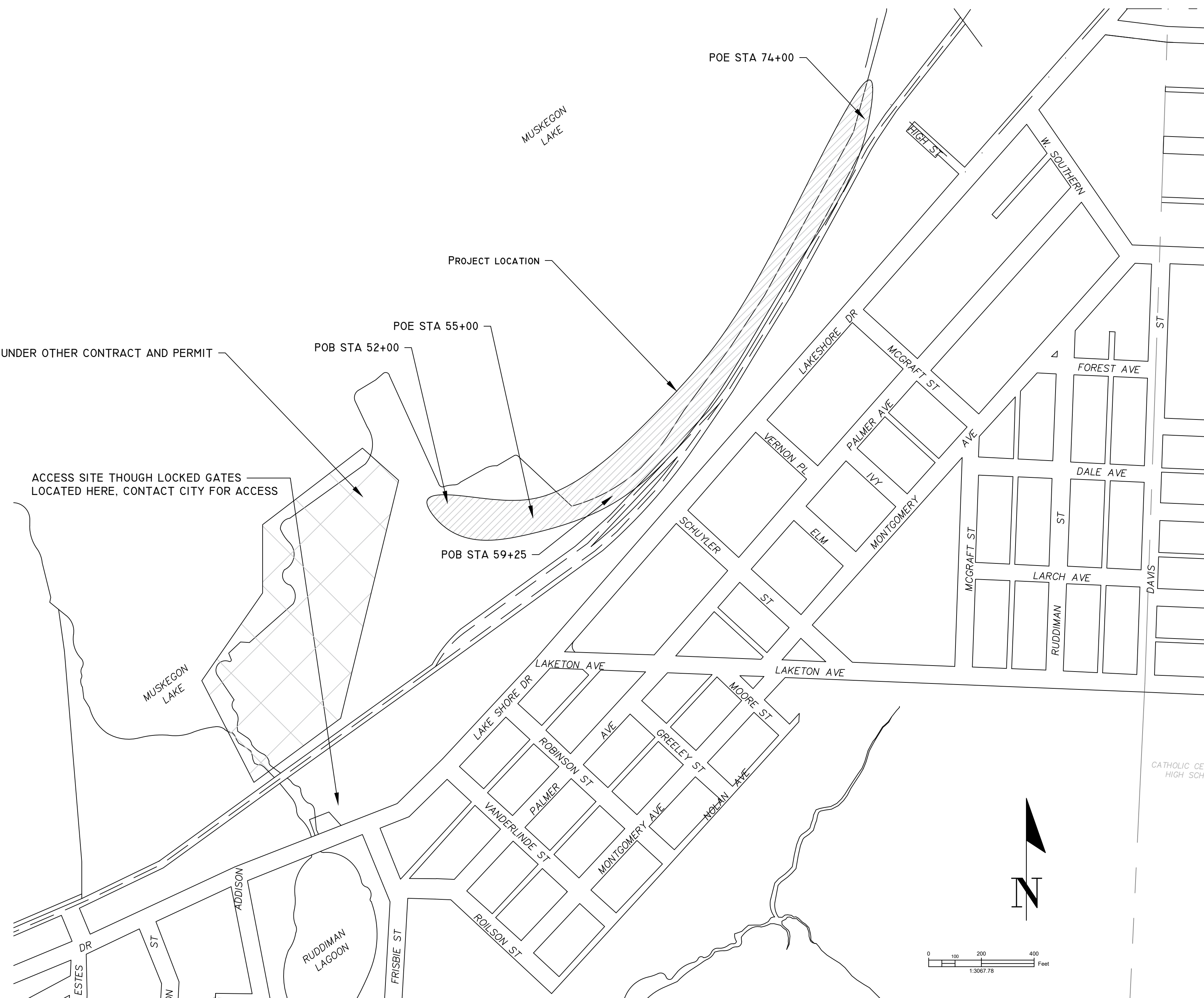
PREPARED UNDER THE SUPERVISION OF:

LEO EVANS, P.E.
CITY ENGINEER

CITY OF MUSKEGON
ENGINEERING DEPARTMENT
1350 E KEATING AVE
MUSKEGON MI 49442

55599
REGISTRATION NUMBER

CITY OF MUSKEGON		LAKESHORE TRAIL AND SHORELINE RESTORATION	
OFFICE OF THE CITY ENGINEER		PROJECT NO	
DRAWN	J BROOKENS	REVISION	2001
CHECKED	J BROOKENS	REVISION	2019
APPROVED	[Signature]	SCALE	AS-BUILT
		SCALE	SP 92012
		SHEET NO.	1 OF 4



GENERAL NOTES:

1. SURVEY, STATIONING AND LAYOUT WAS DERIVED FROM PAST CONSTRUCTION PLANS DATED 2005. LIMITED TOPO AND ELEVATIONS WERE GATHERED IN DECEMBER OF 2019 TO EVALUATE THE EXTENT OF STORM DAMAGE. EXISTING CONDITIONS, INCLUDING ELEVATIONS, ARE SUBJECT TO CHANGE DUE TO CIRCUMSTANCES OUTSIDE THE CONTROL OF THE CITY OF MUSKEGON. NO GUARANTEE IS IMPLIED THAT PLANS MATCH EXISTING CONDITIONS. CONTRACTOR IS TO VERIFY EXISTING CONDITIONS OF THE SITE. MATCH ALL EXISTING MEETS AND COORDINATE WORK ACTIVITIES WITH NEIGHBORING CONTRACTORS.
2. FOR PROTECTION OF UNDERGROUND UTILITIES, THE CONTRACTOR SHALL CALL MISS DIG, 1-800-482-7171, A MINIMUM OF 3 WORKING DAYS EXCLUDING SATURDAYS, SUNDAYS, AND HOLIDAYS PRIOR TO EXCAVATING IN THE VICINITY OF ALL UTILITY LINES. ALL MISS DIG PARTICIPATING MEMBERS WILL BE NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING OWNERS WHO MAY NOT BE PART OF THE MISS DIG ALERT SYSTEM.
3. PUBLIC UTILITIES OF ALL TYPES HAVE BEEN SHOWN ON THE PLAN USING AVAILABLE INFORMATION, BUT ARE NOT GUARANTEED AS ACCURATE OR THAT UTILITIES OTHER THAN THOSE SHOWN ARE NOT PRESENT.
4. THE CONTRACTOR SHALL SAW CUT ALL MEETS RELATIVE TO SIDEWALK OR PAVEMENT CONSTRUCTION UNLESS WAIVED BY THE ENGINEER. PAYMENT FOR SAW CUTTING SHALL BE INCLUDED IN THE PAYMENT FOR THE PAY ITEMS PAVT, REM, MODIFIED, CURB AND GUTTER, REM, HMA CRUSH AND SHAPE, HMA SURFACE, REM AND SIDEWALK, REM. NO ADDITIONAL PAYMENT WILL ALLOWED FOR SAW CUTTING.
5. THE CONTRACTOR SHALL PREVENT EROSION AND CONTROL SEDIMENTATION ASSOCIATED WITH THE PROJECT. KEEP SEDIMENTATION WITHIN THE RIGHT OF WAY (OR CONSTRUCTION LIMITS) AND OUT OF SURFACE WATERS. CONSTRUCT AND MAINTAIN TEMPORARY EROSION AND SEDIMENTATION CONTROLS. TO INCLUDE INLET PROTECTION, FABRIC DROPS ON ALL INLET STRUCTURES, NEW AND EXISTING, AND INSTALL TEMPORARY EROSION, SEDIMENTATION CONTROLS AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL REMOVE ON A DAILY BASIS SOIL TRACKED ONTO EXISTING PAVED ROADS. (VACUUM METHODS ARE PREFERRED BUT BROOM SWEEPING IS ACCEPTABLE IF THE MATERIAL IS REMOVED) THE CONTRACTOR SHALL INSPECT ALL SOIL EROSION / SEDIMENTATION CONTROL MEASURES ON A WEEKLY BASIS OR AFTER EACH RAINFALL EVENT. CLEAN REPAIR, OR REPLACE, AS NECESSARY, TO ENSURE PROPER FUNCTION. ALL SOIL EROSION / SEDIMENTATION CONTROLS SHALL REMAIN UNTIL ALL DISTURBED AREAS ARE STABILIZED. ALL SOIL EROSION / SEDIMENTATION CONTROL, EXCEPT FOR THE EROSION CONTROL, INLET PROTECTION, FABRIC DROP AND SILT FENCE SHALL BE INCLUDED WITH THE PAY ITEM PROJECT CLEAN UP. NO OTHER PAYMENT SHALL BE MADE.

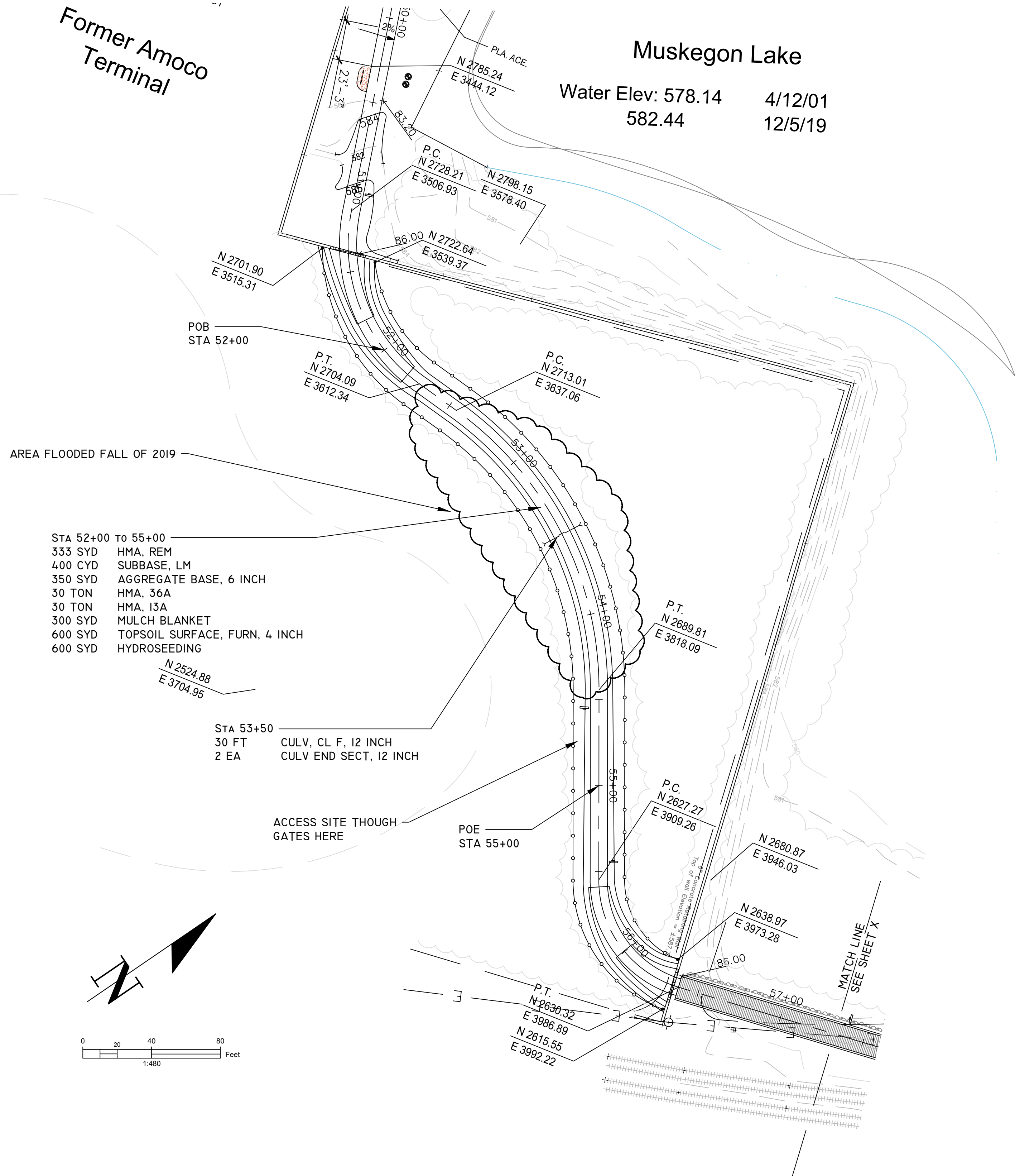
AREA OF WORK BY OTHERS, UNDER OTHER CONTRACT AND PERMIT

ACCESS SITE THROUGH LOCKED GATES LOCATED HERE, CONTACT CITY FOR ACCESS

Former Amoco Terminal

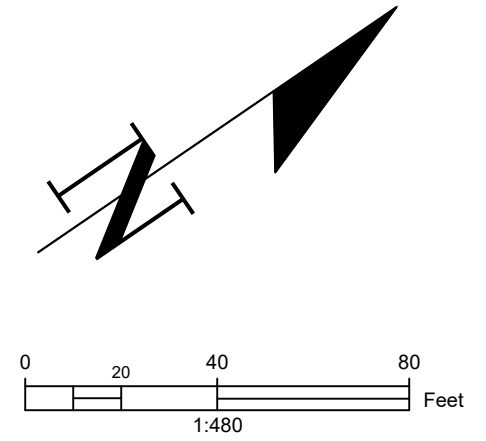
Muskegon Lake

Water Elev: 578.14
582.44
4/12/01
12/5/19

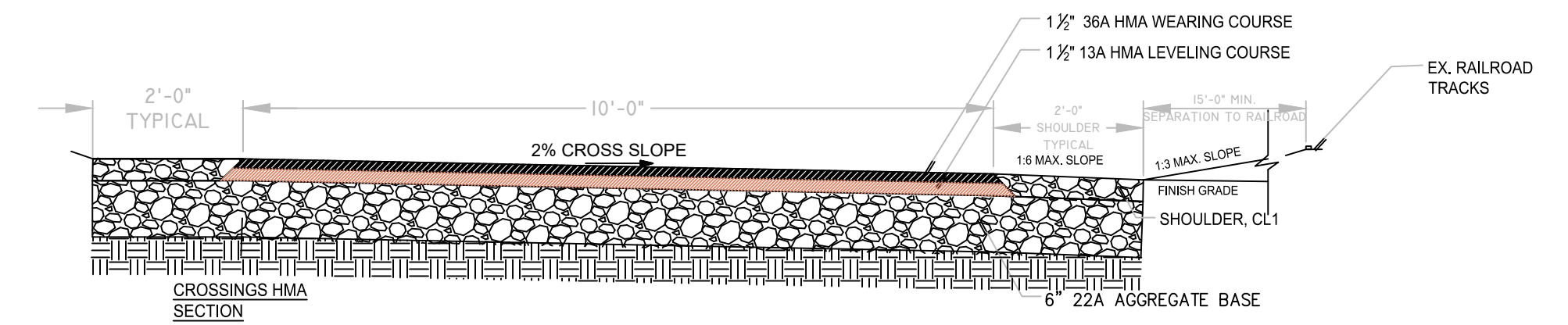
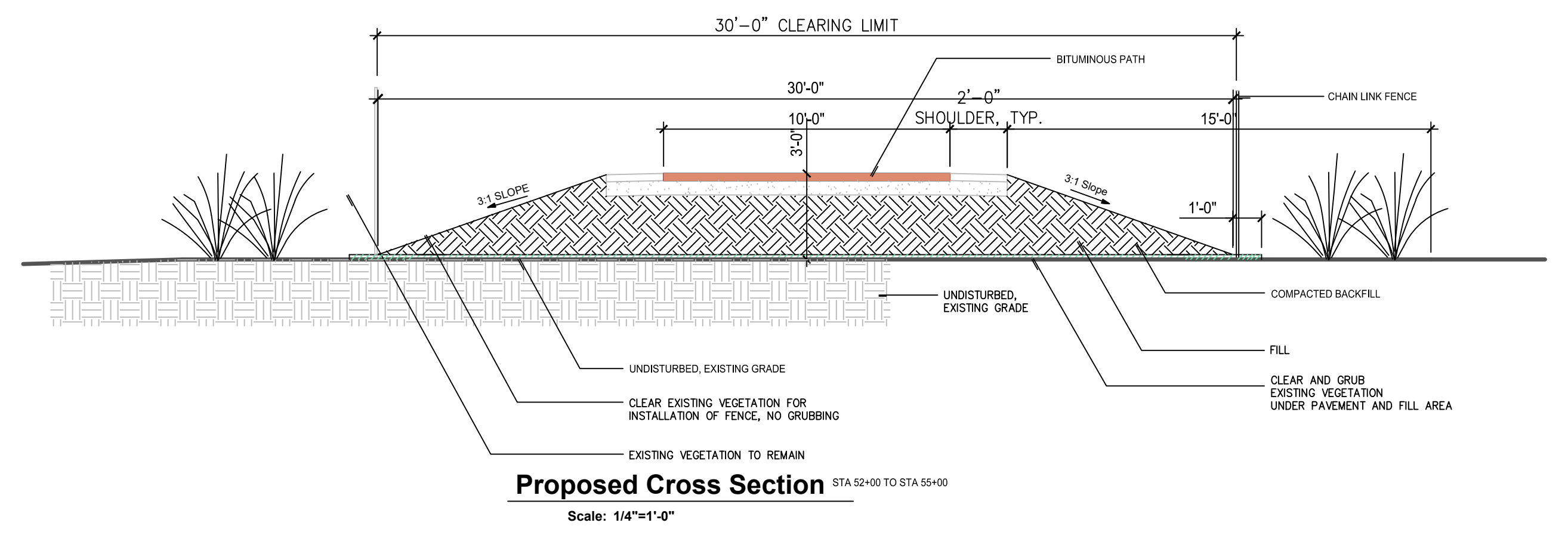
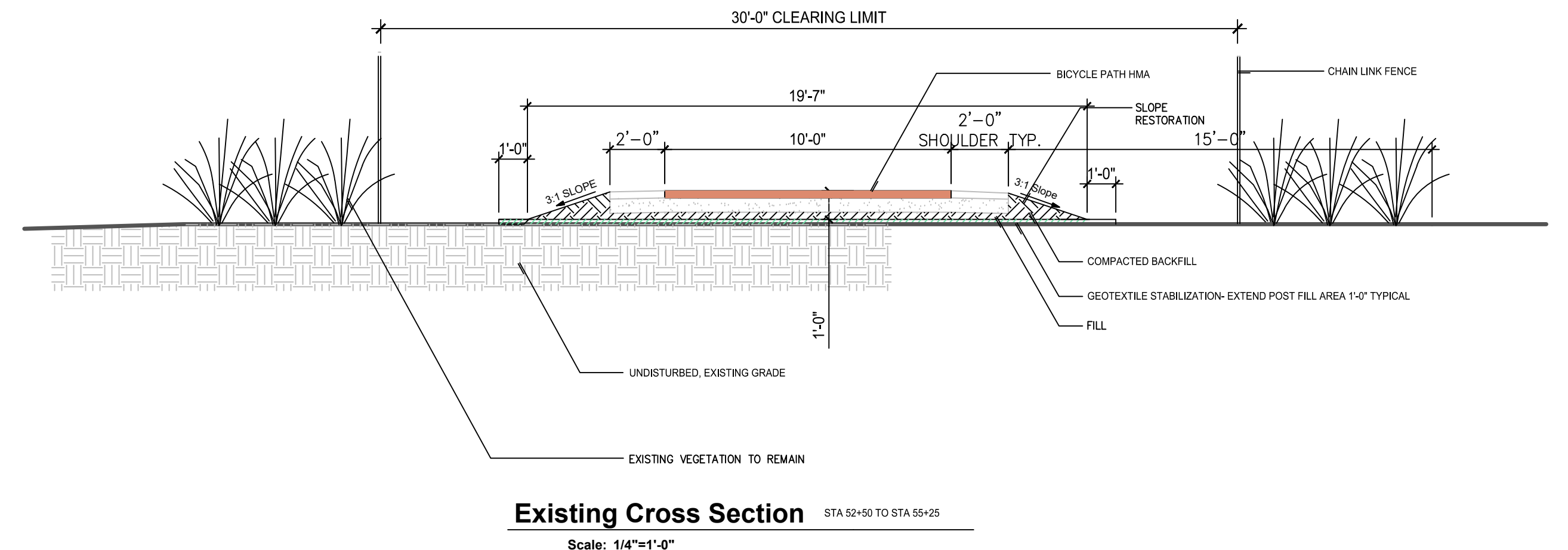


- AREA FLOODED FALL OF 2019
- STA 52+00 TO 55+00
 - 333 SYD HMA, REM
 - 400 CYD SUBBASE, LM
 - 350 SYD AGGREGATE BASE, 6 INCH
 - 30 TON HMA, 36A
 - 30 TON HMA, 13A
 - 300 SYD MULCH BLANKET
 - 600 SYD TOPSOIL SURFACE, FURN, 4 INCH
 - 600 SYD HYDROSEEDING

STA 53+50
30 FT CULV. CL F, 12 INCH
2 EA CULV END SECT, 12 INCH



QUANTITIES THIS SHEET		
DESCRIPTION	QUANTITY	UNIT
HMA SURFACE, REM	333	SYD
SUBBASE, LM	400	CUBIC YARD
AGGREGATE BASE, 6 INCH	350	SYD
RIPRAP, HEAVY LM	0	CUBIC YARD
SHARED USE PATH, GRADING	300	FT
HMA, 36A	30	TON
HMA, 13A	30	TON
CULV. CL F, 12 INCH	30	FT
CULV END SECT, 12 INCH	2	EA
MULCH BLANKET	300	SYD
TOPSOIL, FURN, 4 INCH	600	SYD
HYDROSEEDING	600	SYD



1
2 **Typ Cross Section: Bicycle Path HMA**
Scale: NTS

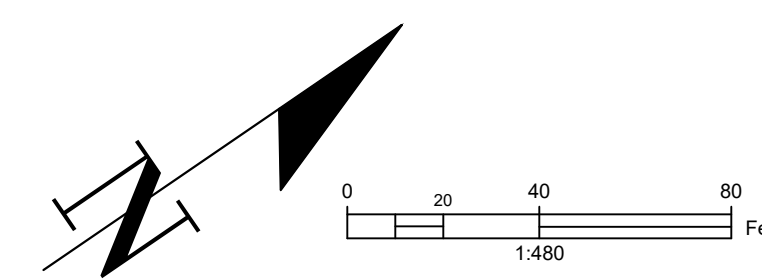
HMA APPLICATION TABLE (BICYCLE PATH, HMA)				MIN. AWI
MIXTURE TYPE 36A	165 LBS/Syd	PG58-28	TOP(WEARING) COURSE	260
	0.10 GAL/Syd		BOND COAT	
MIXTURE TYPE 13A	165 LBS/Syd	PG58-28	TOP(WEARING) COURSE	260

REDUCE AIR VOID TO 2% FOR EACH HMA MIXTURE

CITY OF MUSKEGON		LAKESHORE TRAIL AND SHORELINE RESTORATION	
OFFICE OF THE CITY ENGINEER		PROJECT NO. SP 92012	
DRAWN J BROOKENS 12/2019	REVISION J BROOKENS 07/2020	SURVEY MC SMITH 2001	
CHECKED	REVISION	AS-BUILT	
APPROVED	REVISION	SCALE 1" = 40'	SHEET NO. 2 OF 4

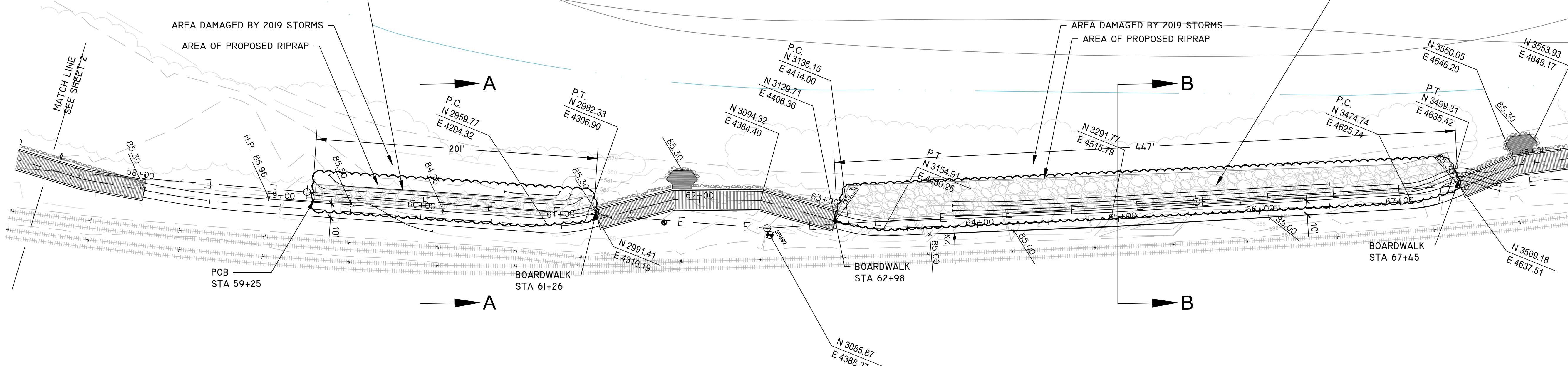
Muskegon Lake

Water Elev: 578.14 4/12/01
582.44 12/5/19



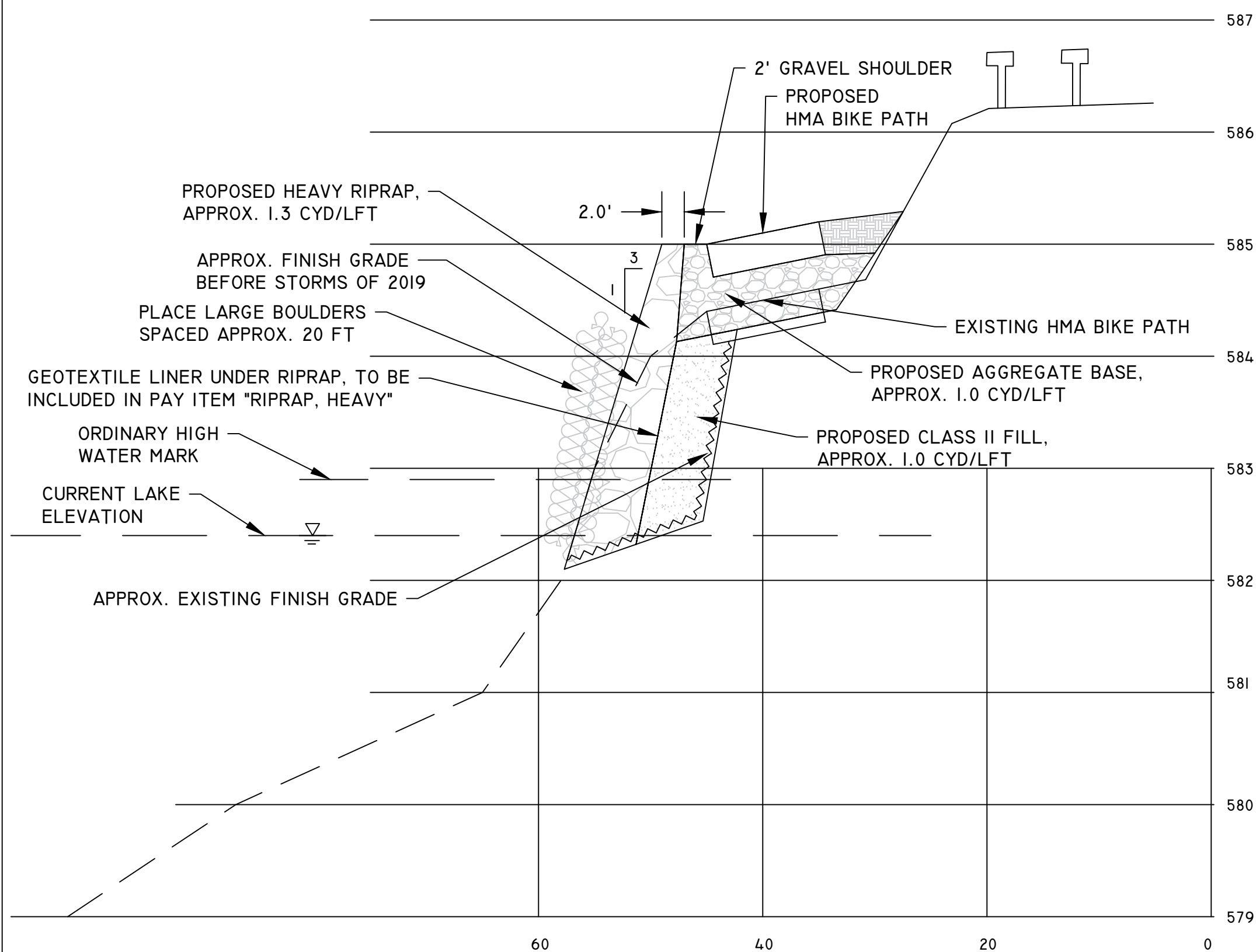
- STA 59+25 TO 61+26 (SECTION A)
- 225 SYD HMA, REM
 - 70 CYD SUBBASE, LM
 - 320 SYD AGGREGATE BASE, 6 INCH
 - 90 CYD RIPRAP, HEAVY
 - 10 EACH LARGE BOULDERS
 - 18.5 TON HMA, 36A
 - 18.5 TON HMA, 13A
 - 60 SYD TOPSOIL SURFACE, FURN, 4 INCH
 - 60 SYD HYDROSEEDING

- STA 62+98 TO 67+45 (SECTION B)
- 500 SYD HMA, REM
 - 270 CYD SUBBASE, LM
 - 650 SYD AGGREGATE BASE, 6 INCH
 - 400 CYD RIPRAP, HEAVY
 - 30 EACH LARGE BOULDERS
 - 45 TON HMA, 36A
 - 45 TON HMA, 13A
 - 150 SYD TOPSOIL SURFACE, FURN, 4 INCH
 - 150 SYD HYDROSEEDING



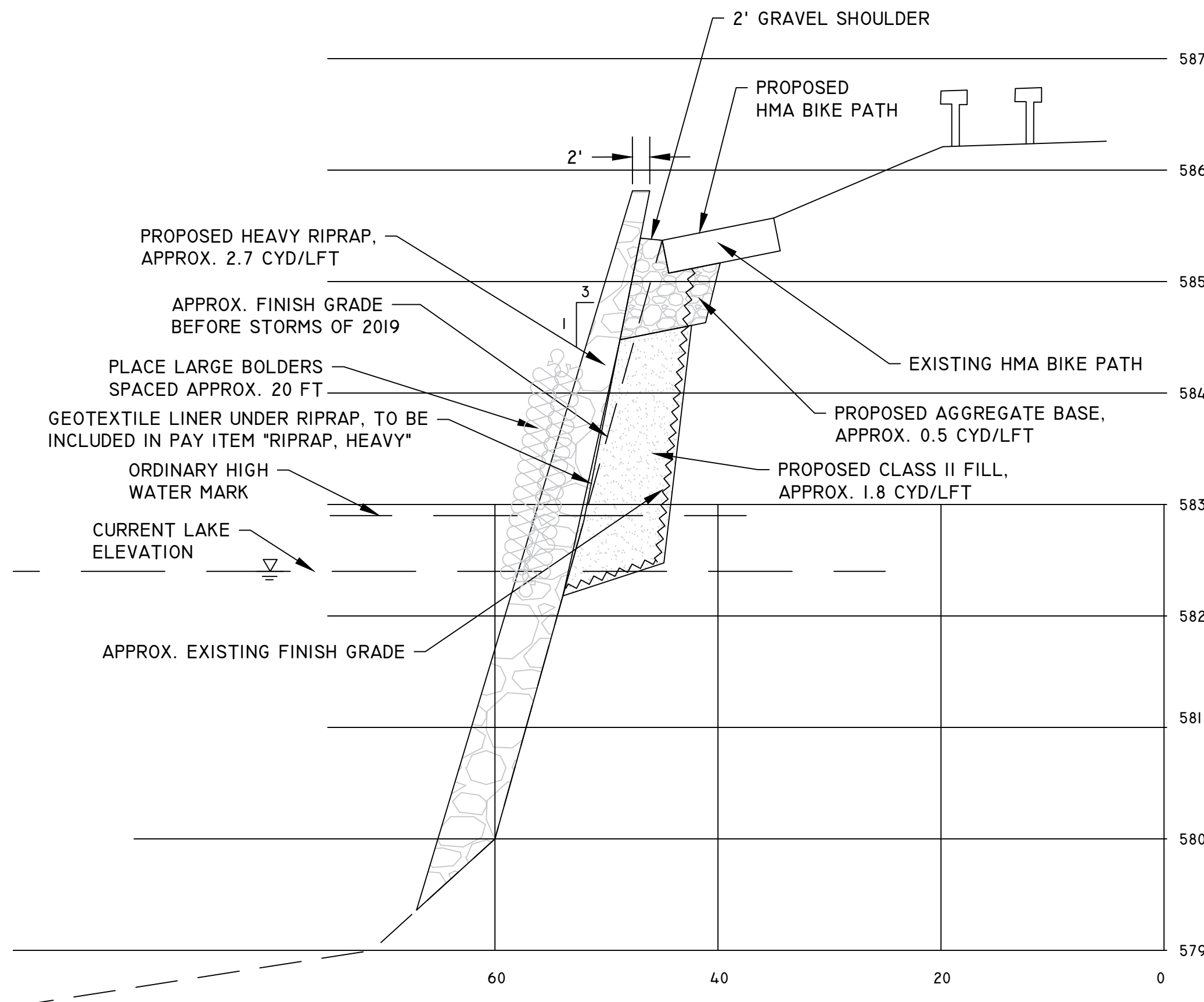
CROSS SECTION A-A
TYPICAL STA 59+25 TO 61+26

SCALE: H 1:10 V 1:1



CROSS SECTION B-B
TYPICAL STA 62+98 TO 67+45

SCALE: H 1:10 V 1:1



QUANTITIES SECTION A

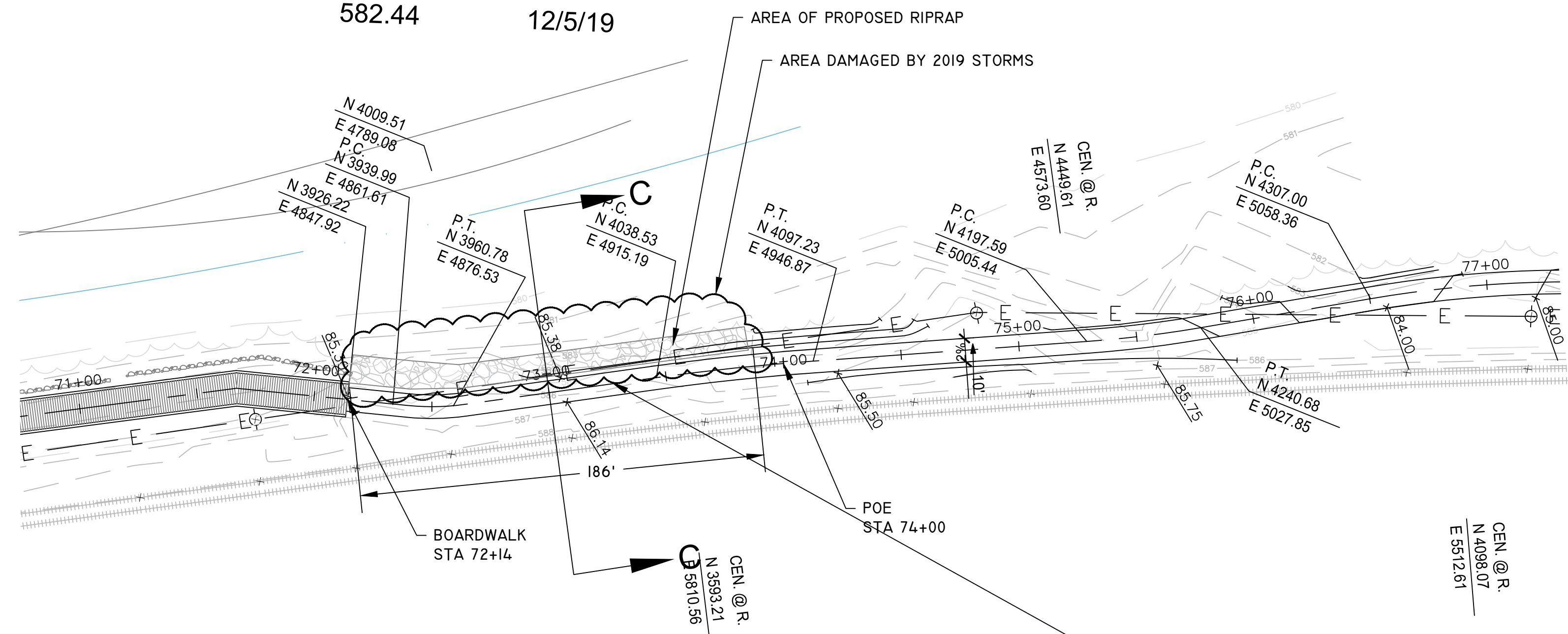
DESCRIPTION	QUANTITY	UNIT
HMA SURFACE, REM	225	SYD
SUBBASE, LM	70	CUBIC YARD
AGGREGATE BASE, 6 INCH	320	SYD
RIPRAP, HEAVY LM	90	CUBIC YARD
LARGE BOULDER	10	EACH
SHARED USE PATH, GRADING	201	FT
HMA, 36A	18.5	TON
HMA, 13A	18.5	TON
MULCH BLANKET	0	SYD
TOPSOIL, FURN, 4 INCH	60	SYD
HYDROSEEDING	60	SYD

QUANTITIES SECTION B

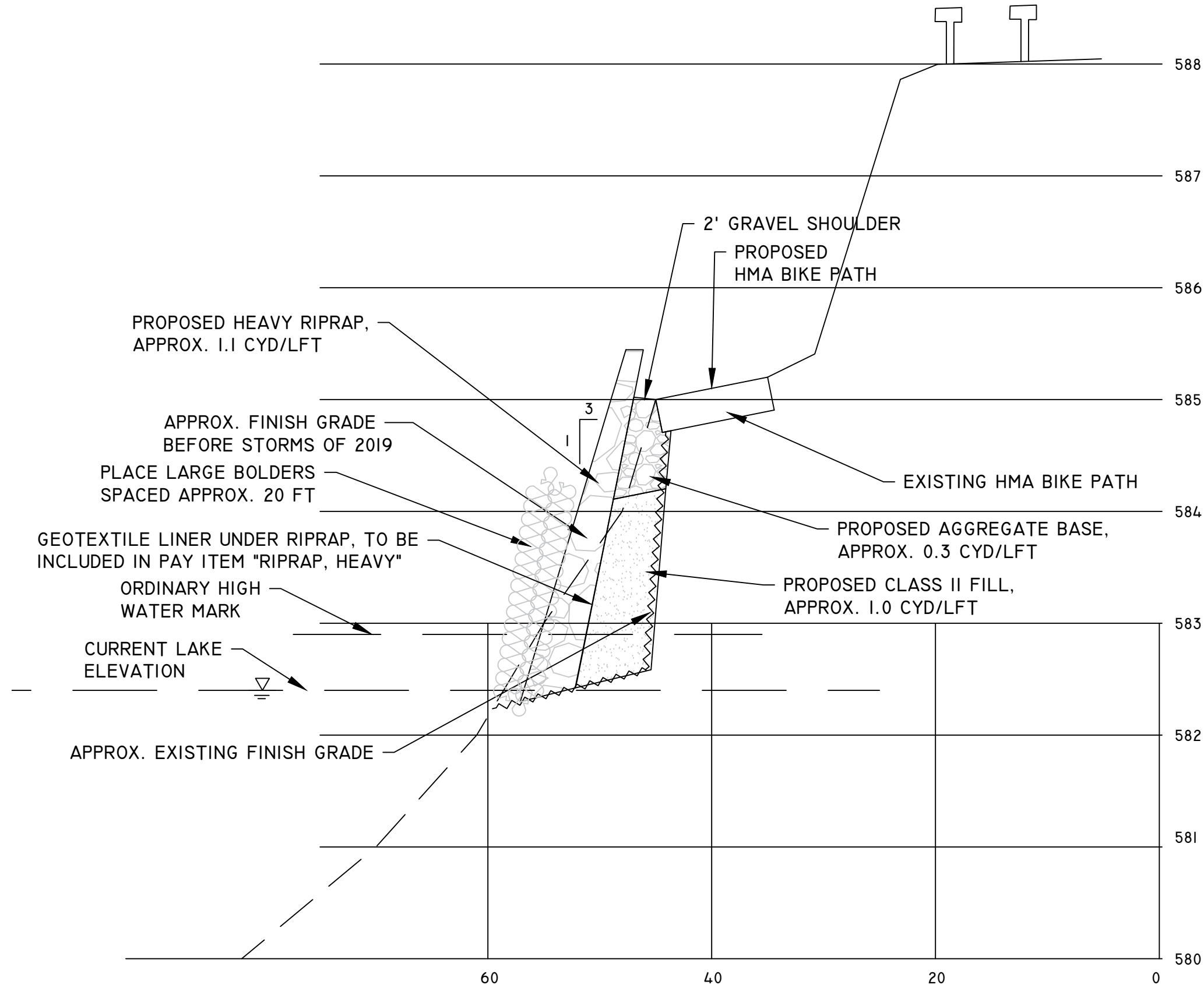
DESCRIPTION	QUANTITY	UNIT
HMA SURFACE, REM	500	SYD
SUBBASE, LM	270	CUBIC YARD
AGGREGATE BASE, 6 INCH	650	SYD
RIPRAP, HEAVY LM	400	CUBIC YARD
LARGE BOULDER	30	EACH
SHARED USE PATH, GRADING	44.7	FT
HMA, 36A	45	TON
HMA, 13A	45	TON
MULCH BLANKET	0	SYD
TOPSOIL, FURN, 4 INCH	150	SYD
HYDROSEEDING	150	SYD

Muskegon Lake

Water Elev: 578.14
582.44
4/12/01
12/5/19



Sta 72+14 TO 74+00 (SECTION C)
210 SYD HMA, REM
200 SYD SUBBASE, LM
290 SYD AGGREGATE BASE, 6 INCH
210 CYD RIPRAP, HEAVY
9 EACH LARGE BOULDERS
17.5 TON HMA, 36A
17.5 TON HMA, 13A
60 SYD TOPSOIL SURFACE, FURN, 4 INCH
60 SYD HYDROSEEDING

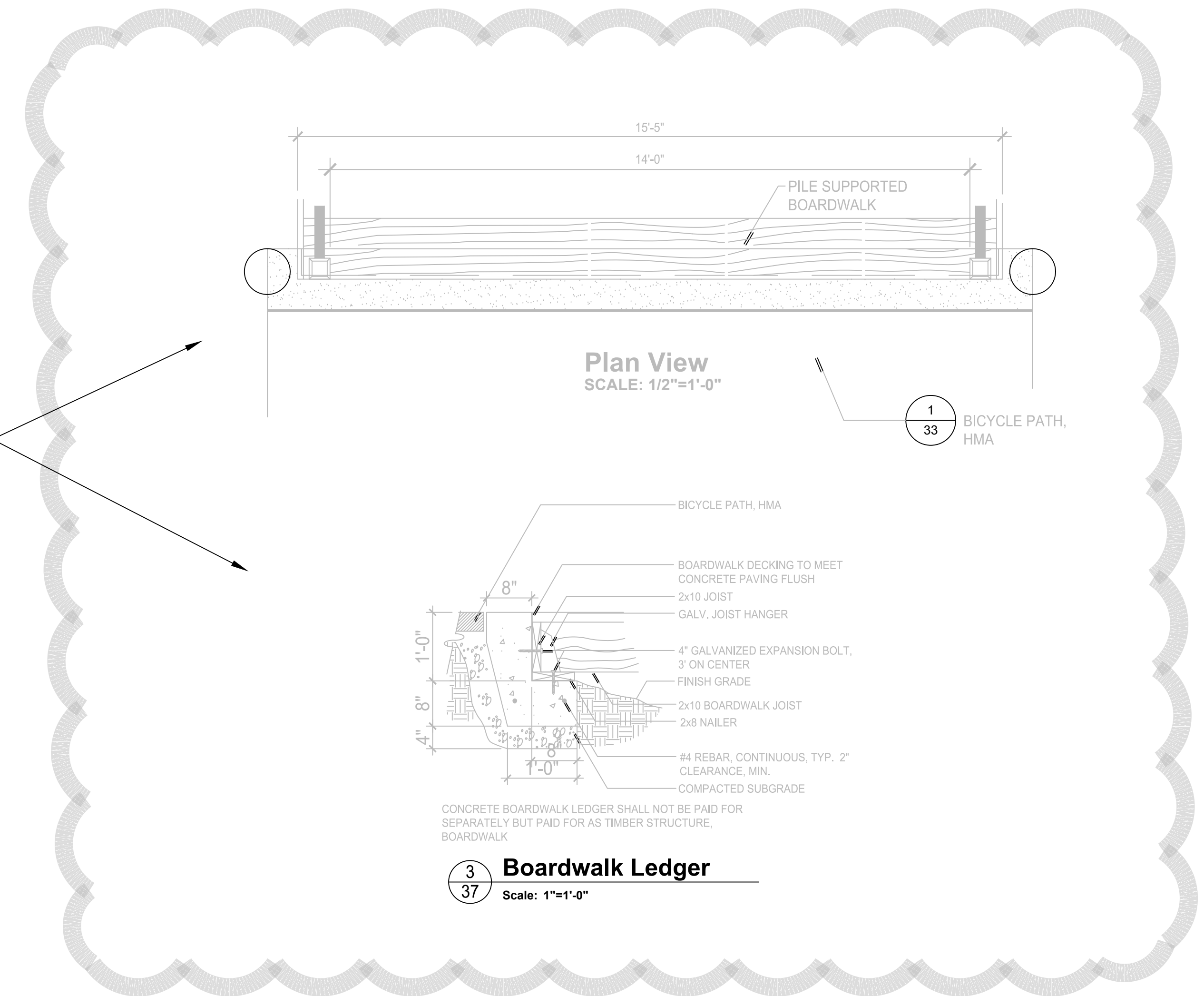


CROSS SECTION C-C
TYPICAL STA 72+14 TO 74+00

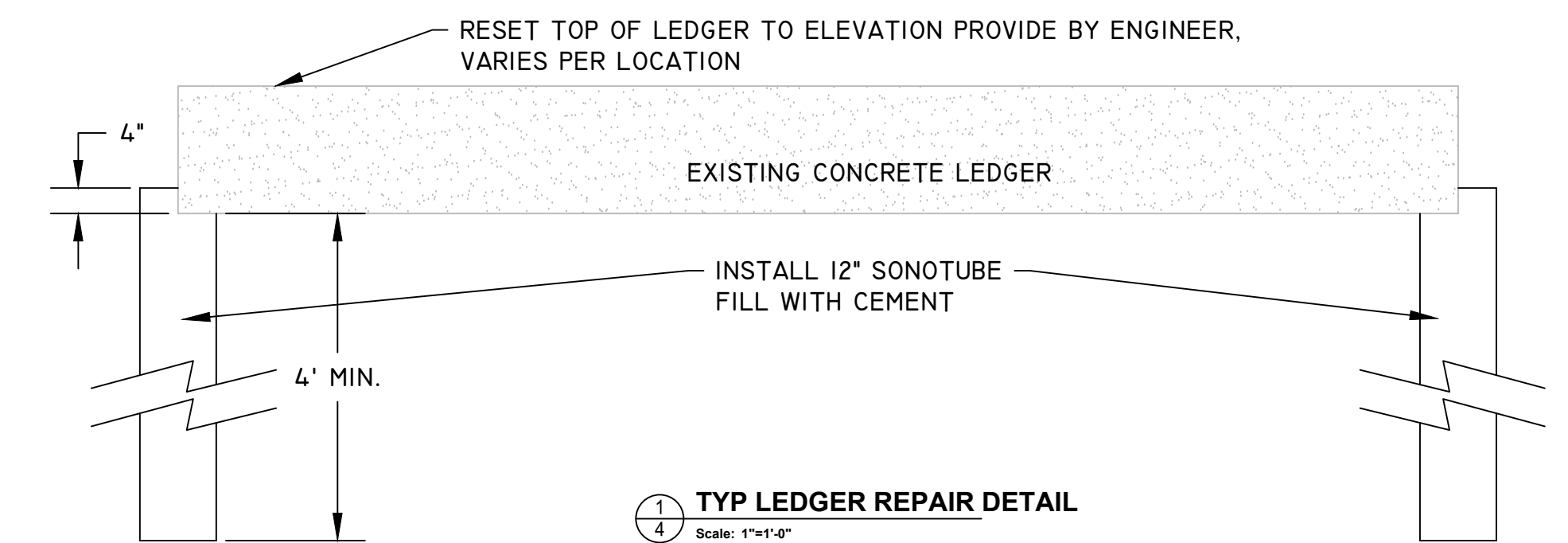
SCALE: H 1:10 V 1:1

QUANTITIES SECTION C		
DESCRIPTION	QUANTITY	UNIT
HMA SURFACE, REM	210	SYD
SUBBASE, LM	200	CUBIC YARD
AGGREGATE BASE, 6 INCH	290	SYD
RIPRAP, HEAVY LM	210	CUBIC YARD
LARGE BOULDER	9	EACH
SHARED USE PATH, GRADING	186	FT
HMA, 36A	17.5	TON
HMA, 13A	17.5	TON
MULCH BLANKET	0	SYD
TOPSOIL, FURN, 4 INCH	60	SYD
HYDROSEEDING	60	SYD

ALTERNATE #1



FROM ORIGINAL CONSTRUCTION AS BUILT PLANS TO SHOW EXISTING CONDITIONS. ALL WORK IS NOT PART OF THIS CONTRACT



GENERAL NOTES:

- THE EXISTING LEDGERS HAVE BEEN UNDER MINDED, ARE SINKING AND PULLING THE REST OF THE BOARD WALK WITH THEM. THERE IS NO FOOTING OR REAL SUPPORT FOR THE EXISTING LEDGER. THE IDEA IS TO ADD SOME SORT OF SUPPORT FOR THE LEDGER DURING HIGH WATER EVENTS.
- UNDER BASE BIDS (NO ALTERNATE SELECTED), THE CITY WILL SUPPORT AND SHORE UP THE LEDGERS TEMPORARILY UNTIL BASE AND RIPRAP IS INSTALLED. CONTRACTOR IS TO COORDINATE WITH THE CITY.
- METHOD OF INSTALLATION WILL BE DETERMINED BY THE CONTRACTOR. IF A COMPLETE REMOVAL OF THE LEDGER IS DEEMED NECESSARY, THEN COMPLETE RE-INSTALLATION NEEDS TO BE INCLUDED IN COST.
- THE PAY ITEM WILL BE "LEDGER REPAIR" WITH A UNIT OF EACH. EACH LEDGER LOCATION IS CONSIDERED ONE REPAIR. ALL WORK, MATERIAL AND EQUIPMENT NEEDED TO RESET EACH LEDGER AT PROPER ELEVATION WILL BE INCLUDED IN THIS PAY ITEM.
- THE CITY MAY ENTERTAIN OTHER ALTERNATE METHODS OF PROVIDING SUPPORT FOR EXISTING LEDGERS.
- IF THIS ALTERNATE IS DELETED FROM THE CONTRACT, THE CITY MAY PROVIDE WORK UNDER A SEPARATE CONTRACT. THE CONTRACTOR IS TO COORDINATE WITH THE CITY TO ENSURE THE LEDGERS ARE REPAIRED BEFORE THE BIKE PATH HMA TOP COURSE IS PLACED.

CITY OF MUSKEGON OFFICE OF THE CITY ENGINEER		LAKESHORE TRAIL AND SHORELINE RESTORATION	
DRAWN J BROOKENS 12/2019	REVISION J BROOKENS 07/2020	SURVEY MC SMITH 2001	PROJECT NO
CHECKED	REVISION	AS-BUILT	SP 92012
APPROVED	REVISION	SCALE 1" = 40'	SHEET NO. 4 OF 4