

# CITY OF MUSKEGON

## MILLARD AVENUE

### STREET IMPROVEMENTS

#### LAKE DUNES DRIVE TO 1200' WEST

#### H-92340

### UTILITIES

#### ELECTRIC

JOEL BROWN  
 CONSUMERS ENERGY  
 700 E STERNBERG ROAD  
 NORTON SHORES, MI 49441  
 (231) 557-8762

#### TELEPHONE

CINDY WHITEMAN  
 FRONTIER COMMUNICATIONS  
 860 TERRACE STREET  
 MUSKEGON MI 49440  
 (231) 727-0290

#### GAS

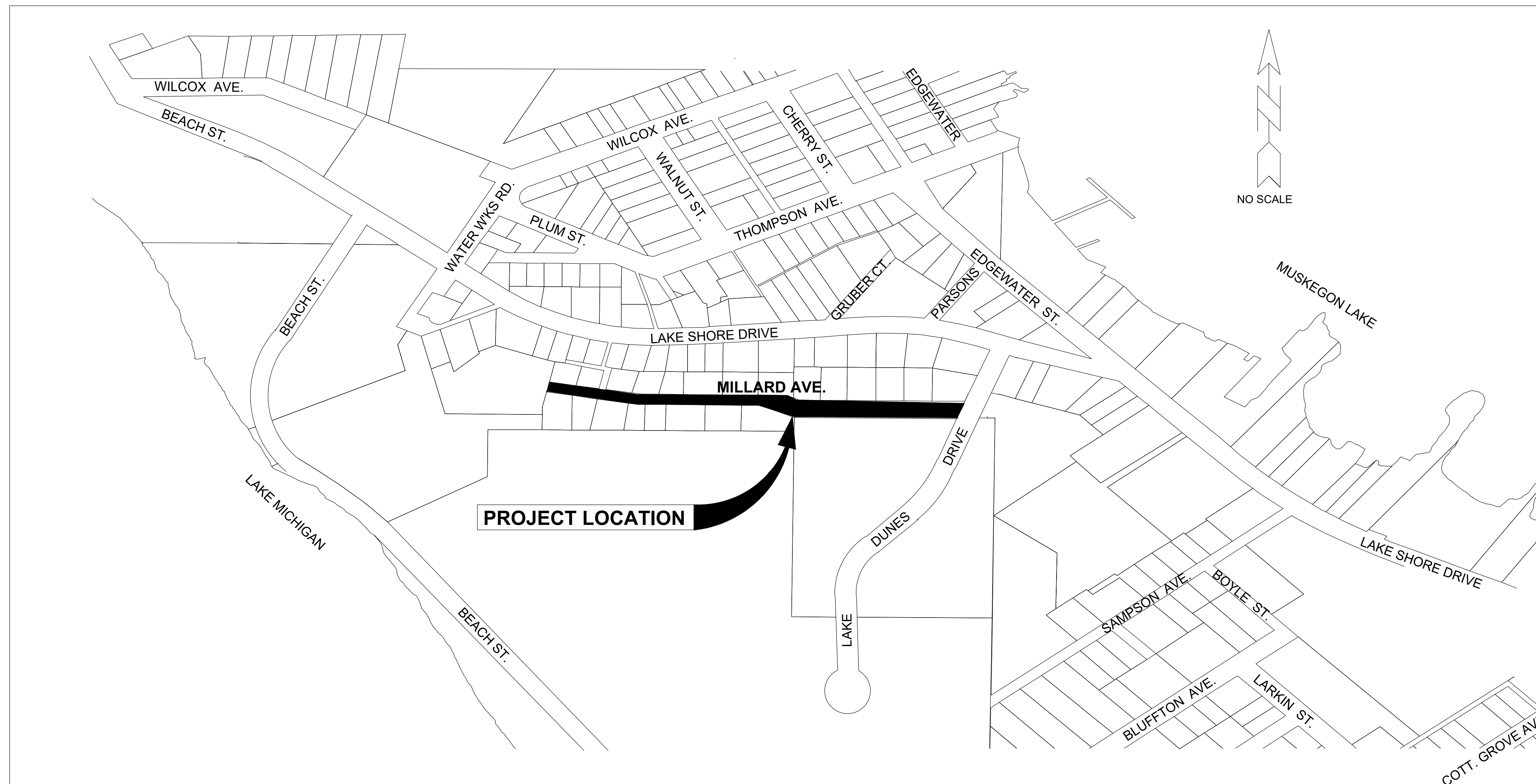
TONY FERRIER  
 DTE ENERGY  
 2359 OLTHOFF DRIVE  
 MUSKEGON MI 49444  
 (231) 726-0943 (CELL)

#### CABLE

JIM STITZEL  
 COMCAST  
 700 W BROADWAY AVENUE  
 MUSKEGON, MI 49441  
 (810) 217-1642

#### WATER & SEWER

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



CONSTRUCTION INCLUDES 0.20 MILES OF HMA PAVEMENT RECONSTRUCTION, INCLUDING HMA REMOVAL, HMA PAVEMENT, WATER SERVICES AND STORM SEWER, ON MILLARD AVE IN THE CITY OF MUSKEGON, MUSKEGON COUNTY.

PREPARED UNDER THE SUPERVISION OF:

DAN VANDERHEIDE, P.E.  
 CITY ENGINEER

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

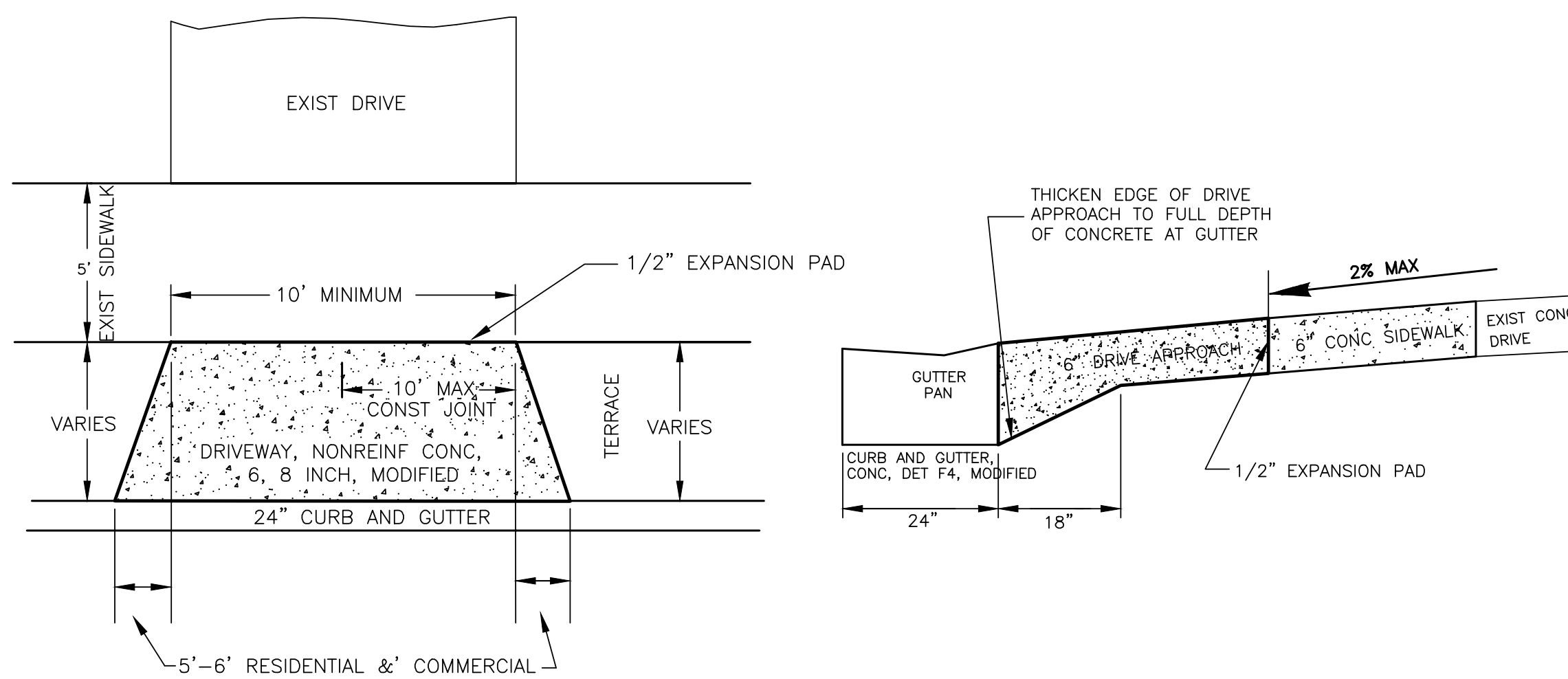
57004  
 REGISTRATION NUMBER

CITY OF MUSKEGON OFFICE OF THE CITY ENGINEER  
 MILLARD AVENUE LAKE DUNES DRIVE TO 1200' WEST

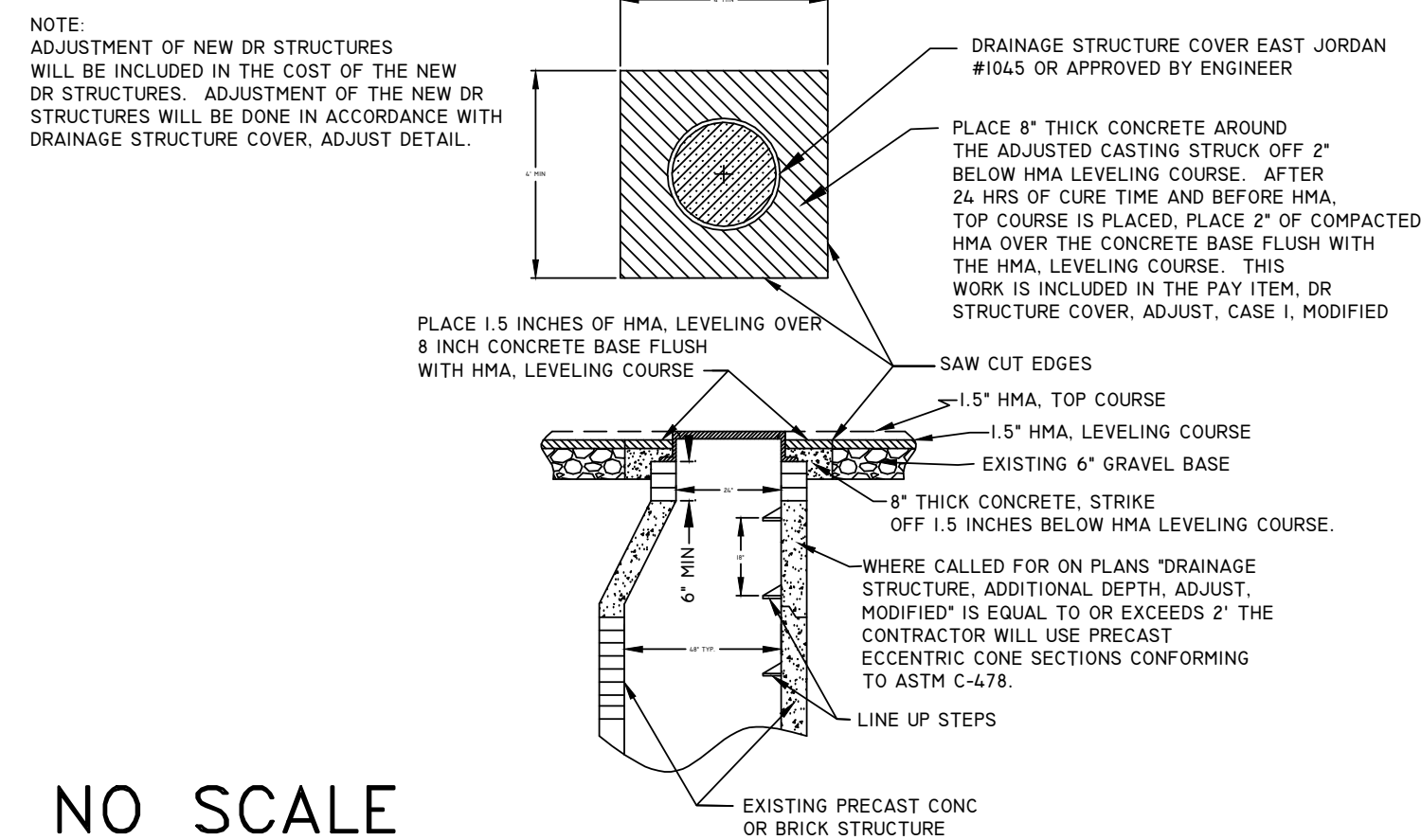
DRAWN C. SCOTT	JAN 01	REVISION C.A.S.	MAR 01	SURVEY C.W.	JULY 00	H-92340
CHECKED		REVISION C.A.S.	FEB 04	AS-BUILT		PROJECT NO
APPROVED		REVISION F.P.	AUG 23	SCALE	NO SCALE	SHEET NO 1 OF 5

# MILLARD AVE, LAKE DUNES DR. TO 1200' WEST, CROSS SECTION AND DETAIL SHEET

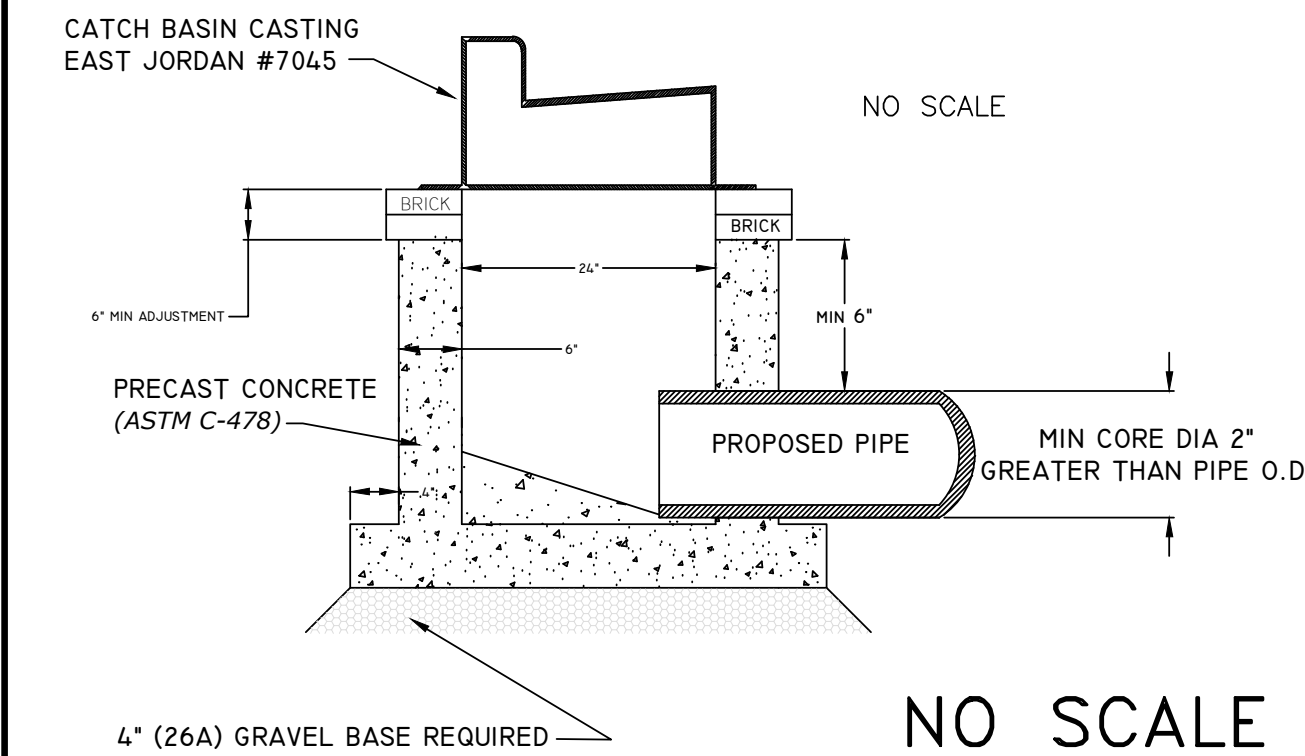
TYPICAL DRIVE APPROACH DETAIL



DRAINAGE STRUCTURE COVER, ADJUST DETAIL



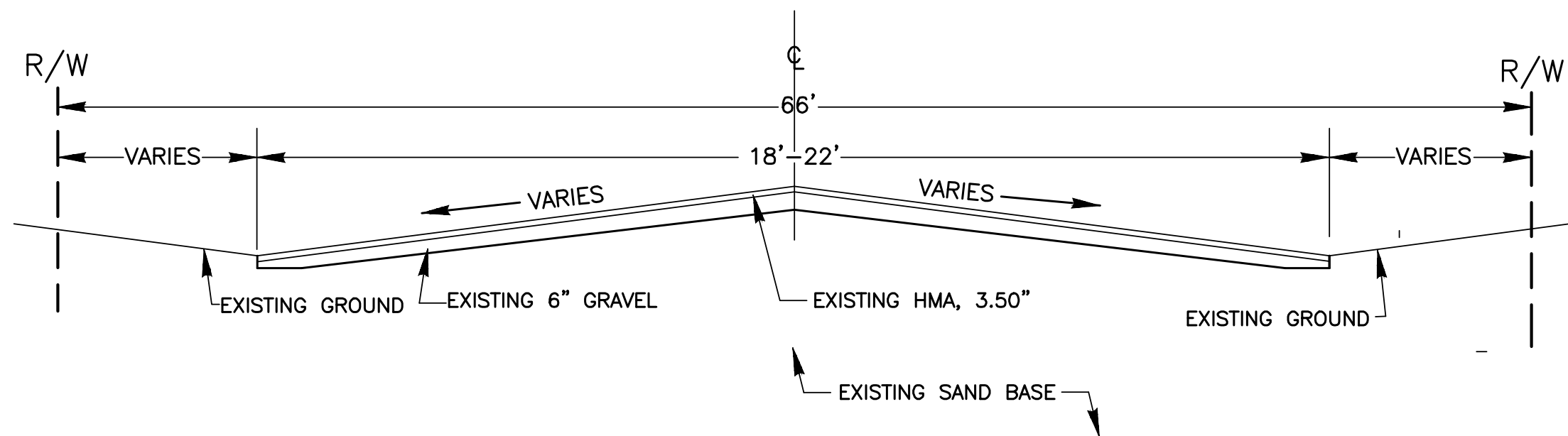
DETAIL FOR: CATCH BASIN 2 FT DIA, SPECIAL DETAIL



GENERAL NOTES:

- UPON REQUEST AND APPROVAL, THE CONTRACTOR MAY OBTAIN A WATER SUPPLY FROM THE CITY OF MUSKEGON FIRE HYDRANTS AT NO COST, PROVIDED THAT THEY FOLLOW THE CONDITIONS OF THE CITY WATER DEPARTMENT.
- WHENEVER SMALL CASTINGS (STOP BOXES, METER PITS, MONITORING WELLS) ARE ENCOUNTERED WITHIN THE WORK AREA THEY SHALL BE ADJUSTED AT NO COST TO THE CITY. PAYMENT SHALL BE INCLUDED WITH THE LINE ITEM OF WORK BEING PERFORMED.
- FOR PROTECTION OF UNDERGROUND UTILITIES, THE CONTRACTOR SHALL CALL MISS DIG, (811) 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 THUS BE NOTIFIED, THIS DOES NOT RELIEVE THE CONTRACTOR THE RESPONSIBILITY OF NOTIFYING OWNERS WHO MAY NOT BE PART OF THE MISS DIG ALERT SYSTEM.
- 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. THE CONTRACTOR SHALL CALL MISS DIG 3 WORKING DAYS (EXCLUDING SAT., SUN., AND HOLIDAYS) BEFORE DIGGING (1-800-482-7171).
- EXISTING TRAFFIC CONTROL SIGNS THAT NEED TO BE REMOVED TO ALLOW THE CONTRACTOR TO WORK WILL BE REMOVED BY THE CONTRACTOR AND STORED IN A SAFE PLACE TO AVOID DAMAGE. THE CONTRACTOR SHALL THEN REINSTALL THE SIGNS IN THEIR ORIGINAL LOCATION OR AS DIRECTED BY THE ENGINEER. REMOVAL AND REPLACEMENT OF THE SIGNS WILL BE INCLUDED IN THE ITEM OF MINOR TRAFFIC DEVICES. SIGNS THAT ARE DAMAGED BY THE CONTRACTOR WILL BE REPLACED BY CITY FORCES, AND THE CONTRACTOR WILL PAY THE CITY FOR THE COST OF REPLACEMENT.
- 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 SURFACE, REM AND SIDEWALK, REM. NO ADDITIONAL PAYMENT WILL ALLOWED FOR SAW CUTTING.
- IRRIGATION SYSTEMS AS MARKED OR STAKED DAMAGED THROUGH CARELESS WORK BY THE CONTRACTOR WILL BE REPAIRED BY THE CONTRACTOR AT NO COST TO THE CITY OF MUSKEGON. THE CITY OF MUSKEGON WILL PAY FOR RELOCATION OF IRRIGATION SYSTEMS DUE TO WIDENING OF ROAD OR IN CONFLICT WITH THE CONSTRUCTION OF UNDERGROUND WORK. PAYMENT WILL BE MADE BY A NEGOTIATED UNIT PRICE THROUGH A CONTRACT MODIFICATION. IT SHALL BE AT THE ENGINEER'S DISCRETION AS TO WHAT IRRIGATION REPAIR AND/OR RELOCATION IS THE RESULT OF CARELESS WORK BY THE CONTRACTOR OR THAT WHICH IS NECESSARY FOR THE CONSTRUCTION OF ROAD OR UTILITY WORK.
- THE CONTRACTOR SHALL PREVENT EROSION AND CONTROL SEDIMENTATION ASSOCIATED WITH THE PROJECT. KEEP SEDIMENTATION WITHIN THE RIGHT OF WAY AND OUT OF SURFACE WATERS, CONSTRUCT AND MAINTAIN TEMPORARY EROSION AND SEDIMENTATION CONTROLS, CONTROLS TO INCLUDE EROSION CONTROL, 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 RAIN FALL 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, SHALL BE INCLUDED WITH THE PAY ITEM "PAVT, REM, MODIFIED" NO OTHER PAYMENT SHALL BE MADE.

NOT TO SCALE  
TYPICAL EXISTING X-SECTION  
STATION 0+91-11+31 (18'-22')  
STATION 11+31-11+62.5 (VARIES)



DRAINAGE STRUCTURE COVERS

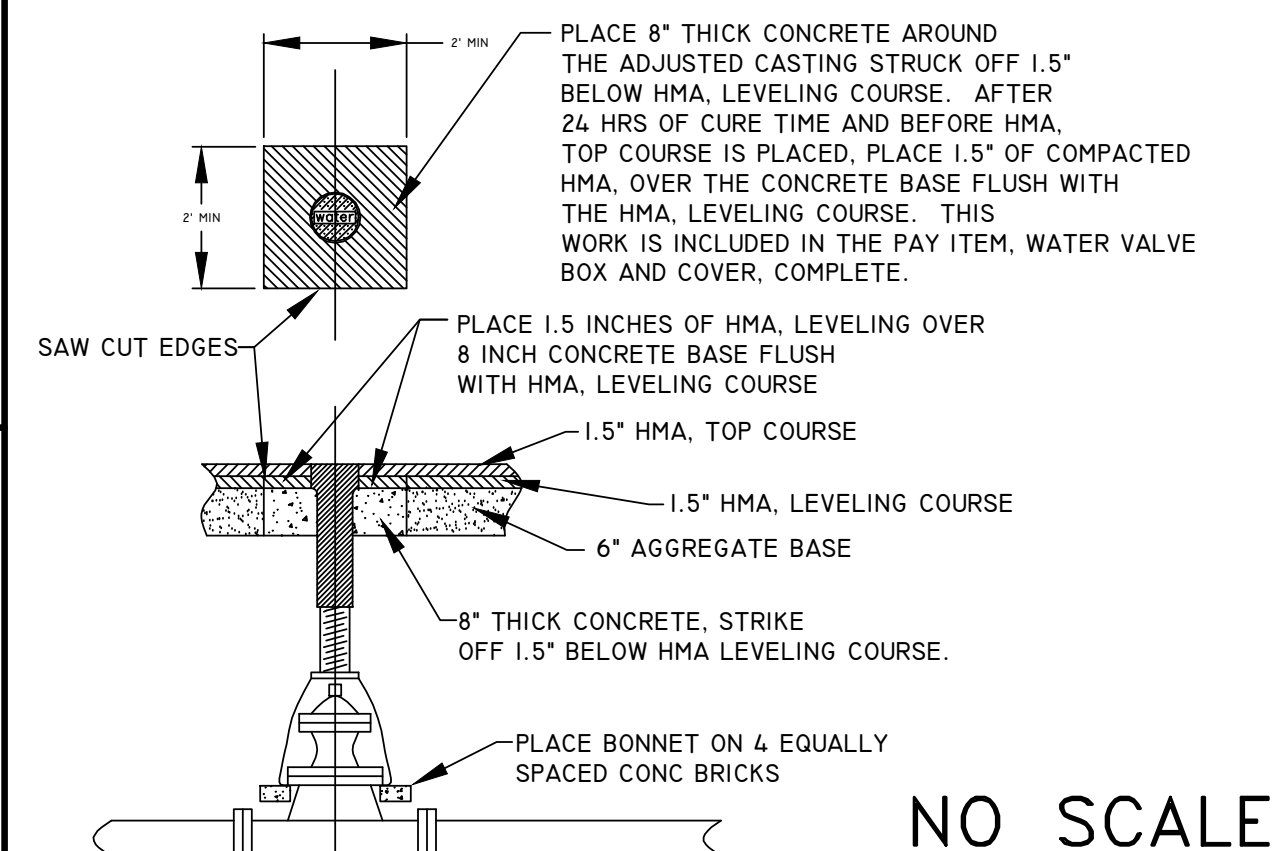
QUANTITY	DETAIL TYPE	CASTING DESCRIPTION	UNIT WEIGHT	TOTAL WEIGHT
3 EA	K	CATCH BASIN CASTING EAST JORDAN #7045 OR EQUAL	490#	1,470#
6 EA	B	MANHOLE CASTING EAST JORDAN #1045 OR EQUAL TYPE A - SOLID COVER	330#	1,980#

MILLARD AVE HMA APPLICATION

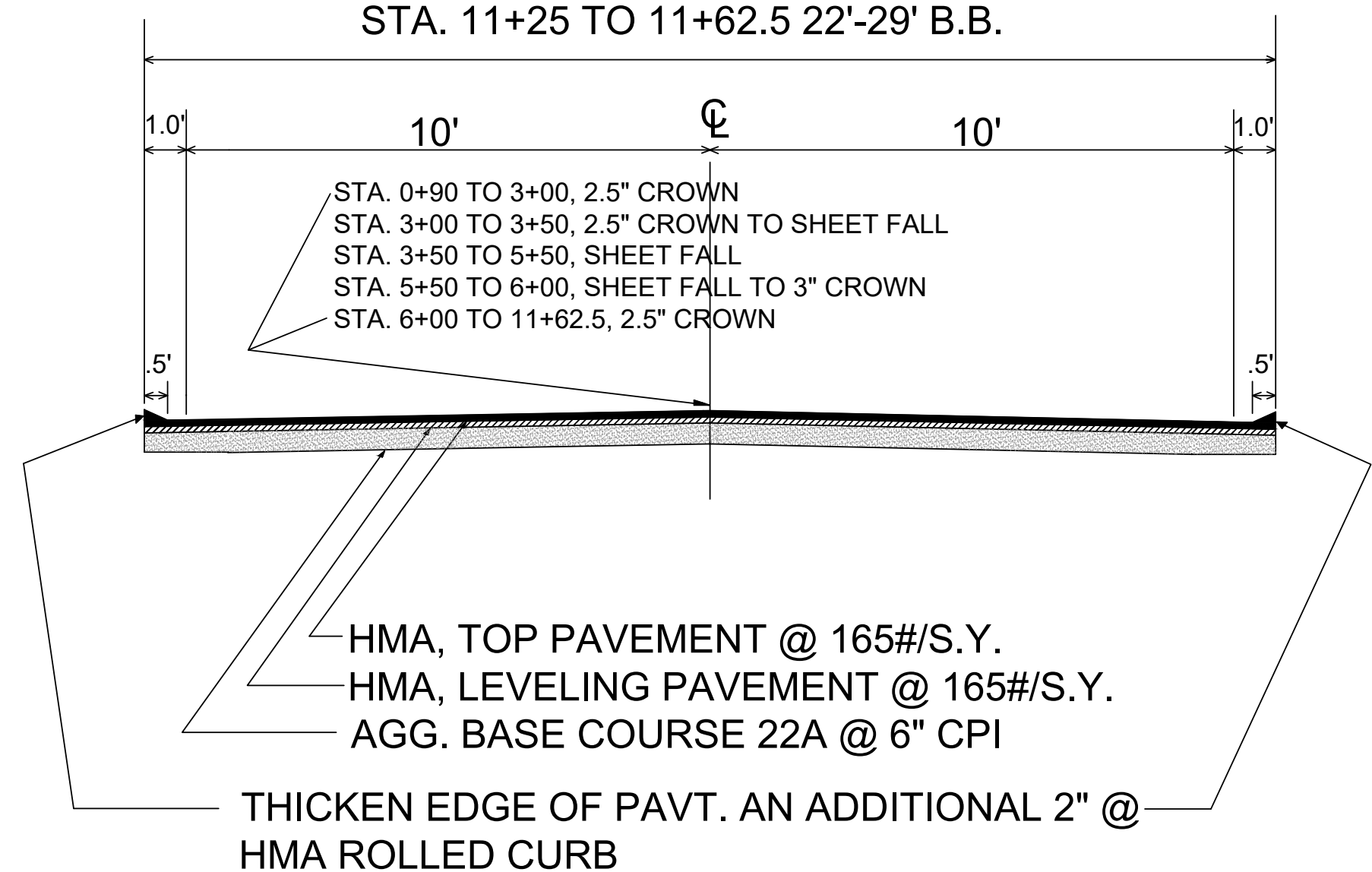
HMA MIX	RATE	PERFORMANCE GRADE	LIFT
HMA, LEML (TOP COURSE)	165# / SYD	70-28(P)	1.5 INCH-1 LIFT AWI 260, MIN
HMA, LEML (LEVEL COURSE)	165# / SYD	64-28	1.5 INCH-1 LIFT

HMA BOND COAT, SS-H, AT 0.05 TO 0.15 GAL/SY, SHALL BE PLACED BETWEEN EACH LIFT. THE COST IS INCLUDED WITH THE HMA PAY ITEM.

WATER VALVE BOX AND COVER, COMPLETE DETAIL

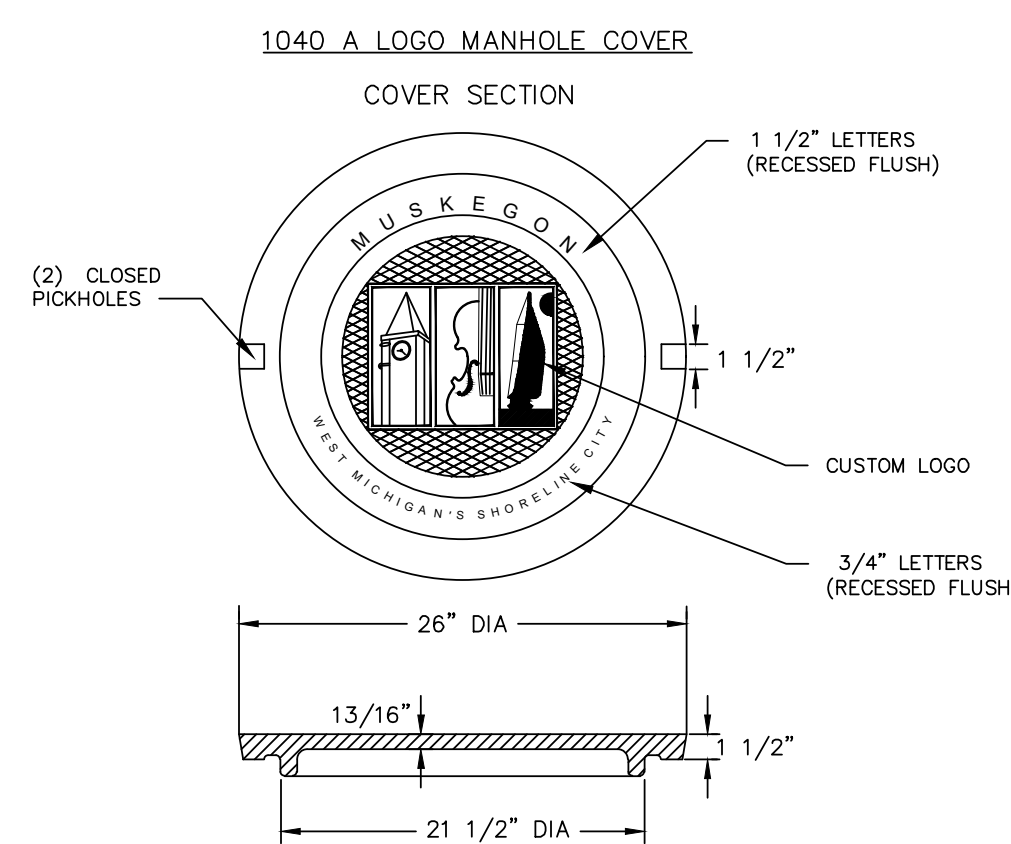


STA. 0+90 TO 11+25 22' B.B.  
STA. 11+25 TO 11+62.5 22'-29' B.B.



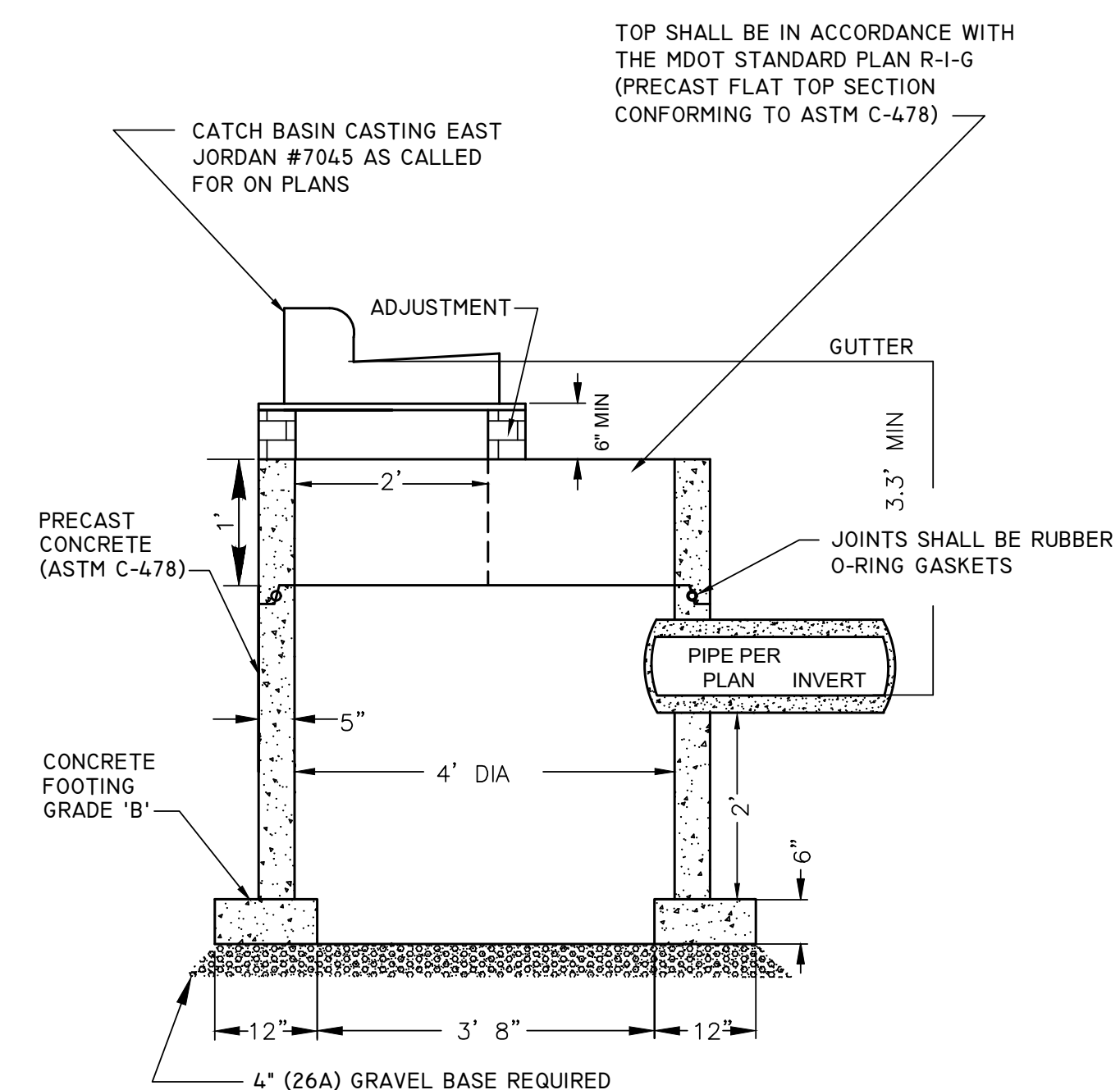
PROPOSED TYPICAL CROSS SECTION

DETAIL FOR: COVER B

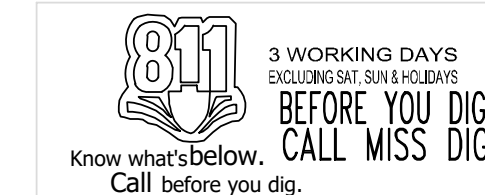


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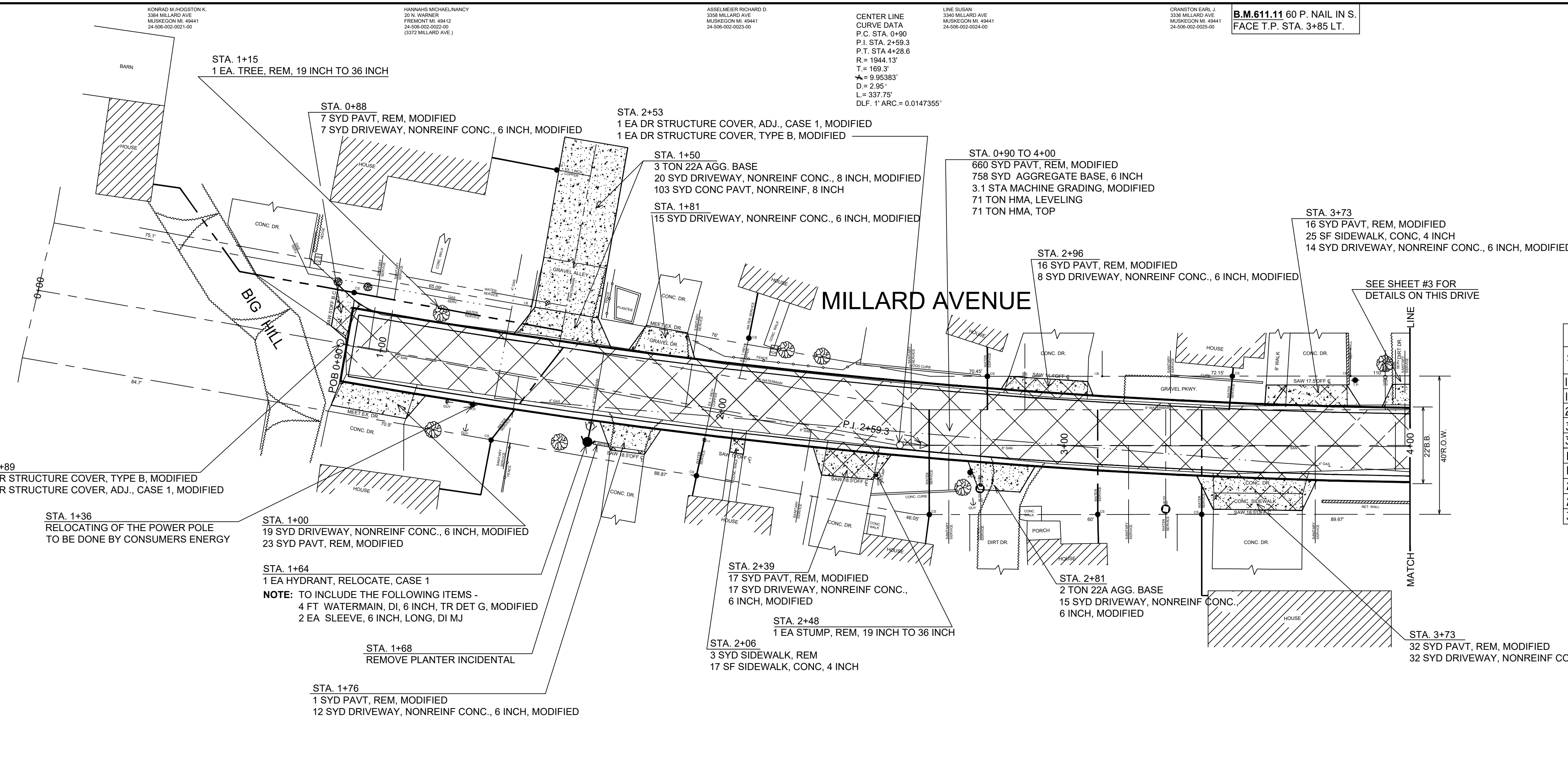
DETAIL FOR: CATCH BASIN 4 FT DIA, SPECIAL DETAIL



NO SCALE

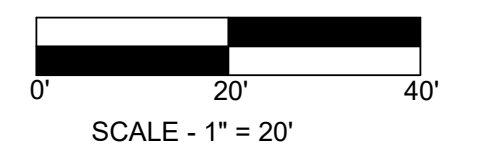






**QUANTITIES THIS SHEET**

DR STRUCTURE COVER, ADJ, CASE 1, MODIFIED	2	EA
AGGREGATE BASE (22A AS NEEDED)	5	TON
AGGREGATE BASE, 6 INCH	758	SYD
HMA, LEVELING	71	TON
HMA, TOP	71	TON
DRIVEWAY, NONREINF CONC, 8 INCH, MODIFIED	20	SYD
DRIVEWAY, NONREINF CONC, 6 INCH, MODIFIED	143	SYD
SIDEWALK, CONC, 4 INCH	42	SF
CORPORATION STOP 1"	8	EA
CURB STOP 1" W / BOX	10	EA
MACHINE GRADING, MODIFIED	3.1	STA
DR STRUCTURE COVER, TYPE B, MODIFIED	2	EA
HYDRANT, RELOCATE, CASE 1	1	EA
PAVT, REM, MODIFIED	772	SYD
TREE, REM, 19 INCH TO 36 INCH	1	EA
STUMP, REM, 19 INCH TO 36 INCH	1	EA
WATER SERVICE 1" TYPE "K" COPPER	218	FT
WATER VALVE BOX & COVER COMPLETE	1	EA
WATER SERVICE, PRIVATE PROPERTY, 1 INCH	200	FT
WATER SERVICE, BUILDING CONNECTION, 1 INCH	10	EA
CONC PAVT, NONREINF, 8 INCH	103	SYD



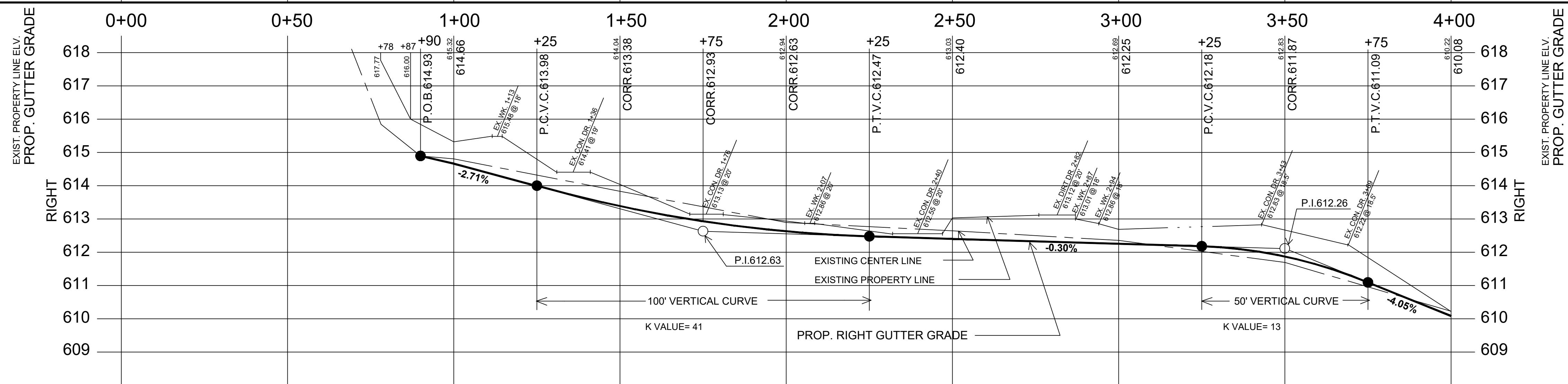
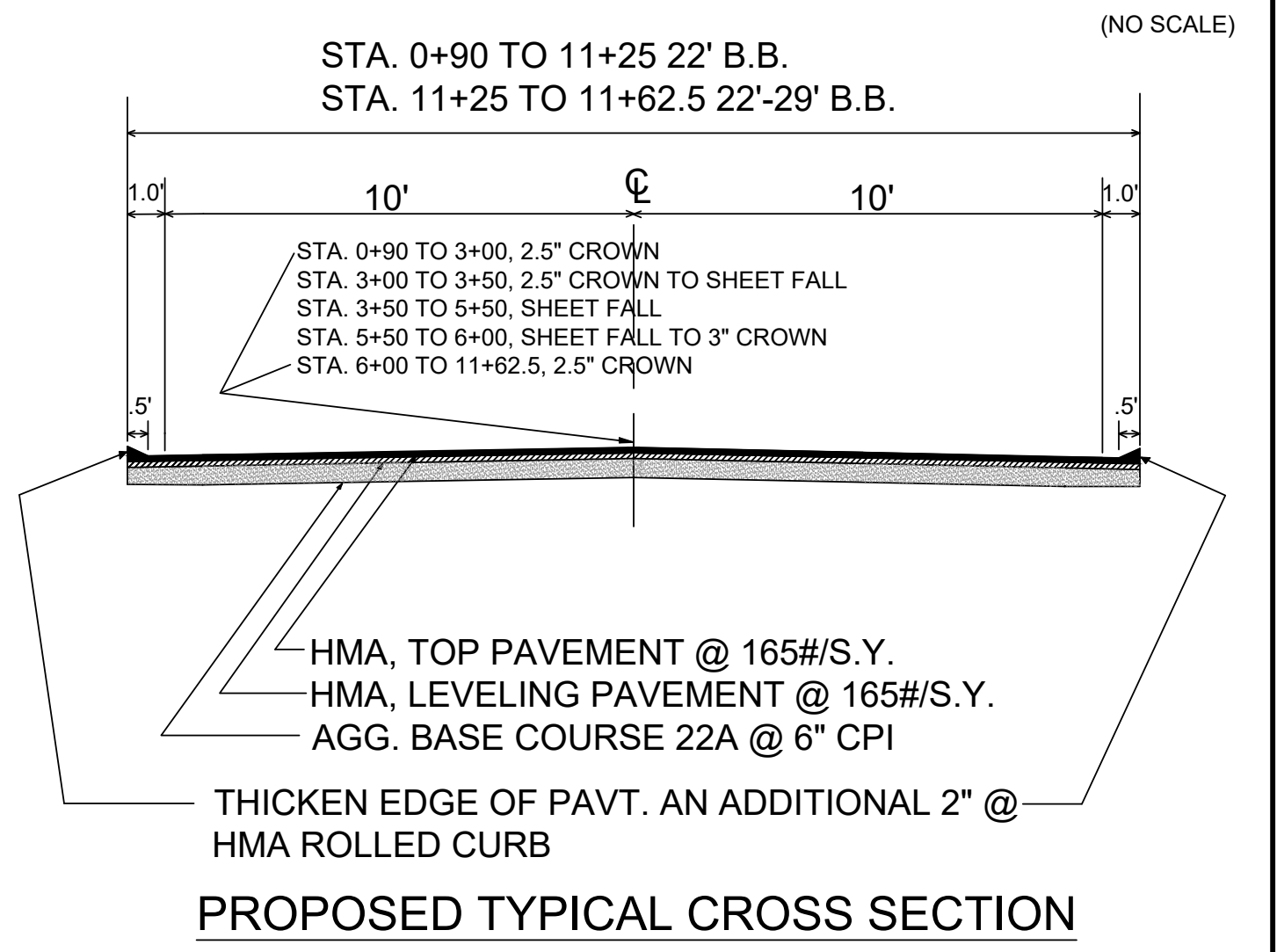
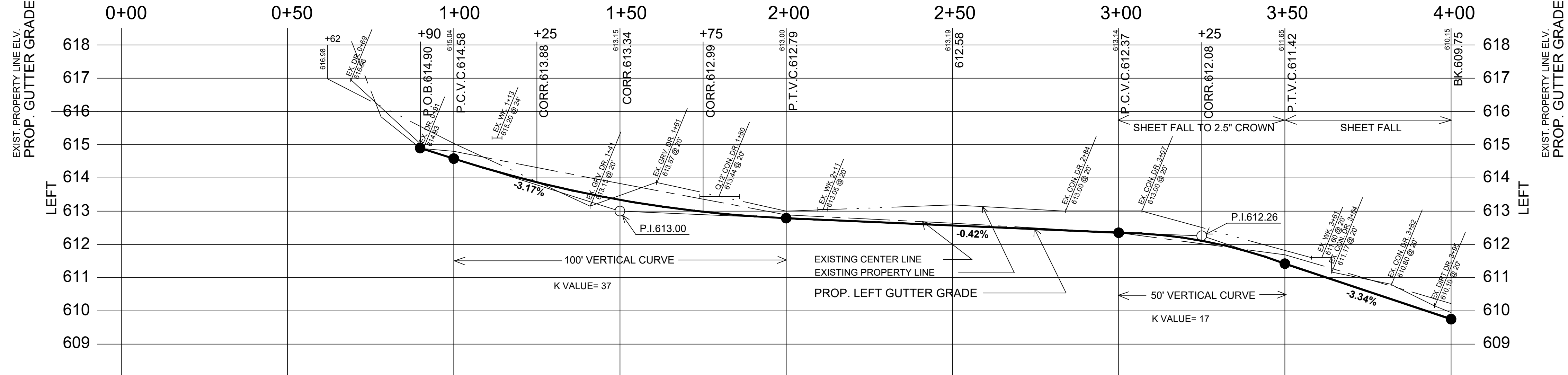
NOTE: THERE WILL BE APPROXIMATELY 166 CYD EXCAVATION INCLUDED UNDER THE MACHINE GRADING, MODIFIED PAY ITEM

**1 INCH WATER SERVICE SCHEDULE**

STATION	1 INCH CORP	1 INCH TYPE "K" COPPER	1 INCH CURB STOP	METER PIT	PRIVATE PROPERTY (FT)	BUILDING CONNECTION
I+52 RT	I EACH	34 FT	I EACH		30 FT	I EACH
I+97 RT	I EACH	12 FT	I EACH		7 FT	I EACH
2+61 RT	I EACH	31 FT	I EACH		10 FT	I EACH
3+10 RT	I EACH	30 FT	I EACH		10 FT	I EACH
3+40 RT	I EACH	30 FT	I EACH		26 FT	I EACH
I+51 LT	I EACH	61 FT	I EACH		71 FT	I EACH
I+51 LT	EXIST		I EACH		19 FT	I EACH
2+03 LT	EXIST		I EACH		14 FT	I EACH
2+78 LT	I EACH	10 FT	I EACH		10 FT	I EACH
3+47 LT	I EACH	10 FT	I EACH		3 FT	I EACH

**NOTES**

- PUBLIC UTILITIES OF ALL TYPES HAVE BEEN SHOWN ON THE PLANS USING AVAILABLE INFORMATION BUT ARE NOT GUARANTEED AS ACCURATE OR THAT UTILITIES OTHER THAN THOSE SHOWN ARE NOT PRESENT. THE CONTRACTOR SHALL CALL MISS DIG 3 WORKING DAYS (EXCLUDING SATURDAYS, SUNDAYS AND HOLIDAYS) BEFORE DIGGING (1-800-482-7171)
- TRAFFIC CONTROL WILL BE IN ACCORDANCE TO THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. THE USE OF TYPE III LIGHTED BARRICADES WILL BE REQUIRED.
- ALL SAW CUTTING SHALL BE CONSIDERED INCIDENTAL TO REMOVAL PAY ITEMS.
- BITUMINOUS BOND COAT @ 0.10 GAL/S.Y. BETWEEN EACH LIFT, IS CONSIDERED INCIDENTAL TO THE PAVING.



<b>CITY OF MUSKEGON</b>		<b>MILLARD AVENUE</b>	
OFFICE OF THE CITY ENGINEER		LAKE DUNES DRIVE TO 1200' WEST	
DRAWN C. SCOTT	DEC 00	REVISION C.A.S.	MAR 01
CHECKED		REVISION C.A.S.	FEB 04
APPROVED		REVISION F.P.	AUG 23
		SURVEY C.V.V. JULY 00	
		AS-BUILT	
		SCALE HOR 1"=20', VER 1"=2'	
		PROJECT NO H-92340	
		SHEET NO 3 OF 5	

CENTER LINE  
CURVE DATA  
P.C. STA. 0+90  
P.I. STA. 2+59.3  
P.T. STA. 4+28.6  
R = 1944.13'  
T = 169.3'  
Δ = 9.95383°  
D = 2.95°  
L = 337.75'  
D.L.F. 1° ARC = 0.0147355'

CHRISTOPHER S. CARL  
3326 MILLARD AVE  
MUSKEGON MI 49841  
24-598-002-0035-00  
(3326 MILLARD AVE.)

MILES THOMAS ALSTIN  
3308 MILLARD AVE  
MUSKEGON MI 49841  
24-598-002-0035-00

CENTER LINE  
CURVE DATA  
P.C. STA. 5+00  
P.I. STA. 5+50  
P.T. STA. 6+00  
R = 847.85'  
T = 50'  
Δ = 6.75°  
D = 6.76°  
L = 99.88'  
D.L.F. 1° ARC = 0.03379'

LOUIE THOMAS ALSTIN  
3308 MILLARD AVE  
MUSKEGON MI 49841  
24-598-002-0035-00

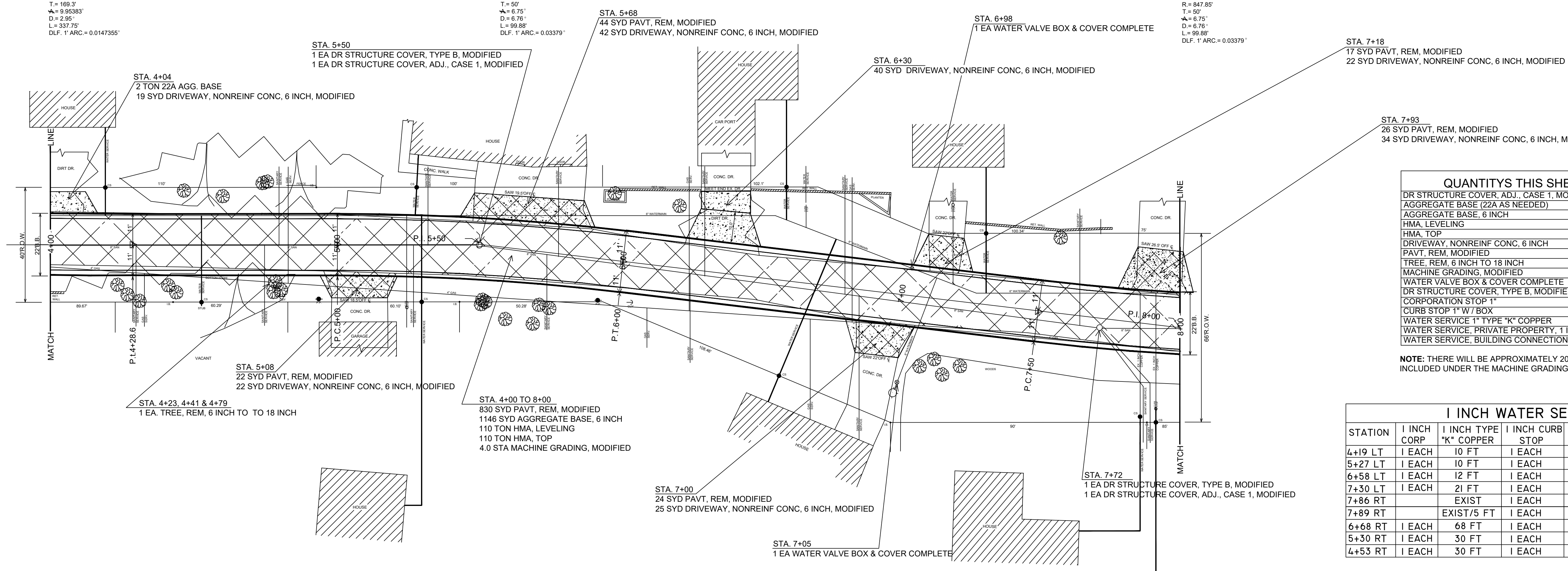
ESLINE EDWARDS REBELEY CAROL  
3326 MILLARD AVE  
MUSKEGON MI 49841  
24-598-002-0035-00

HARVEY N. TROTT  
3326 MILLARD AVE  
MUSKEGON MI 49841  
24-598-002-0035-00

CENTER LINE  
CURVE DATA  
P.C. STA. 7+50  
P.I. STA. 8+00  
P.T. STA. 8+50  
R = 847.85'  
T = 50'  
Δ = 6.75°  
D = 6.76°  
L = 99.88'  
D.L.F. 1° ARC = 0.03379'

RECKELL PETER  
2801 WARDER AVE #202  
HUNTINGTON B. CA 92849  
24-598-002-0035-00  
(3371 MILLARD AVE.)

# MILLARD AVENUE



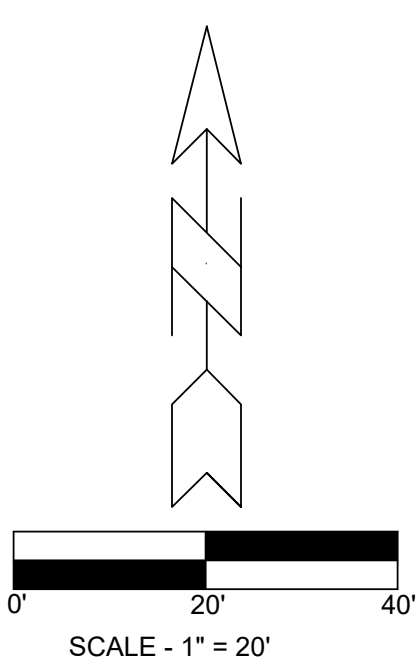
**QUANTITIES THIS SHEET**

DR STRUCTURE COVER, ADJ., CASE 1, MODIFIED	2	EA
AGGREGATE BASE (22A AS NEEDED)	2	TON
AGGREGATE BASE, 6 INCH	1146	SYD
HMA LEVELING	110	TON
HMA TOP	110	TON
DRIVEWAY, NONREINF CONC, 6 INCH	204	SYD
PAVT, REM, MODIFIED	963	SYD
TREE, REM, 6 INCH TO 18 INCH	1	EA
MACHINE GRADING, MODIFIED	4.0	STA
WATER VALVE BOX & COVER COMPLETE	2	EA
DR STRUCTURE COVER, TYPE B, MODIFIED	2	EA
CORPORATION STOP 1"	7	EA
CURB STOP 1" W/ BOX	9	EA
WATER SERVICE 1" TYPE "K" COPPER	186	FT
WATER SERVICE, PRIVATE PROPERTY, 1 INCH	306	FT
WATER SERVICE, BUILDING CONNECTION, 1 INCH	7	EA

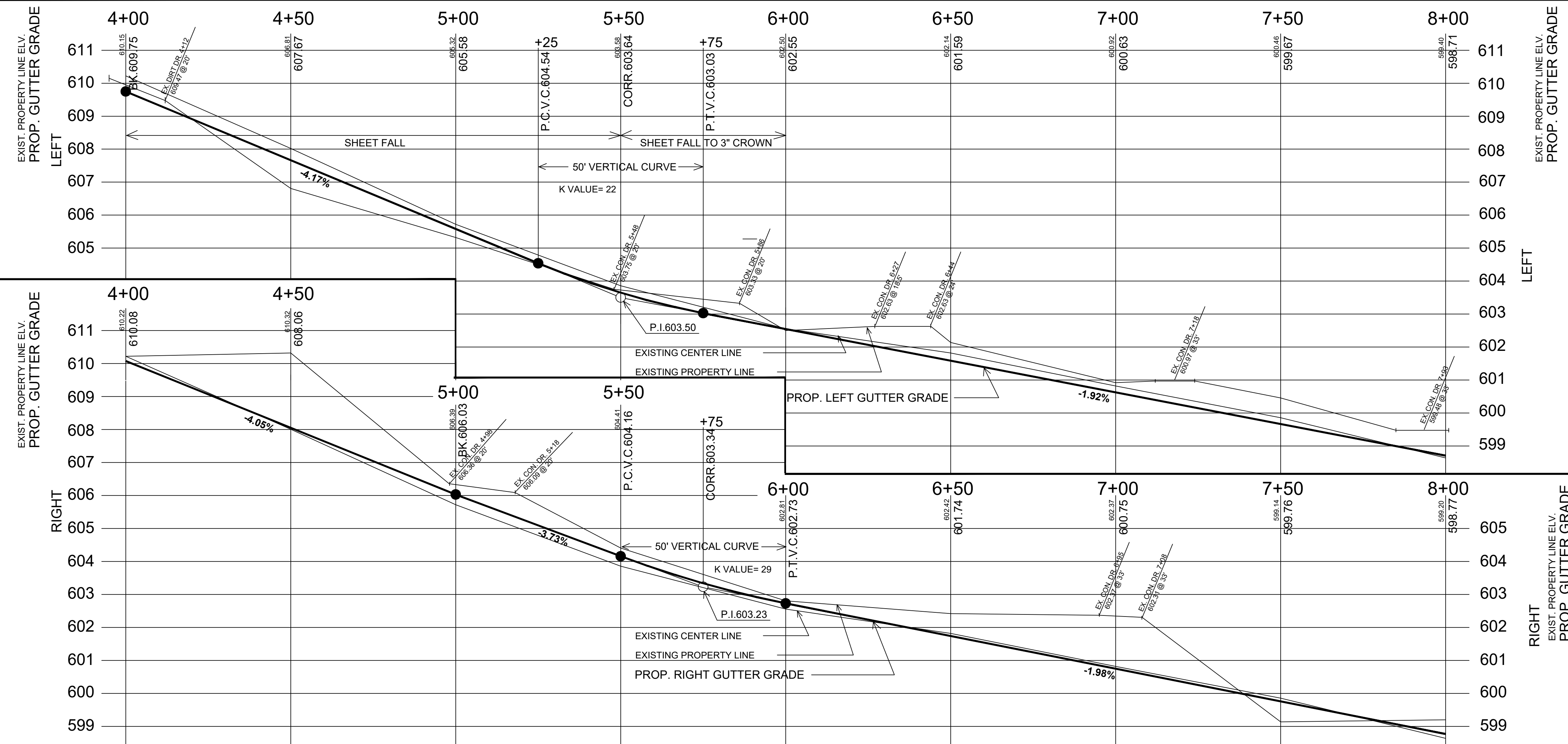
**NOTE:** THERE WILL BE APPROXIMATELY 201 CYD EXCAVATION INCLUDED UNDER THE MACHINE GRADING, MODIFIED PAY ITEM

**1 INCH WATER SERVICE SCHEDULE**

STATION	1 INCH CORP	1 INCH TYPE "K" COPPER	1 INCH CURB STOP	METER PIT	PRIVATE PROPERTY (FT)	BUILDING CONNECTION
4+19 LT	1 EACH	10 FT	1 EACH		21 FT	1 EACH
5+27 LT	1 EACH	10 FT	1 EACH		12 FT	1 EACH
6+58 LT	1 EACH	12 FT	1 EACH		31 FT	1 EACH
7+30 LT	1 EACH	21 FT	1 EACH		23 FT	1 EACH
7+86 RT		EXIST	1 EACH		62 FT	1 EACH
7+89 RT		EXIST/5 FT	1 EACH		70 FT	1 EACH
6+68 RT	1 EACH	68 FT	1 EACH		10 FT	1 EACH
5+30 RT	1 EACH	30 FT	1 EACH		77 FT	1 EACH
4+53 RT	1 EACH	30 FT	1 EACH			VACANT



DILL GARY GCARRIE L. 3335 MILLARD AVE. MUSKEGON MI 49841. 24-598-004-0000-00. (3335 MILLARD AVE.)  
 WELLSIE TRUST. 3307 MILLARD AVE. MUSKEGON MI 49841. 24-598-004-0000-00. (3307 MILLARD AVE.)  
 WELLSIE JAMES. 3307 MILLARD AVE. MUSKEGON MI 49841. 24-598-004-0000-00. (3307 MILLARD AVE.)  
**B.M.603.31 60 P. NAIL IN N. FACE P.P. STA. 5+91 RT.**  
 HORTON DORIS J. TRUST. 3301 MILLARD AVE. MUSKEGON MI 49841. 24-598-004-0001-00.  
 RECKELL PETER. 2801 WARDER AVE #202. HUNTINGTON B. CA 92849. 24-598-002-0035-00. (3371 MILLARD AVE.)

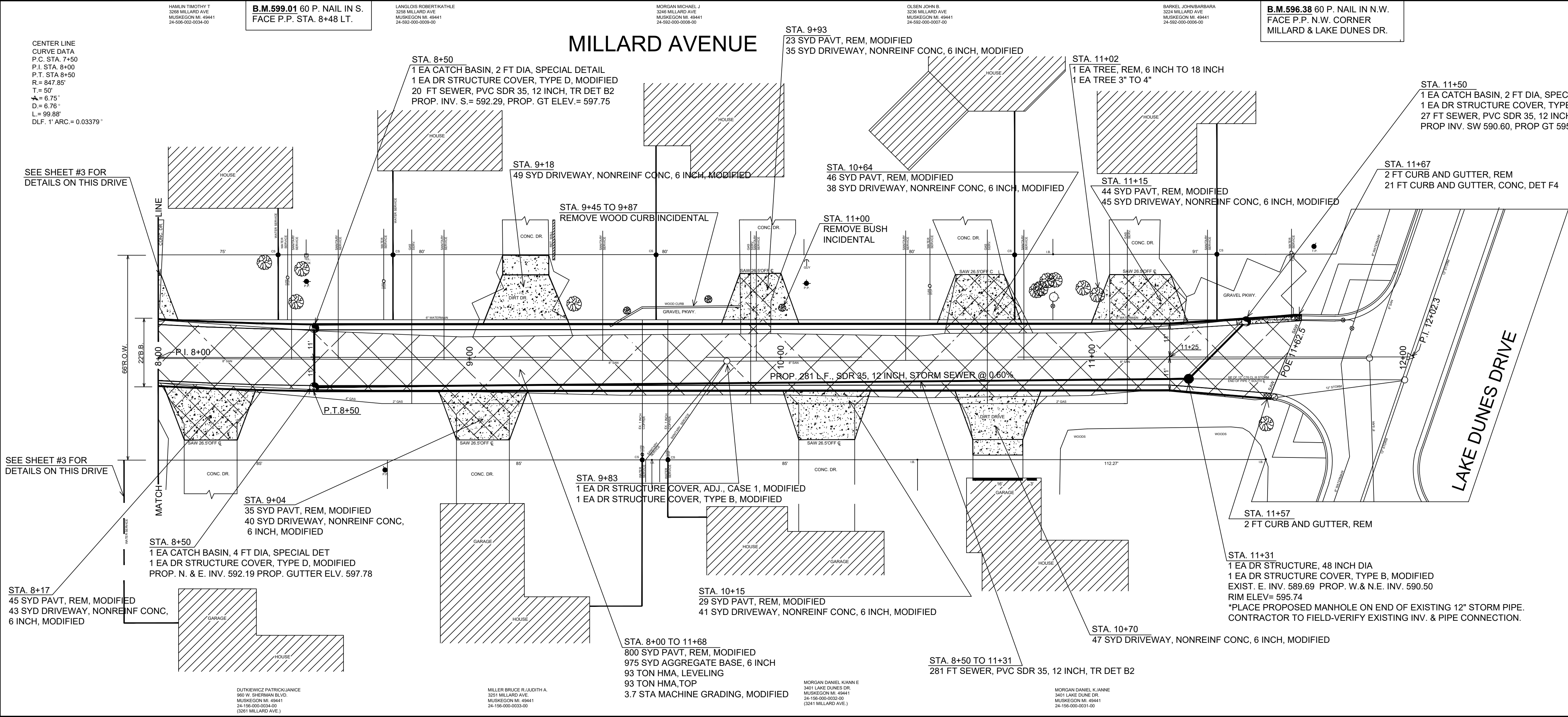


**CITY OF MUSKEGON**      **MILLARD AVENUE**  
 OFFICE OF THE CITY ENGINEER      LAKE DUNES DRIVE TO 1200' WEST

DRAWN C. SCOTT DEC 00	REVISION C.A.S. MAR 01	SURVEY C.W. JULY 00	PROJECT NO <b>H-92340</b>
CHECKED C.A.S. FEB 04	REVISION C.A.S. FEB 04	AS-BUILT	
APPROVED	REVISION F.P. AUG 23	SCALE HOR 1"=20', VER 1"=2'	

SHEET NO 4 OF 5





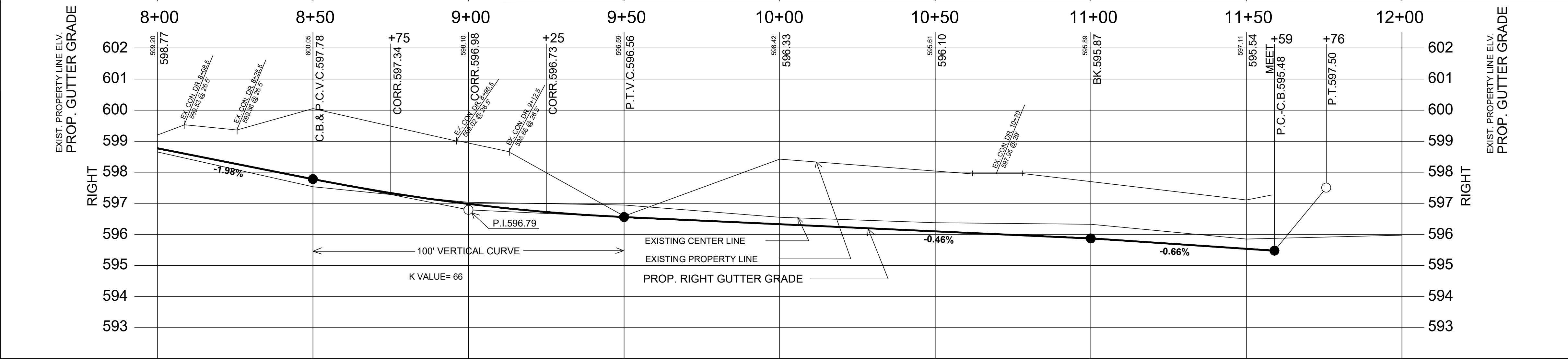
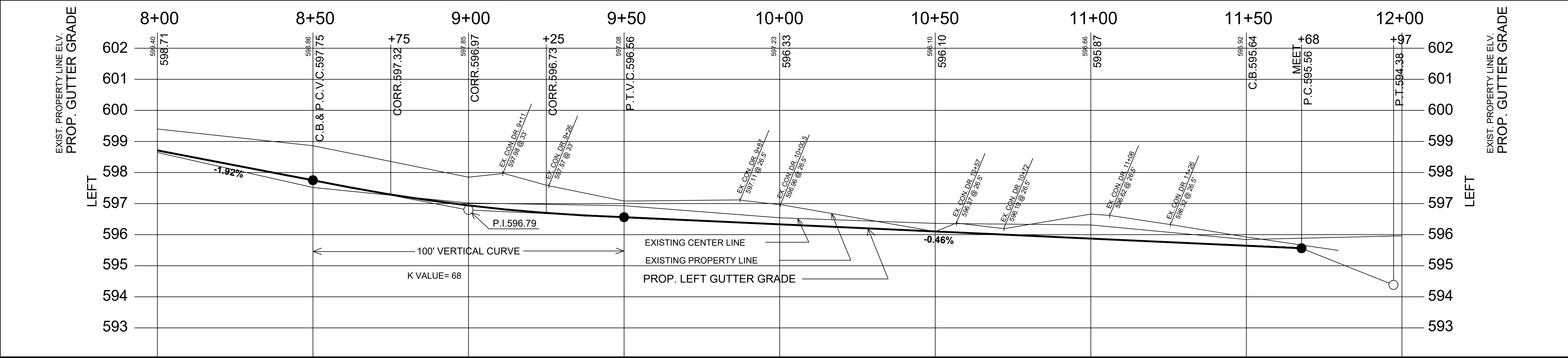
**QUANTITIES THIS SHEET**

DR STRUCTURE COVER, ADJ, CASE 1, MODIFIED	1	EA
AGGREGATE BASE, 6 INCH	975	SYD
HMA, LEVELING	93	TON
HMA, TOP	93	TON
DR STRUCTURE COVER, TYPE K, MODIFIED	1	EA
CATCH BASIN, 2 FT DIA, SPECIAL DETAIL	2	EA
CATCH BASIN, 4 FT DIA, SPECIAL DETAIL	1	EA
DRIVEWAY, NONREINF CONC, 6 INCH, MODIFIED	338	SYD
MACHINE GRADING, MODIFIED	3.7	STA
DR STRUCTURE COVER, TYPE B, MODIFIED	2	EA
DR STRUCTURE, 48 INCH DIA	3	EA
PAVT, REM, MODIFIED	1022	SYD
CURB & GUTTER, REM	4	FT
TREE, REM, 6 INCH TO 18 INCH	1	EA
SEWER, PVC SDR 35, 12 INCH, TR DET B2	328	FT
CORPORATION STOP 1"	5	EA
CURB STOP 1" W / BOX	7	EA
WATER SERVICE 1" TYPE "K" COPPER	107	FT
WATER SERVICE, PRIVATE PROPERTY, 1 INCH	260	FT
WATER SERVICE, BUILDING CONNECTION, 1 INCH	7	EA
CURB AND GUTTER, CONC, DET F4	21	FT
DR STRUCTURE COVER, TYPE D, MODIFIED	2	EA

NOTE: THERE WILL BE APPROXIMATELY 189 CYD EXCAVATION INCLUDED UNDER THE MACHINE GRADING, MODIFIED PAY ITEM

**1 INCH WATER SERVICE SCHEDULE**

STATION	1 INCH CORP	1 INCH TYPE "K" COPPER	1 INCH CURB STOP	METER PIT	PRIVATE PROPERTY (FT)	BUILDING CONNECTION
8+39 LT	1 EACH	21 FT	1 EACH		15 FT	1 EACH
8+67 LT	1 EACH	21 FT	1 EACH		27 FT	1 EACH
9+60 LT	1 EACH	21 FT	1 EACH		35 FT	1 EACH
10+75 LT	1 EACH	21 FT	1 EACH		46 FT	1 EACH
11+40 LT	1 EACH	21 FT	1 EACH		42 FT	1 EACH
9+64 RT		EXIST	1 EACH		31 FT	1 EACH
9+56 RT		EXIST/2 FT	1 EACH		64 FT	1 EACH



**CITY OF MUSKEGON**  
OFFICE OF THE CITY ENGINEER

**MILLARD AVENUE**  
LAKE DUNES DRIVE TO 1200' WEST

DRAWN C. SCOTT	DEC 00	REVISION C.A.S.	MAR 01	SURVEY C.W.	JULY 00	<b>H-92340</b>
CHECKED		REVISION C.A.S.	FEB 04	AS-BUILT		PROJECT NO
APPROVED		REVISION F.P.	AUG 23	SCALE	HOR 1"=20', VER 1"=2'	SHEET NO 5 OF 5