

STANDARD PLANS

R-1-G DRAINAGE STRUCTURES
 R-7-F COVER B
 R-15-G COVER K
 *R-28-K CURB RAMP AND DETECTABLE WARNING DETAILS
 *R-29-J DRIVEWAY OPENINGS & APPROACHES AND CONCRETE SIDEWALKS
 R-30-G CONCRETE CURB AND CONCRETE GUTTER
 *R-80-F GRANULAR BLANKET, UNDERDRAINS, OUTLET ENDINGS FOR UNDERDRAINS, AND SEWER BULKHEADS
 R-83-C UTILITY TRENCHES
 R-96-E SOIL EROSION & SEDIMENTATION CONTROL MEASURES

* INDICATES SPECIAL DETAIL. THESE REFERENCED STANDARD PLANS AND SPECIAL DETAILS INCLUDED IN THE PROPOSAL.

CITY OF MUSKEGON

PLAN AND PROFILE OF PROPOSED SOUTHERN AVENUE

FROM LAKE SHORE DRIVE TO SEAWAY DRIVE (BUS US 31) PROJECT NUMBERS H-92218, S-92218 AND W-92218

UTILITIES

ELECTRIC
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 CONSUMERS ENERGY
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 FRONTIER COMMUNICATIONS
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 MUSKEGON MI 49440
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 EMAIL:
 MICKAEL.X.THOMPSON@FTR.COM

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 ANTHONY.FERRIER@DTEENERGY.COM

CABLE
 TBA
 COMCAST
 700 W BROADWAY AVENUE
 MUSKEGON, MI 49441
 (810) 217-1642

WATER & SEWER
 WYATT EARP OR MIKE HANNAN
 CITY OF MUSKEGON DPW 1350
 E KEATING AVENUE MUSKEGON
 MI 49442
 (231) 724-4100



INDEX TO SHEETS

SHEET	DESCRIPTION
1	TITLE SHEET
2	EXISTING CROSS SECTIONS-DETAIL SHEET
3	PROPOSED CROSS SECTIONS
4	DETAIL SHEET
5	STA 1+12 POB TO STA 9+25 REMOVAL PLAN
6	STA 9+25 TO STA 19+00 REMOVAL PLAN
7	STA 19+00 TO STA 28+00 REMOVAL PLAN
8	STA 28+00 TO STA 37+00 REMOVAL PLAN
9	STA 37+00 TO STA 42+82 POE REMOVAL PLAN
10	STA 1+12 POB TO STA 5+50 ROAD PLAN AND PROFILE
11	STA 5+50 TO STA 9+25 ROAD PLAN AND PROFILE
12	STA 9+25 TO STA 14+50 ROAD PLAN AND PROFILE
13	STA 14+50 TO STA 19+00 ROAD PLAN AND PROFILE
14	STA 19+00 TO STA 23+50 ROAD PLAN AND PROFILE
15	STA 23+50 TO STA 28+00 ROAD PLAN AND PROFILE
16	STA 28+00 TO STA 32+50 ROAD PLAN AND PROFILE
17	STA 32+50 TO STA 37+00 ROAD PLAN AND PROFILE
18	STA 37+00 TO STA 41+50 ROAD PLAN AND PROFILE
19	STA 41+50 TO STA 42+82 POE ROAD PLAN AND PROFILE
20	TRAFFIC CONTROL DETAIL PHASE 1
21	TRAFFIC CONTROL DETAIL PHASE 2
22	PERMANENT PAVEMENT MARKING DETAILS
23	PERMANENT PAVEMENT MARKING DETAILS

NOTE:

THE IMPROVEMENTS COVERED BY THESE PLANS SHALL BE DONE IN ACCORDANCE WITH THE MICHIGAN DEPARTMENT OF TRANSPORTATION 2020 STANDARD SPECIFICATIONS FOR CONSTRUCTION AND THE 2011 MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. THESE IMPROVEMENTS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE 2011 AASHTO GUIDELINES.

SPOTHEARN AVE. TRAFFIC DATA

2021 PRESENT ADT	2700
2021 COMMERCIAL	4%
2041 FUTURE ADT	4900
2041 COMMERCIAL	4%
DESIGN SPEED	25 MPH
POSTED SPEED	30 MPH

0.72 MI OF PAVEMENT RECONSTRUCTION INCLUDES PAVEMENT REMOVAL, SANITARY SEWER, STORM SEWER, WATERMAIN, WATER SERVICES, CONCRETE CURB AND GUTTER, GRADING, AGGREGATE BASE, HMA PAVEMENT AND PAVEMENT MARKINGS ON SOUTHERN AVE. FROM LAKE SHORE DRIVE TO SEAWAY DRIVE (BUS US 31) IN THE CITY OF MUSKEGON, MUSKEGON COUNTY.

PREPARED UNDER THE SUPERVISION OF:

DAN VANDERHEIDE, P.E.
 CITY ENGINEER

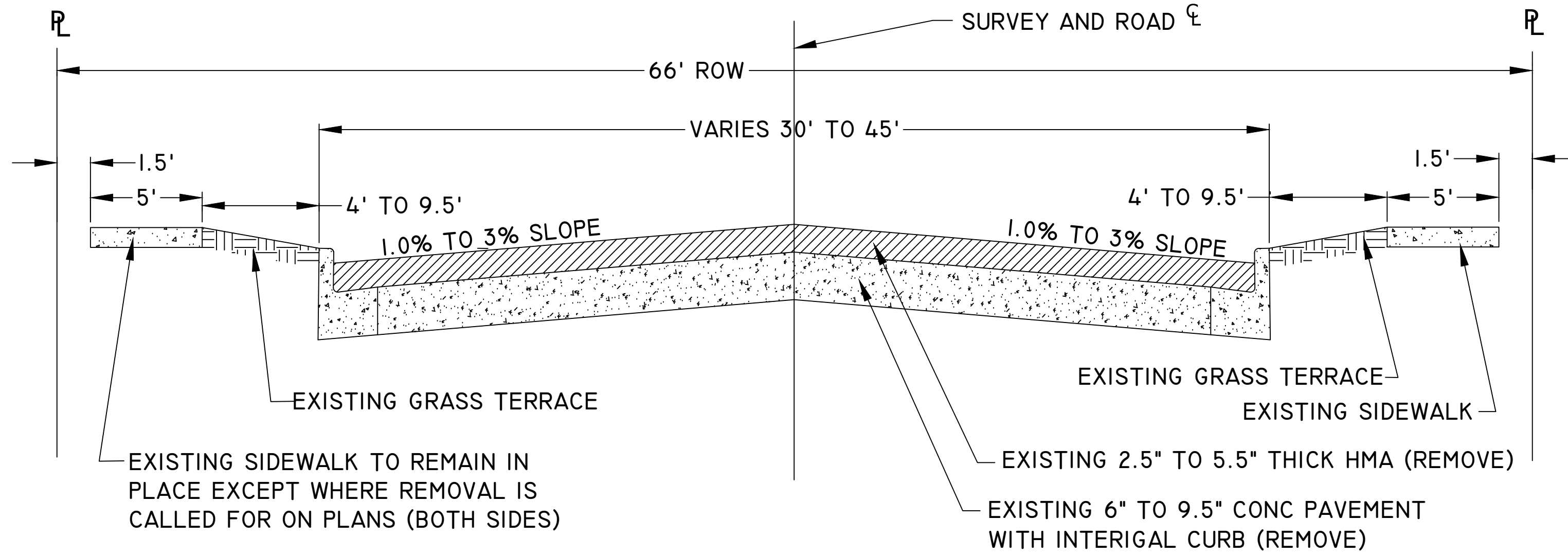
CITY OF MUSKEGON
 PUBLIC WORKS DEPARTMENT
 1350 E. KEATING AVE.
 MUSKEGON MI 49442

57004

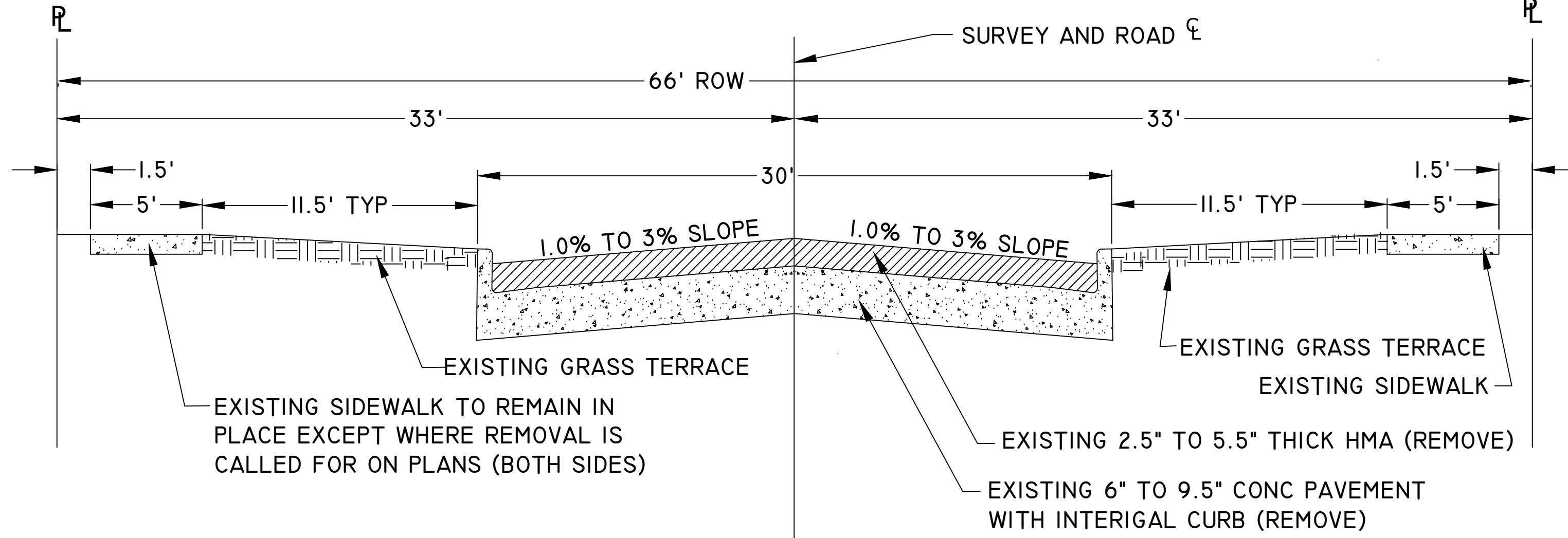
CITY OF MUSKEGON		SOUTHERN AVE.	
OFFICE OF THE CITY ENGINEER		LAKE SHORE DRIVE TO SEAWAY DRIVE	
DRAWN C WIGGINS JAN 24	REVISION	SURVEY WEST SHORE 6/23	H-92218
CHECKED	REVISION	AS-BUILT	PROJECT NO
APPROVED			SHEET NO 1 OF 22

TYPICAL EXISTING CROSS SECTIONS AND DETAIL SHEET

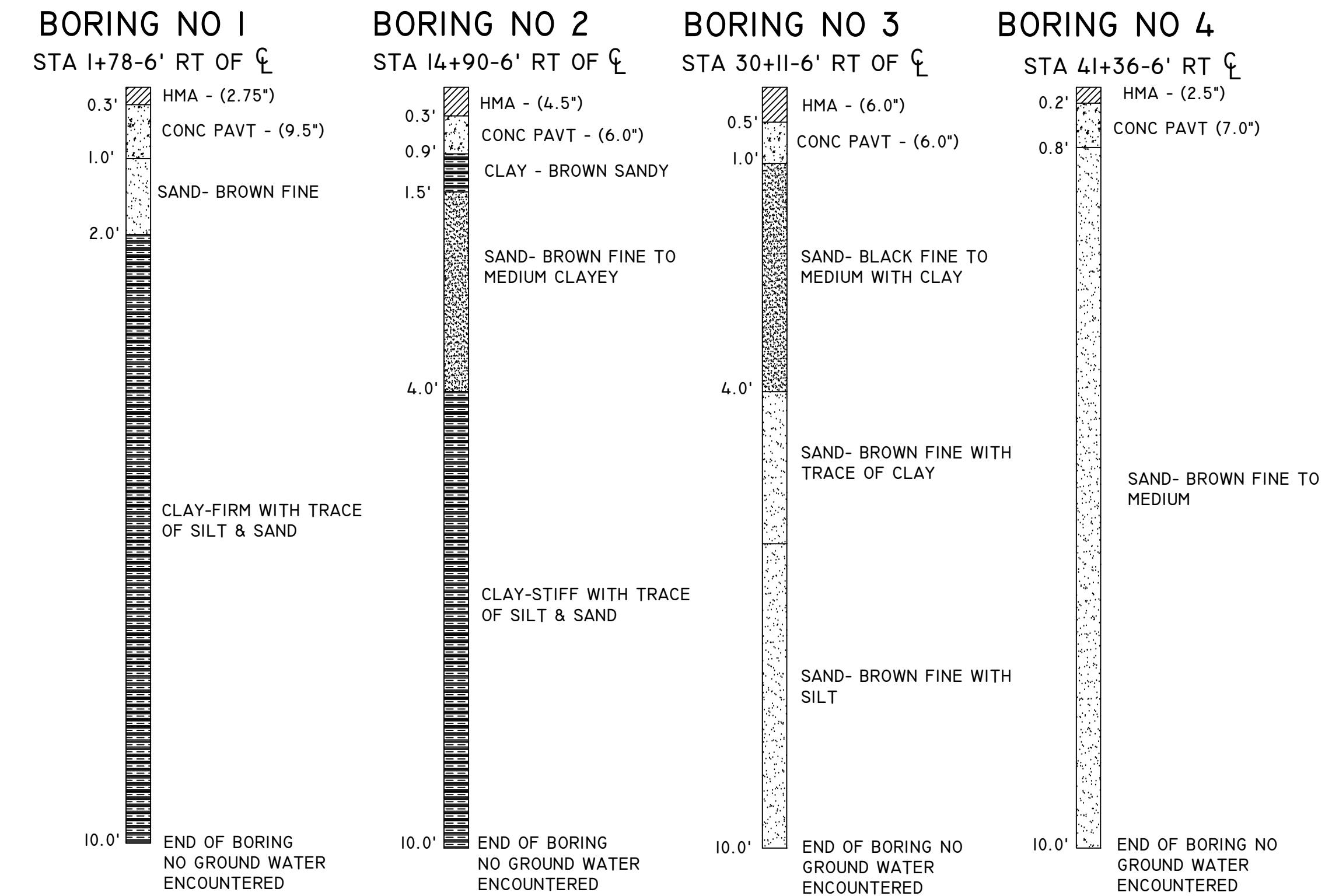
TYPICAL EXISTING CROSS SECTION STATION 41+00 TO POE 44+00



TYPICAL EXISTING CROSS SECTION STATION 0+50 POB TO 41+00



PAVEMENT CORE AND SOIL BORING LOGS



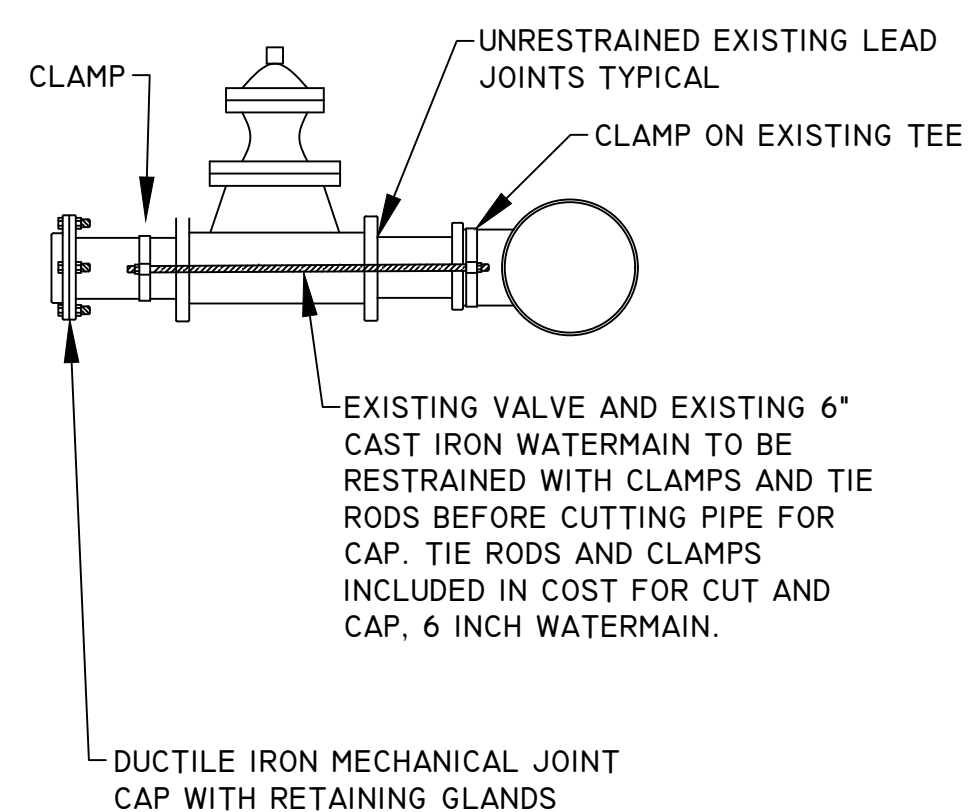
PAVT, REM, MODIFIED NOTE:
EXISTING PAVEMENT CONSIST OF APPROXIMATELY 6" TO 9.5" CONC WITH A 2.5" TO 5.5" OVERLAY OF HMA. ONLY ONE PAVEMENT REMOVAL ITEM WILL BE CONSIDERED, REGARDLESS OF PAVEMENT THICKNESS OR MATERIALS. PAYMENT FOR CURB OR CURB AND GUTTER REMOVAL WILL BE PAID AS PAVT, REM, MODIFIED. THERE WILL BE NO SEPERATE PAY ITEM FOR CURB OR CURB AND GUTTER REMOVAL.

GENERAL NOTES:

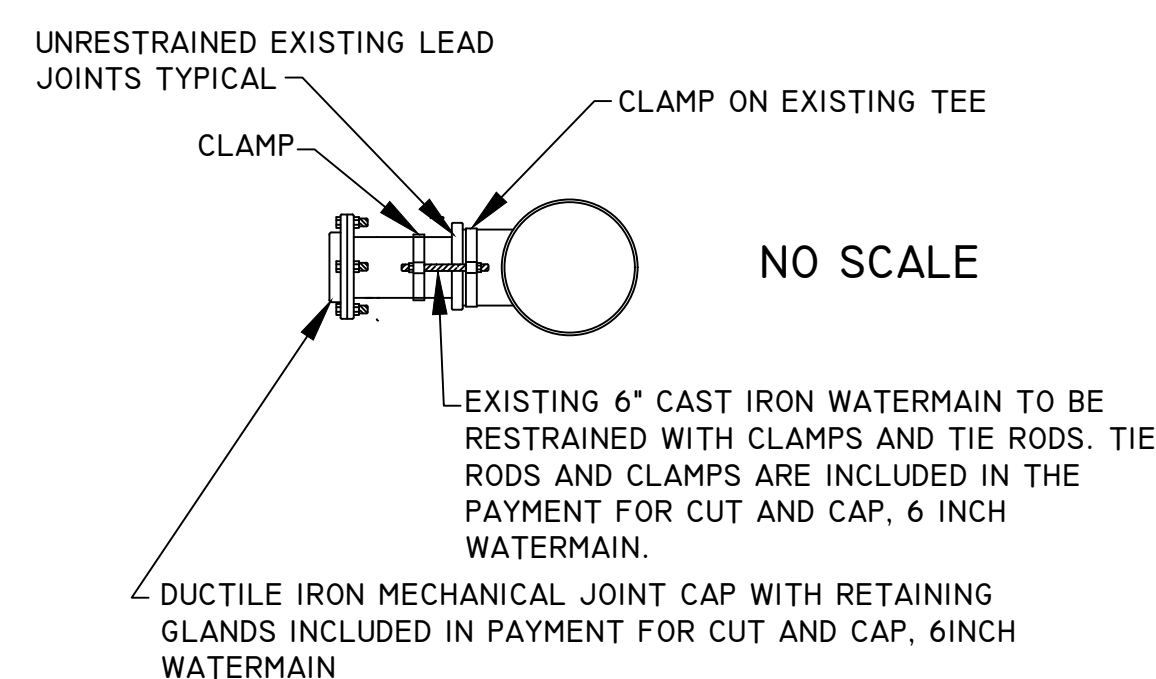
- UPON REQUEST AND APPROVAL, THE CONTRACTOR MAY OBTAIN A WATER SUPPLY FROM THE CITY OF MUSKEGON FIRE HYDRANTS AT NO COST, PROVIDED THAT THEY FOLLOW THE CONDITIONS OF THE CITY WATER DEPARTMENT.
- WHENEVER SMALL CASTINGS (STOP BOXES & METER PITS) THAT ARE ENCOUNTERED WITHIN THE WORK AREA THEY SHALL BE ADJUSTED AT NO COST TO THE DEPARTMENT. THE DEPARTMENT WILL CONSIDER THE COST OF THIS WORK TO BE INCLUDED IN THE CONTRACT UNIT PRICES FOR OTHER RELEVANT PAY ITEMS.
- 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 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 PAY ITEM OF MINOR TRAF 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, AND ARE 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. A COST NEGOTIATED BETWEEN THE ENGINEER AND THE CONTRACTOR FOR IRRIGATION REPAIRS WILL BE ESTABLISHED AND PAID FOR WITH THE CONTRACT PAY ITEM "IRRIGATION REPAIR". 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 NECESSARY TO 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 PROJECT CLEAN UP NO OTHER PAYMENT SHALL BE MADE.
- CONCRETE SIDEWALK PLACED FOR BUS STOPS MUST BE A MINIMUM 5 FEET WIDE AS MEASURED ALONG BACK OF CURB AND 8 FEET DEEP AS MEASURED FROM BACK OF CURB.

DETAIL FOR CUT AND CAP, 6 INCH WATERMAIN

DETAIL WITH EXISTING VALVE



DETAIL WITHOUT EXISTING VALVE



REGARDLESS OF THE SCENARIO WITH EXISTING VALVE OR WITHOUT EXISTING VALVE THE WORK OF CAPPING EXISTING WATERMAIN WILL BE PAID AS "CUT AND CAP, 6 INCH, WATERMAIN".

MICILANEOUS QUANTIES THIS PROJECT

IRIGATION REPAIR	\$10,000	DOLLARS
HMA, HAND PATHING	10	TONS

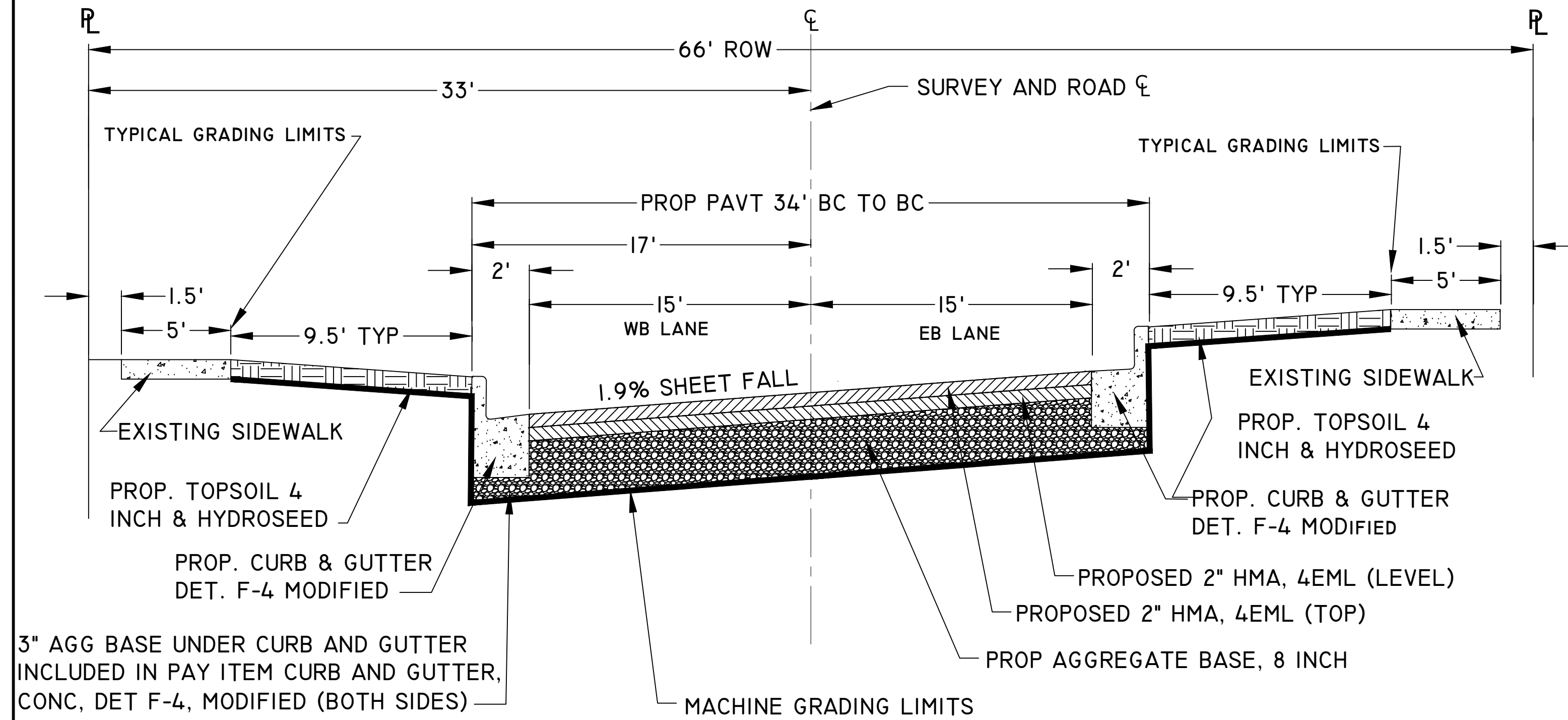
EXISTING CROSS SECTIONS & DETAIL SHEET

CITY OF MUSKEGON OFFICE OF THE CITY ENGINEER		SOUTHERN AVE LAKE SHORE DR TO SEAWAY	
DRAWN C. WIGGINS 2/23	REVISION	SURVEY WEST SHORE 11/22	H-92218
CHECKED	REVISION	AS-BUILT	PROJECT NO
APPROVED	REVISION	SCALE	SHEET NO 2 OF 22

TYPICAL PROPOSED CROSS SECTIONS

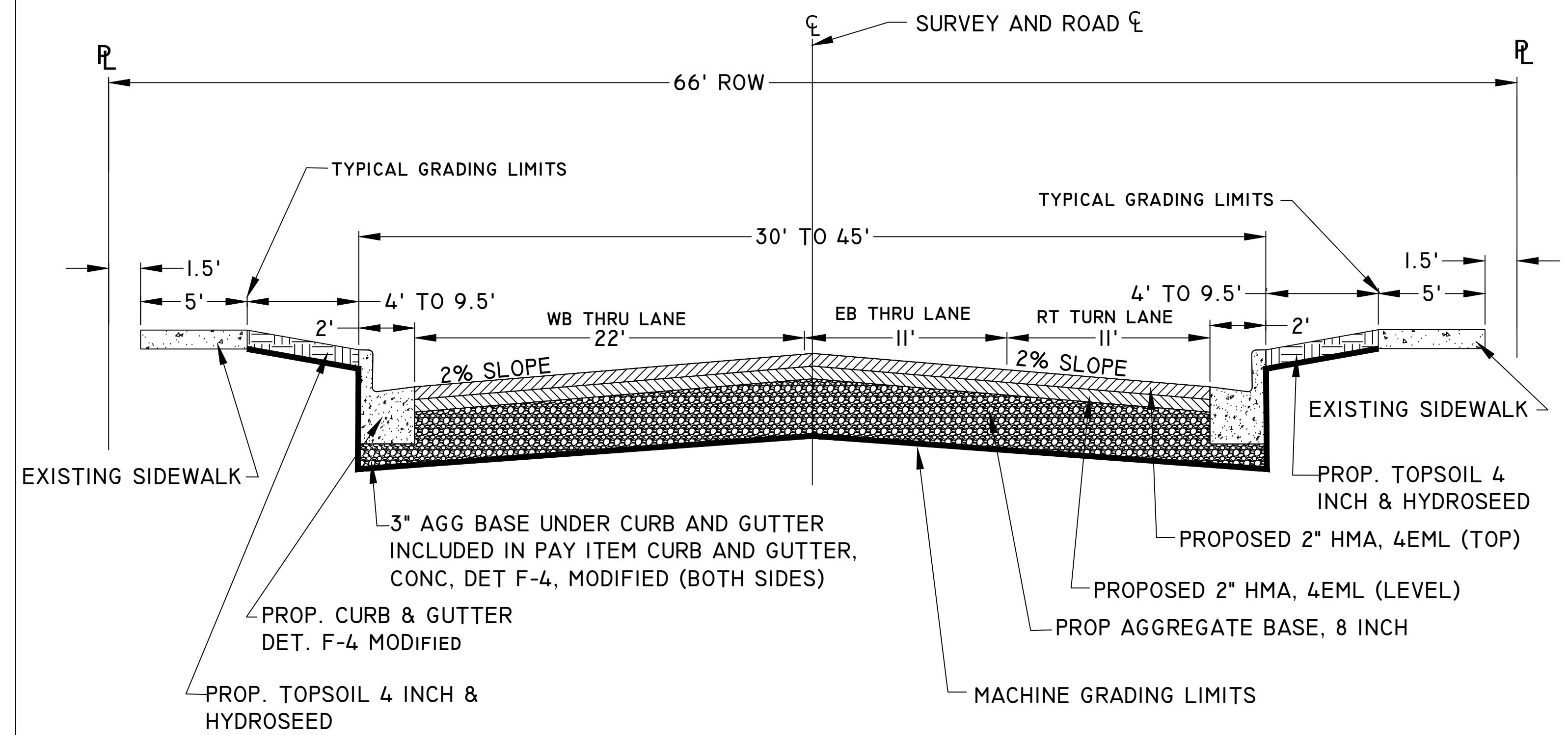
TYPICAL PROPOSED CROSS SECTION

STATION 6+21.8 TO 7+21.8 TRANSITION FROM CROWN TO SHEET FALL
 STATION 7+21.8 TO 8+26.9 SHEET FALL
 STATION 8+26.9 TO 9+26.9 TRANSITION FROM SHEET FALL TO CROWN



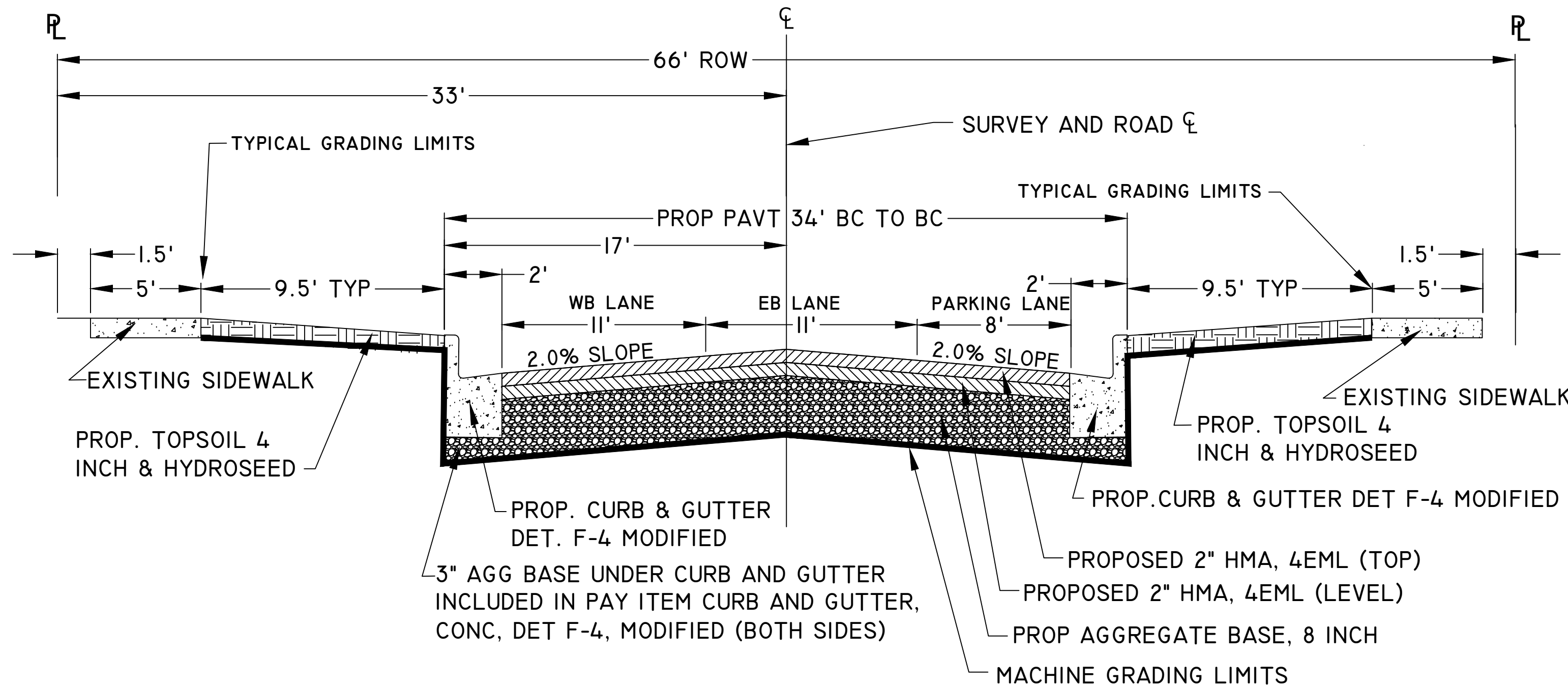
TYPICAL PROPOSED CROSS SECTIONS

STATION 41+50 TO 42+82 POE



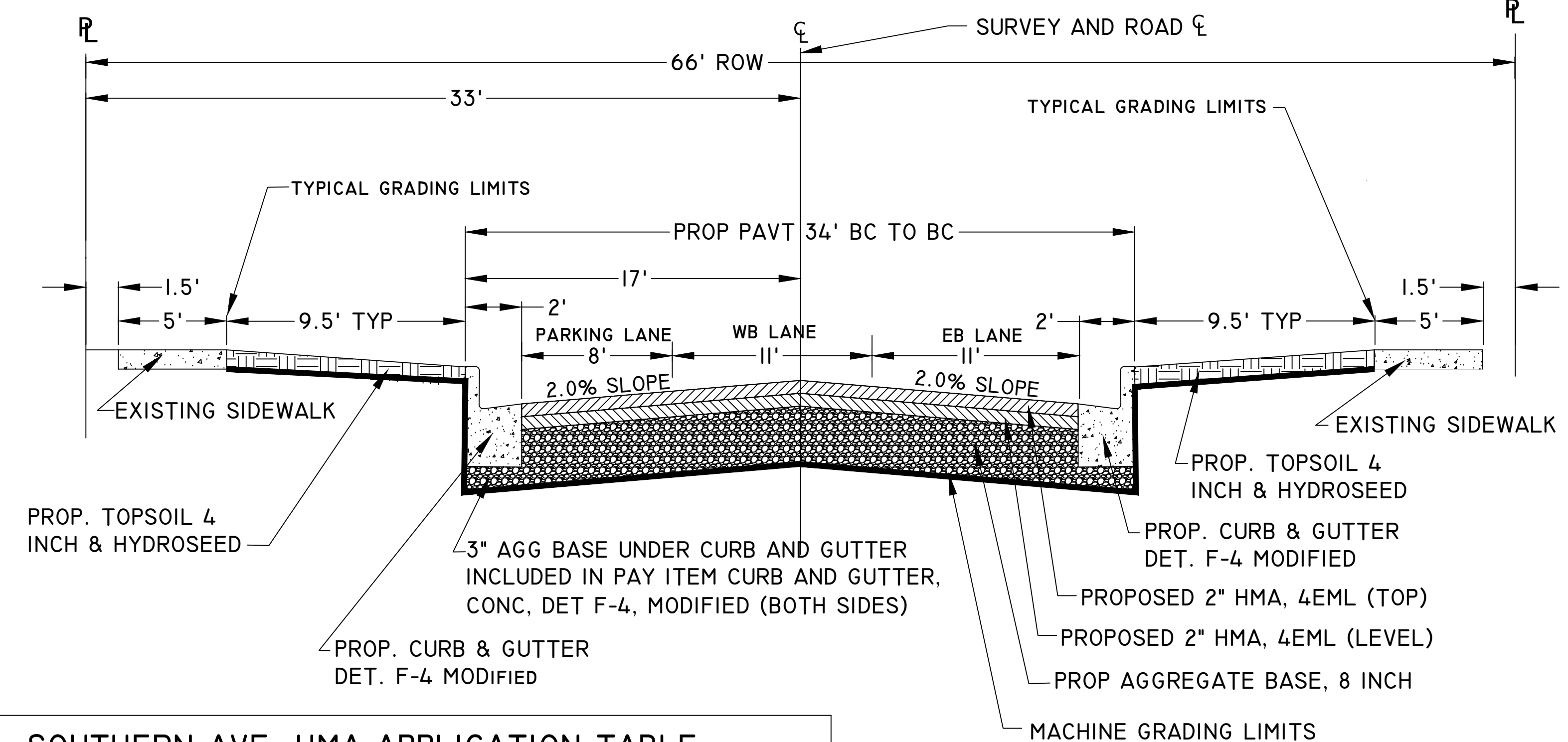
TYPICAL PROPOSED CROSS SECTION

STATION 1+12 POB TO 6+21.8



TYPICAL PROPOSED CROSS SECTIONS

STATION 9+26.9 POB TO 41+50



MACHINE GRADING, MODIFIED NOTE:

THERE WILL BE APPROXIMATELY 1702 CYD LOOSE MEASURE OF EXCAVATION GENERATED DURING THIS PROJECT, OF WHICH APPROXIMATELY 1260 CYD WILL BE USED FOR EMBANKMENT. THE REDISTRIBUTION OF EXCAVATED MATERIAL FOR EMBANKMENT WILL BE INCLUDED IN THE PAYMENT FOR MACHINE GRADING, MODIFIED. THE REMAINING 442 CYD OF EXCAVATION WILL BE REMOVED FROM THE JOB SITE AND BECOME PROPERTY OF THE CONTRACTOR. THE REMOVAL OF THIS EXCAVATION WILL BE INCLUDED IN PAYMENT FOR THE MACHINE GRADING, MODIFIED PAY ITEM.

SOUTHERN AVE. HMA APPLICATION TABLE

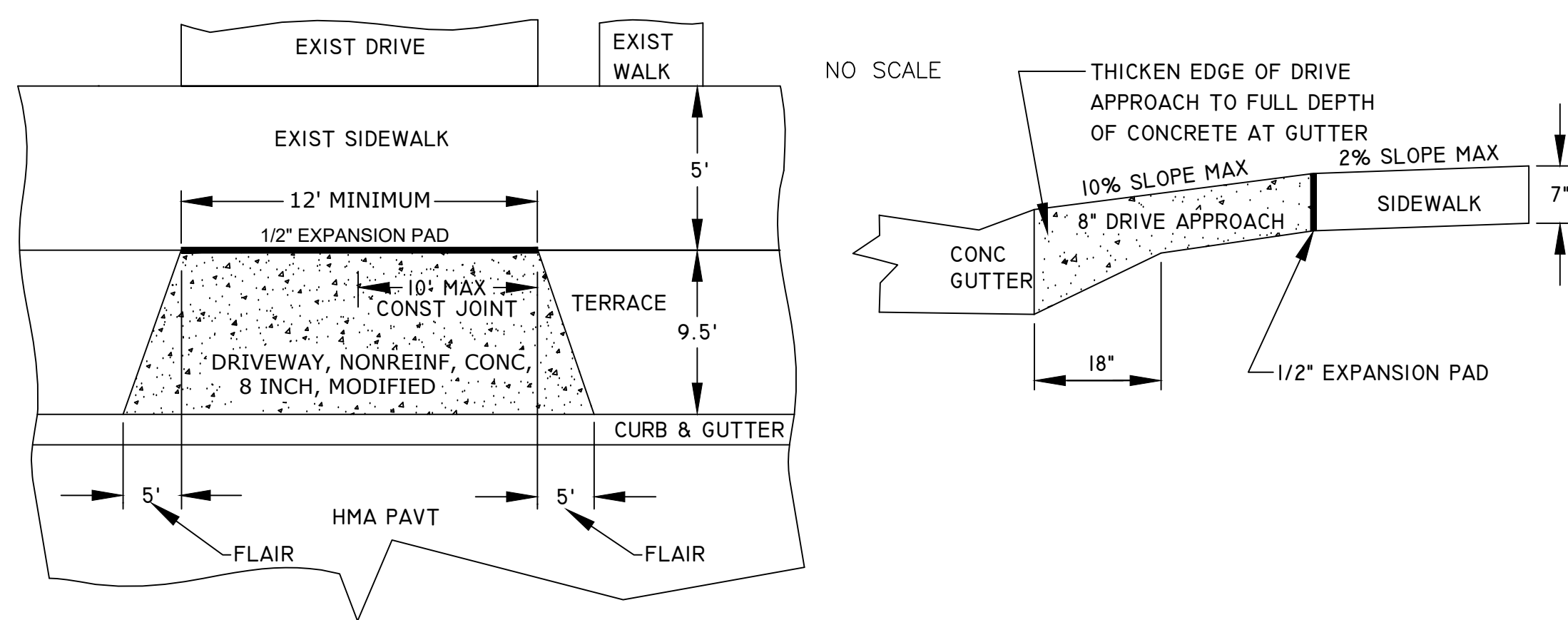
DESCRIPTION	RATE	PERFORMANCE GRADE	REMARKS
HMA, 4EML (TOP)	220#/SYD	70-28 P	2 INCHES - 1 LIFT AWI 260 MIN
HMA, 4EML (LEVEL)	220#/SYD	64-28	2 INCHES - 1 LIFT
HAND PATCHING	220#/SYD	64-28	2 INCHES - 1 LIFT

HMA BOND COAT, SS-IH, AT 0.05 TO 0.10 GAL/SYD, SHALL BE PLACED BETWEEN EACH LIFT. THE COST IS INCLUDED WITH THE HMA PAY ITEMS.

PROPOSED CROSS SECTIONS

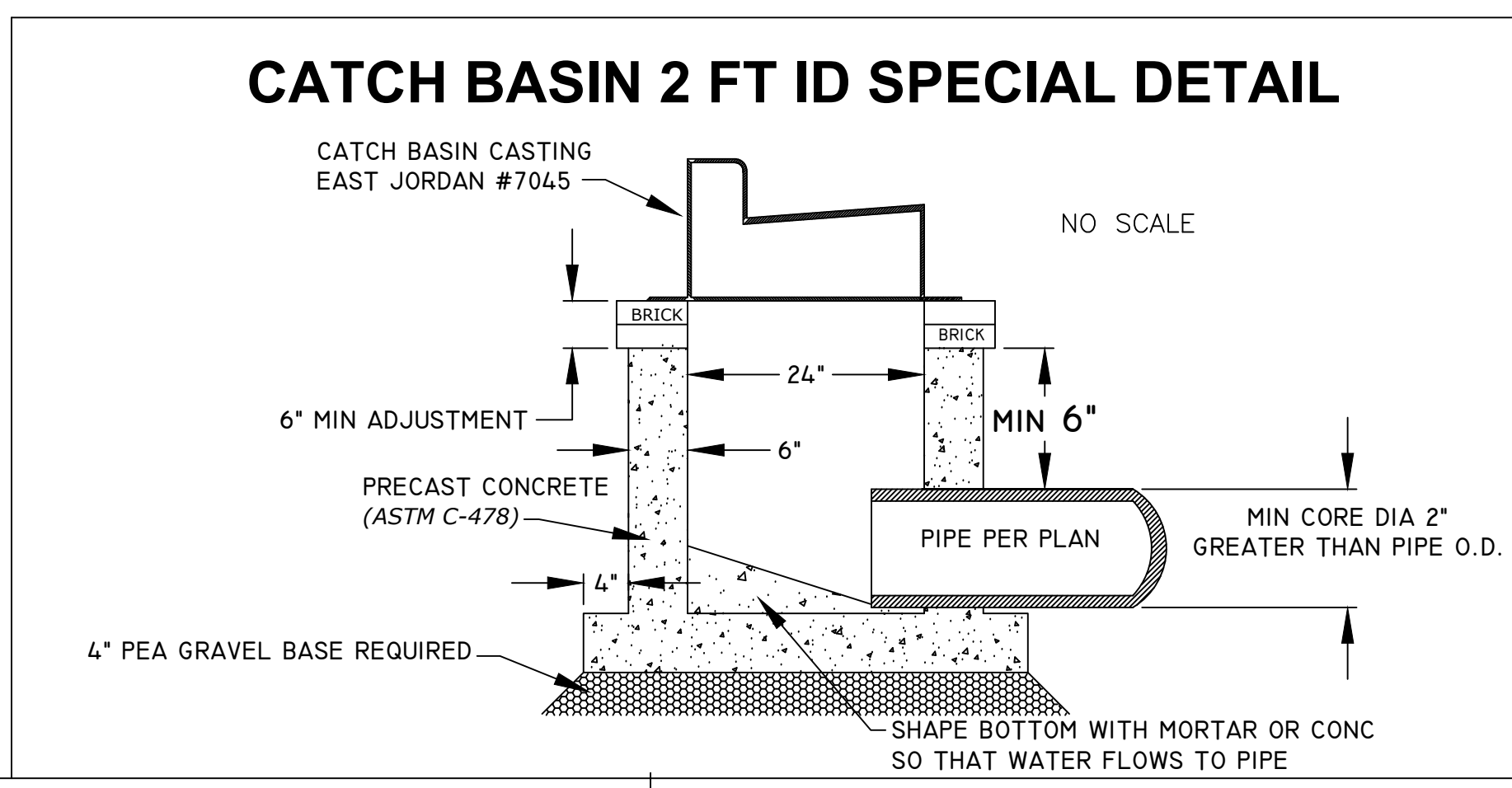
CITY OF MUSKEGON OFFICE OF THE CITY ENGINEER		SOUTHERN AVE LAKE SHORE DR TO SEAWAY	
DRAWN C. WIGGINS 2/23	REVISION	SURVEY WEST SHORE 11/22	H-92218
CHECKED	REVISION	AS-BUILT	PROJECT NO
APPROVED	REVISION	SCALE	SHEET NO 3 OF 22

TYPICAL DRIVE APPROACH DETAIL

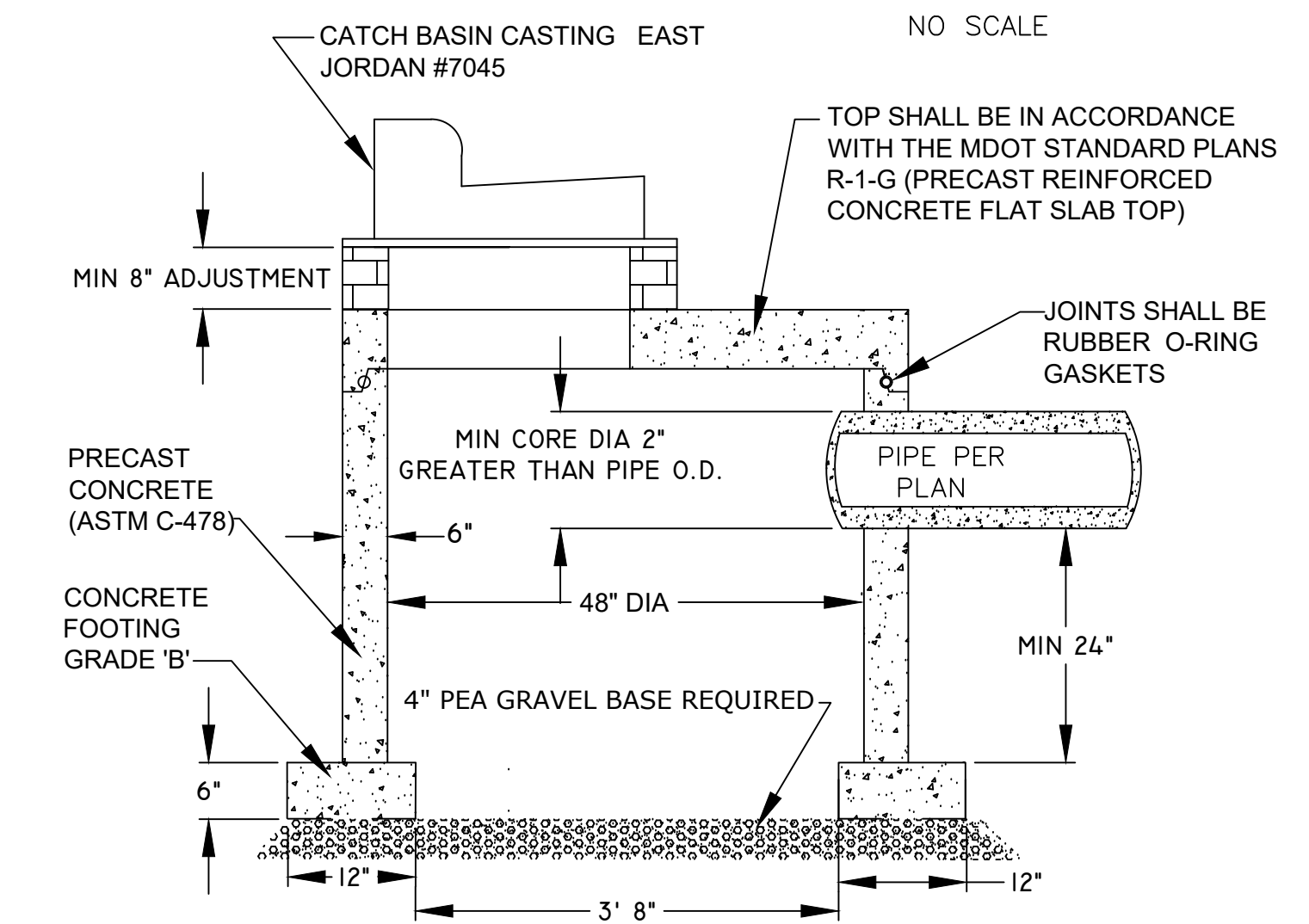


DETAIL SHEET

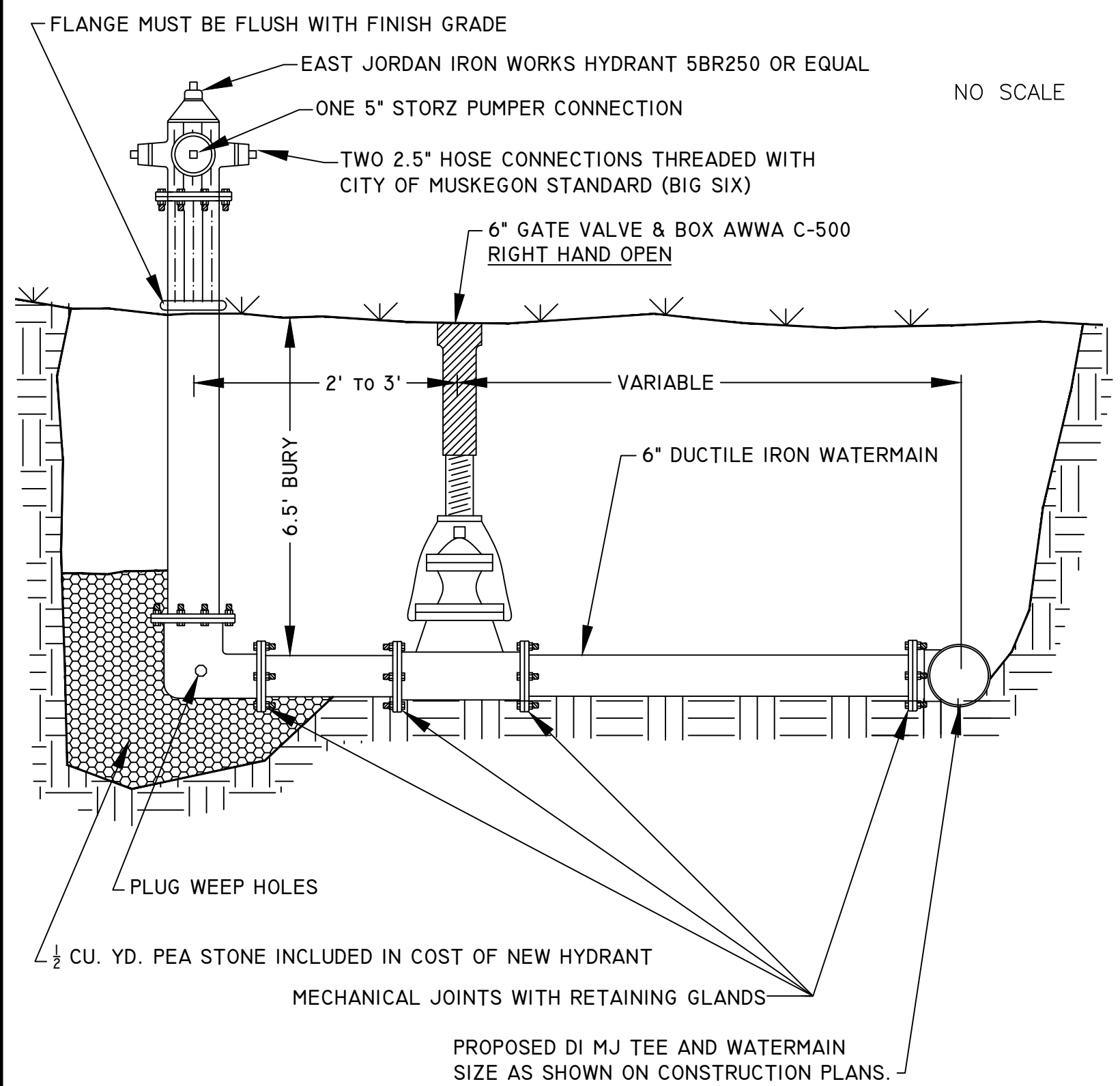
CATCH BASIN 2 FT ID SPECIAL DETAIL



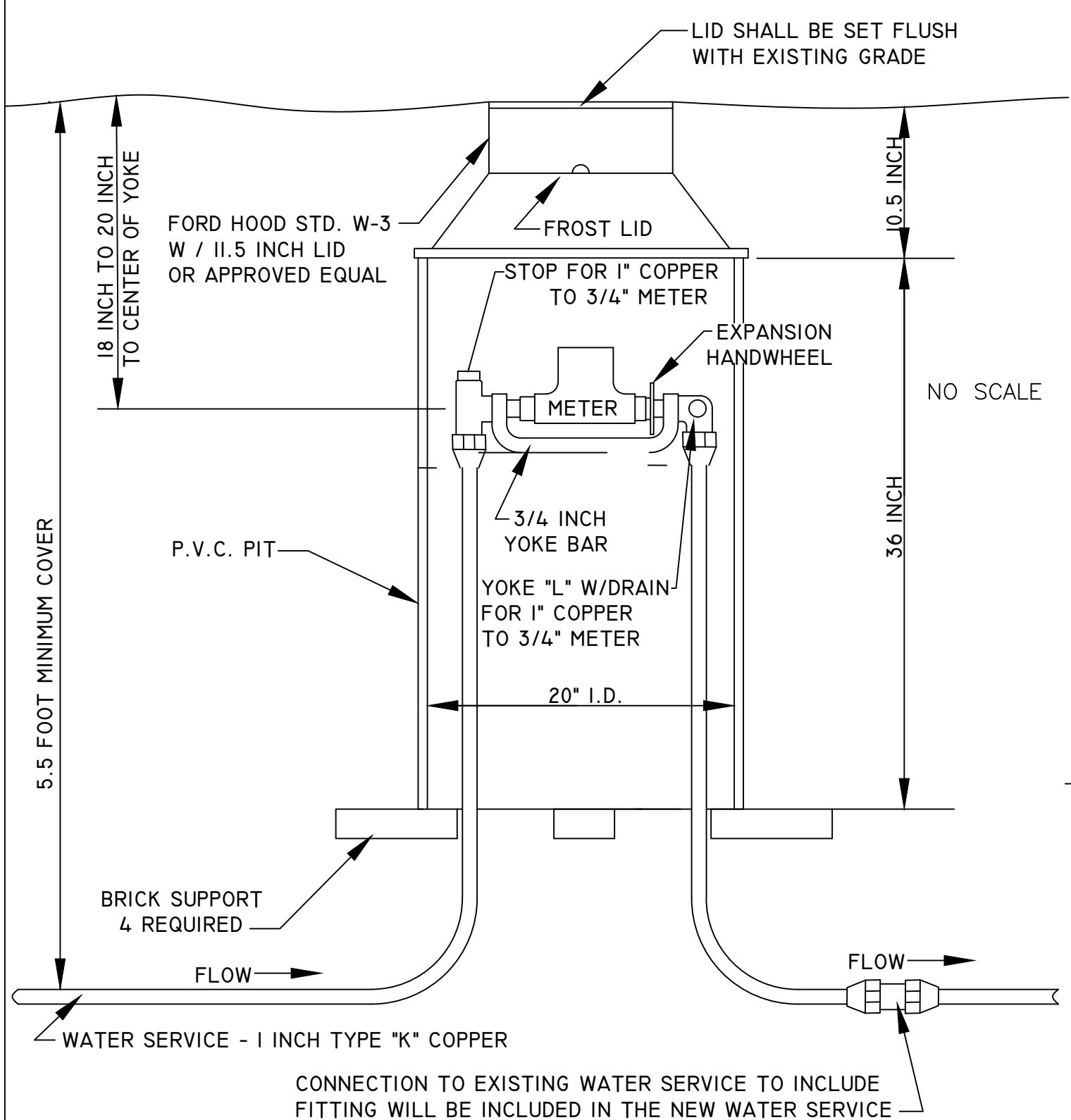
CATCH BASIN SPECIAL DETAIL



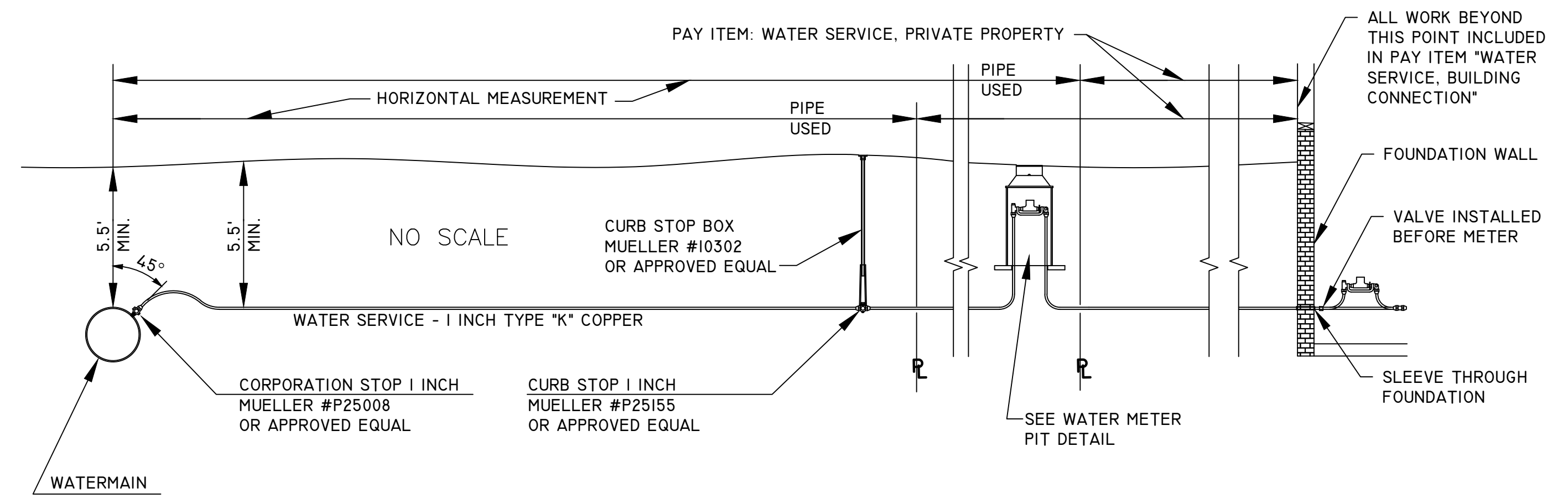
HYDRANT DETAIL



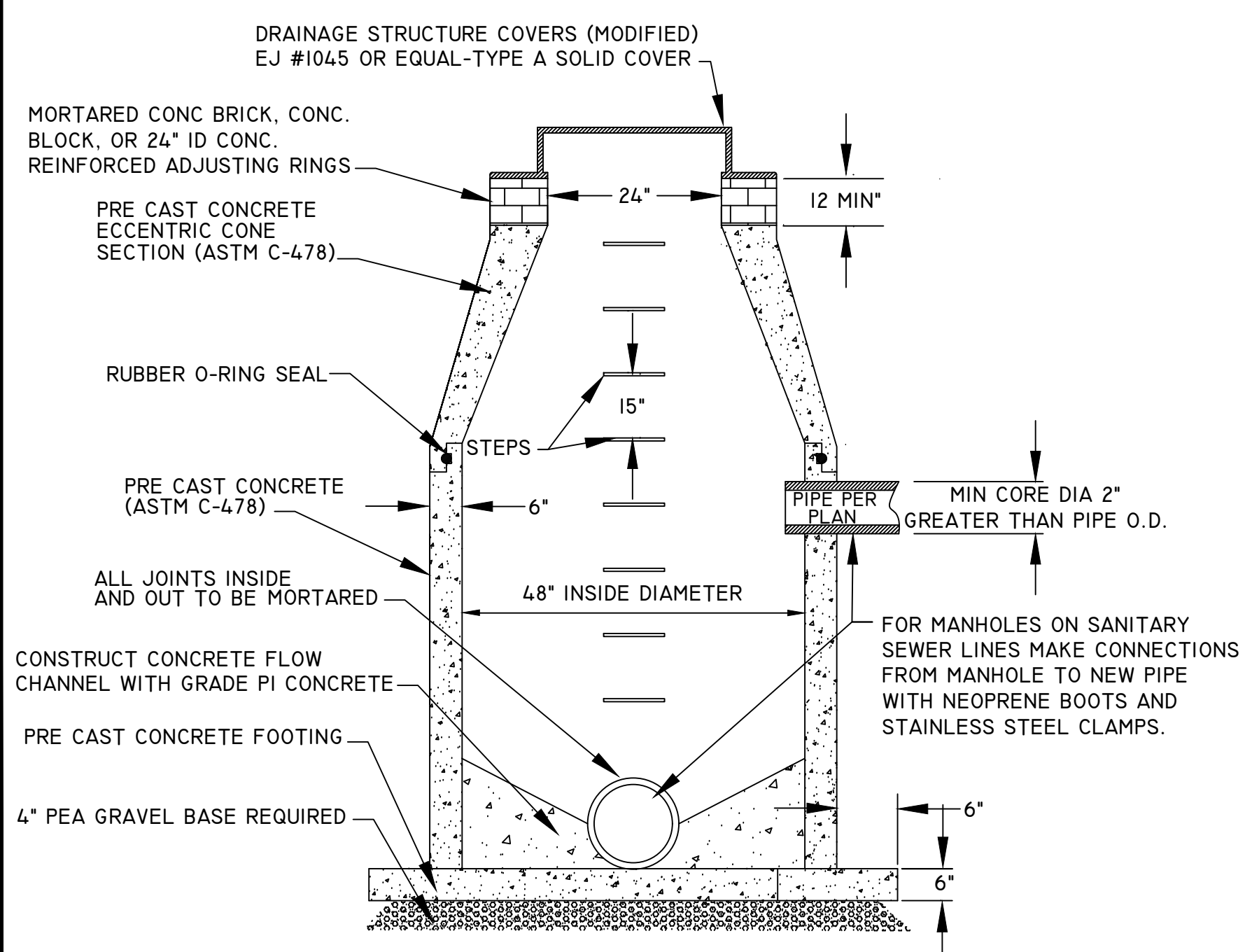
DETAIL FOR METER PIT COMPLETE



DETAIL FOR: WATER SERVICE, _ INCH



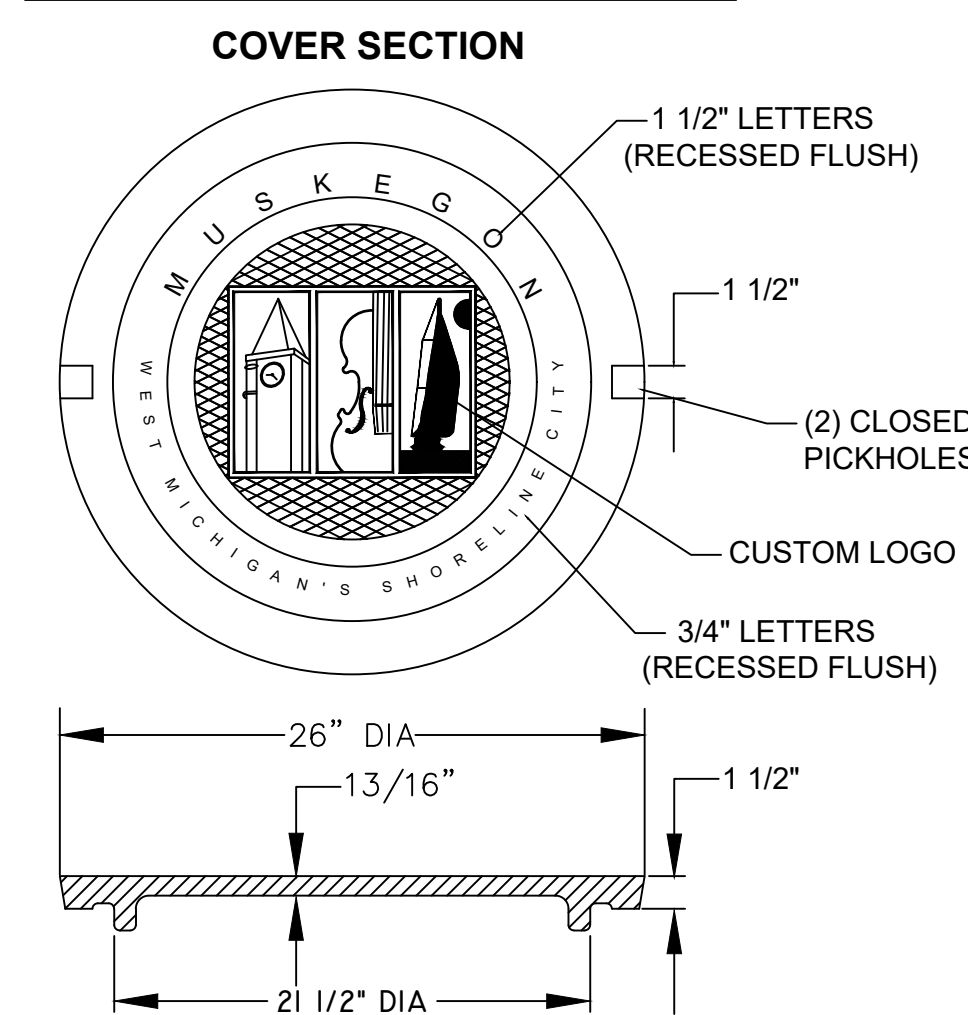
SANITARY MANHOLE SPECIAL DETAIL



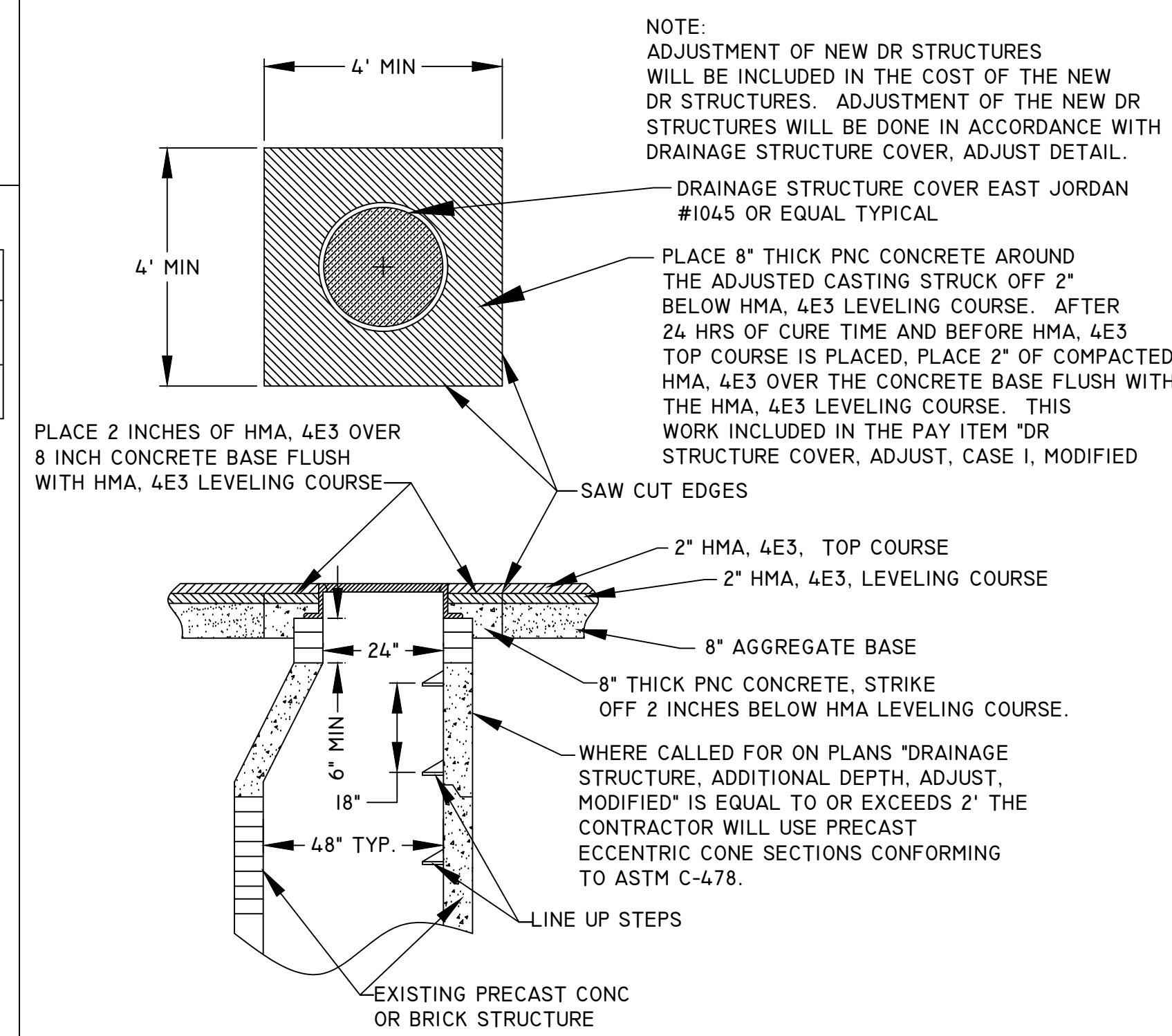
DRAINAGE STRUCTURE COVERS

TYPE	CASTING DESCRIPTION	QTY
COVER B, MODIFIED	MANHOLE CASTING EAST JORDAN #1045 OR EQUAL TYPE A - SOLID COVER AS DETAILED BELOW	25
COVER K, MODIFIED	CATCH BASIN CASTING EAST JORDAN #7045 OR EQUAL	26

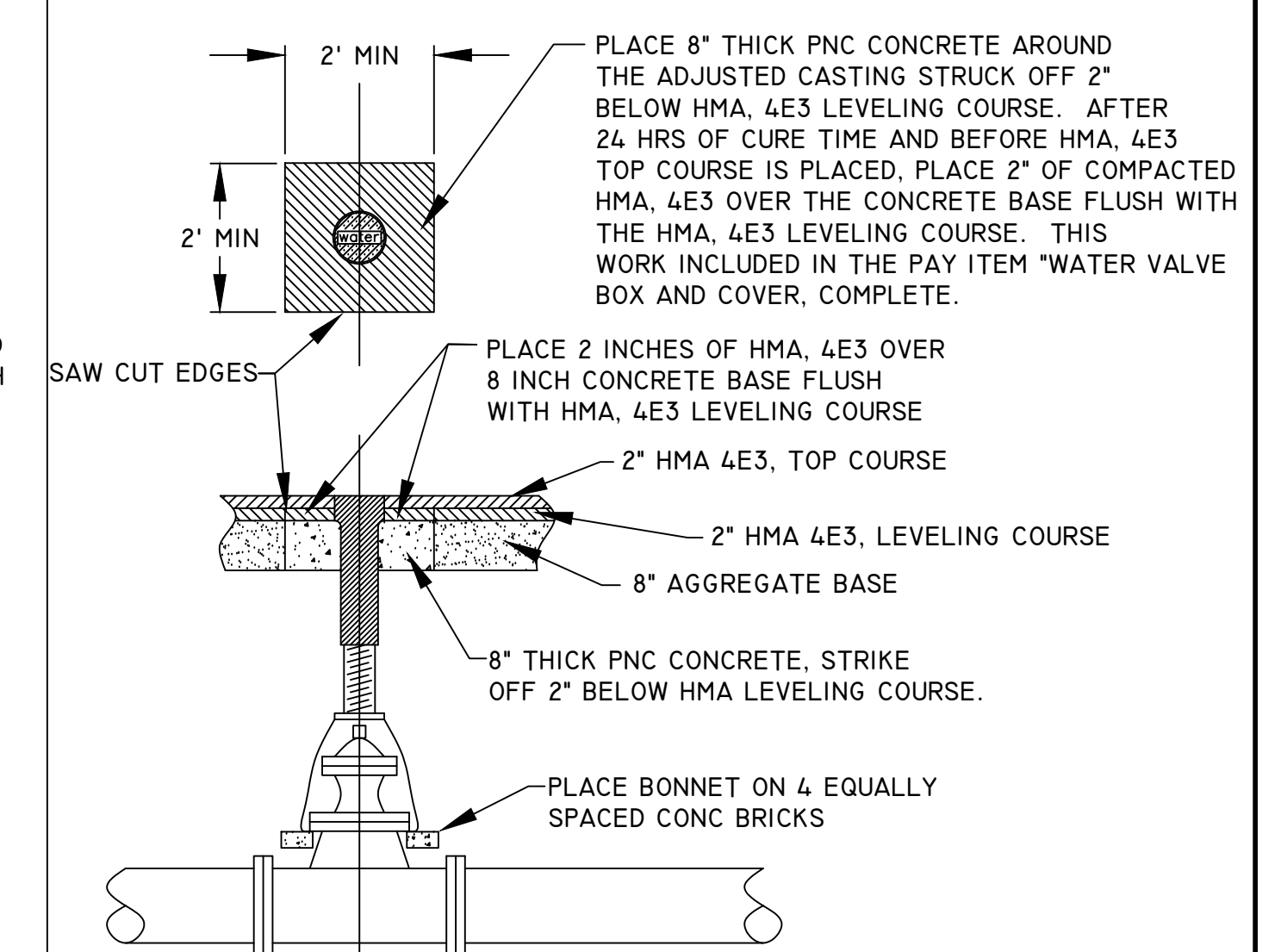
DETAIL FOR COVER B 1040 A LOGO MANHOLE COVER



DRAINAGE STRUCTURE COVER, ADJUST DETAIL



WATER VALVE BOX AND COVER, COMPLETE DETAIL



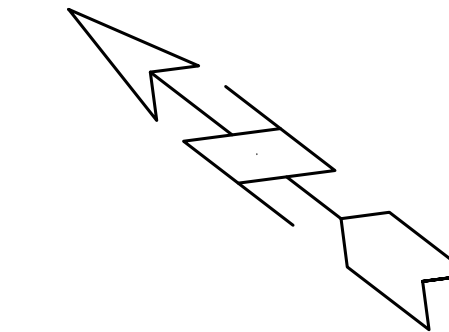
DETAIL SHEET

BM ELEVATION 630.55
FLANGE BOLT UNDER "E" IN
EJIW ON HYDRANT NE COR LSD &
SOUTHERN

1190 W SOUTHERN
HUME HOME

BM ELEVATION 631.54
FLANGE BOLT UNDER "R" IN
TRAVERS ON HYDRANT STA
4+25 LT

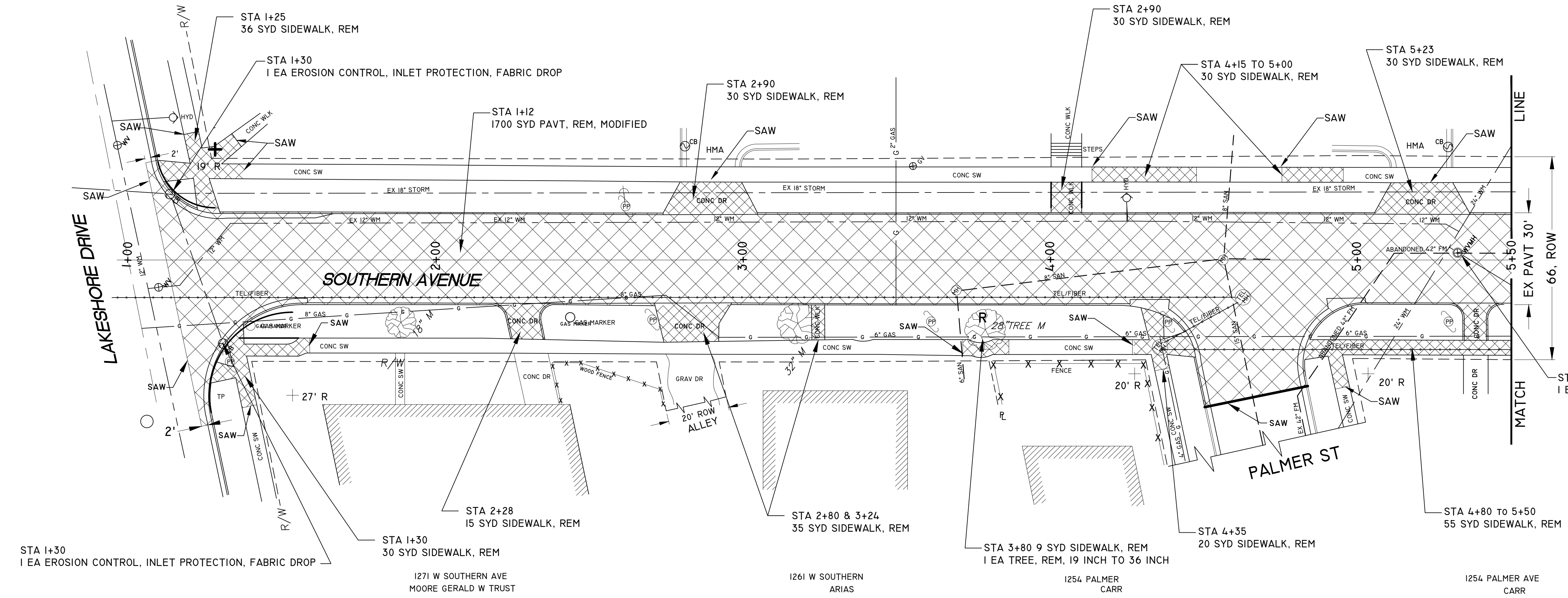
1190 W SOUTHERN
HUME HOME



☒ = PAVT, REM, MODIFIED
☒ = SIDEWALK, REM

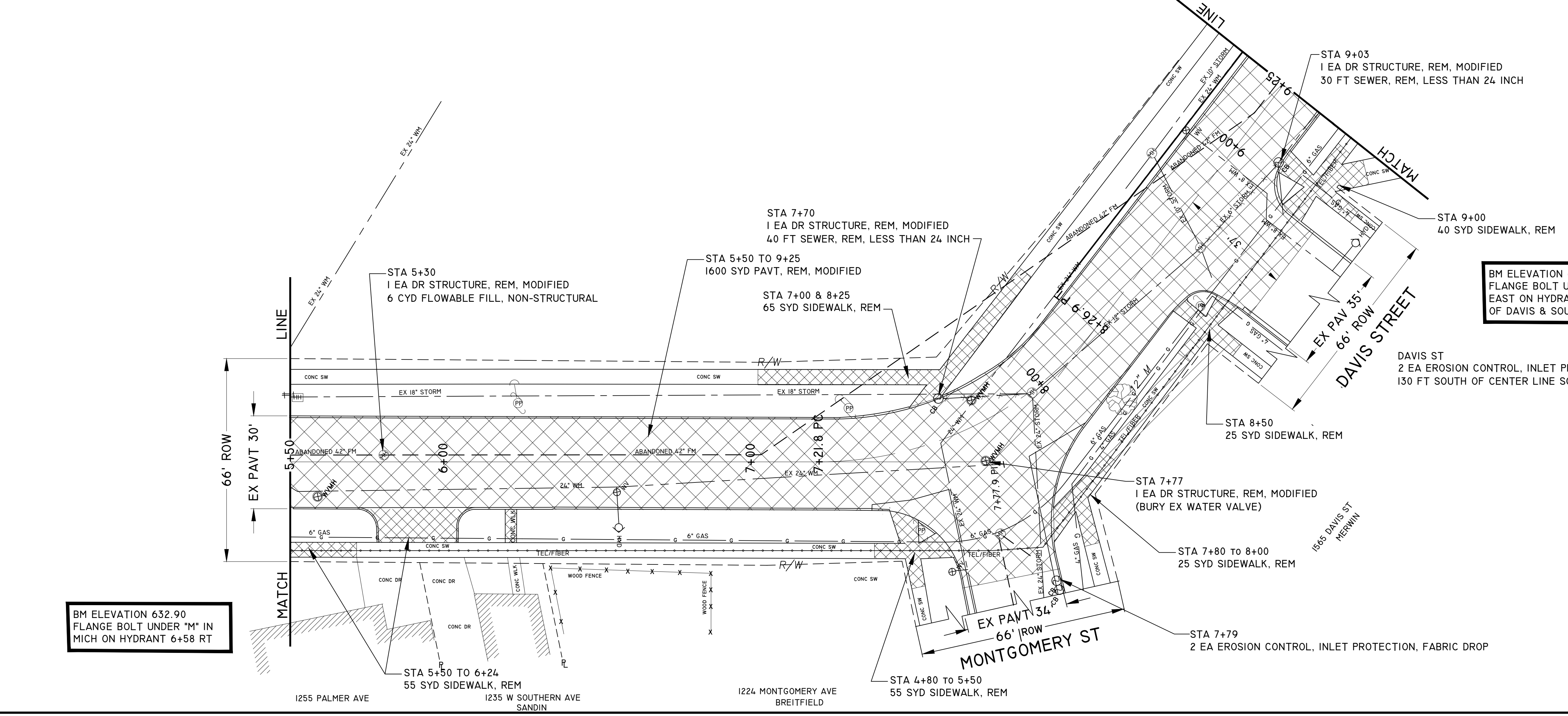
QUANTITIES THIS SECTION 1+12 POB TO 5+50

TREE, REM, 6 INCH TO 18 INCH	0	EA
TREE, REM, 19 INCH TO 36 INCH	1	EA
TREE, REM, 37 INCH OR LARGER	0	EA
SEWER, REM, LESS THAN 24 INCH	0	FT
DR STRUCTURE, REM, MODIFIED	1	EA
SIDEWALK, REM	400	SYD
PAVT, REM, MODIFIED	1700	SYD
EROSION CONTROL, INLET PROTECTION, FABRIC DROP	2	EA



QUANTITIES THIS SECTION 5+50 TO 9+25

TREE, REM, 6 INCH TO 18 INCH	0	EA
TREE, REM, 19 INCH TO 36 INCH	0	EA
TREE, REM, 37 INCH OR LARGER	0	EA
SEWER, REM, LESS THAN 24 INCH	70	FT
DR STRUCTURE, REM, MODIFIED	4	EA
SIDEWALK, REM	300	SYD
PAVT, REM, MODIFIED	1600	SYD
EROSION CONTROL, INLET PROTECTION, FABRIC DROP	4	EA
FLOWABLE FILL, NON-STRUCTURAL	6	CYD



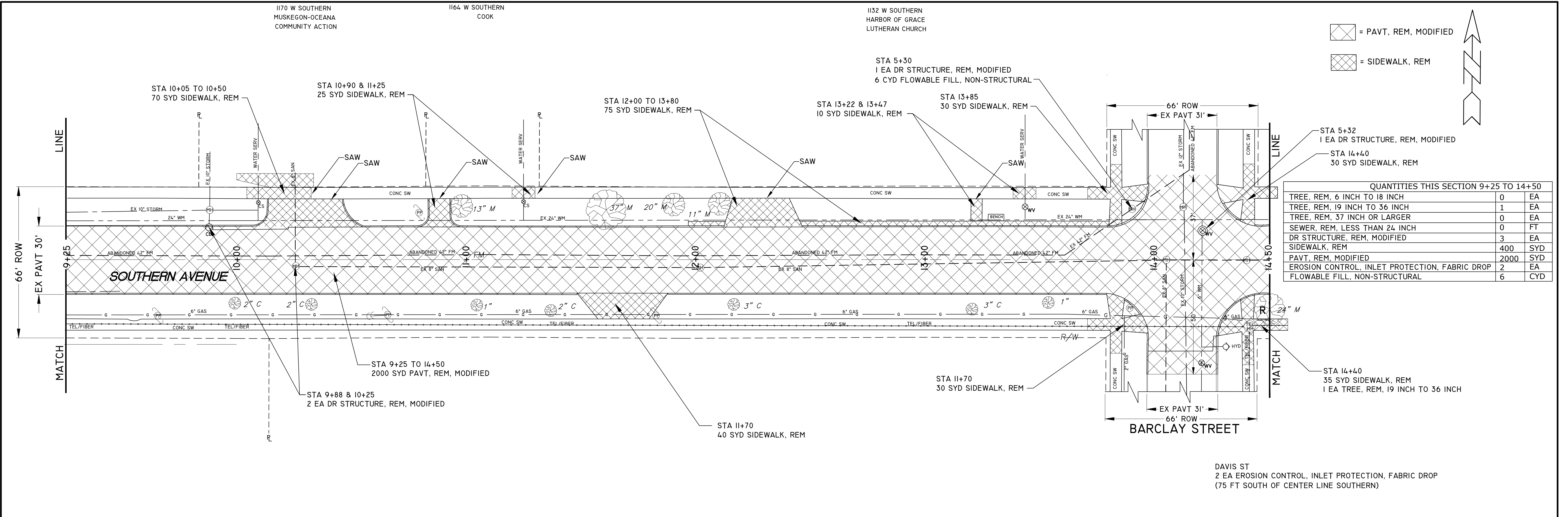
☒ = PAVT, REM, MODIFIED
☒ = SIDEWALK, REM

BM ELEVATION 634.78
FLANGE BOLT UNDER "E" IN
EAST ON HYDRANT SE CORNER
OF DAVIS & SOUTHERN

BM ELEVATION 632.90
FLANGE BOLT UNDER "M" IN
MICH ON HYDRANT 6+58 RT

REMOVAL PLANS
CITY OF MUSKEGON
OFFICE OF THE CITY ENGINEER
DRAWN C. WIGGINS DEC 23 REVISION SURVEY WESTSHORE MAY 23 H-92218
CHECKED REVISION AS-BUILT PROJECT NO
SCALE 1" = 20' SHEET NO 5 OF 22

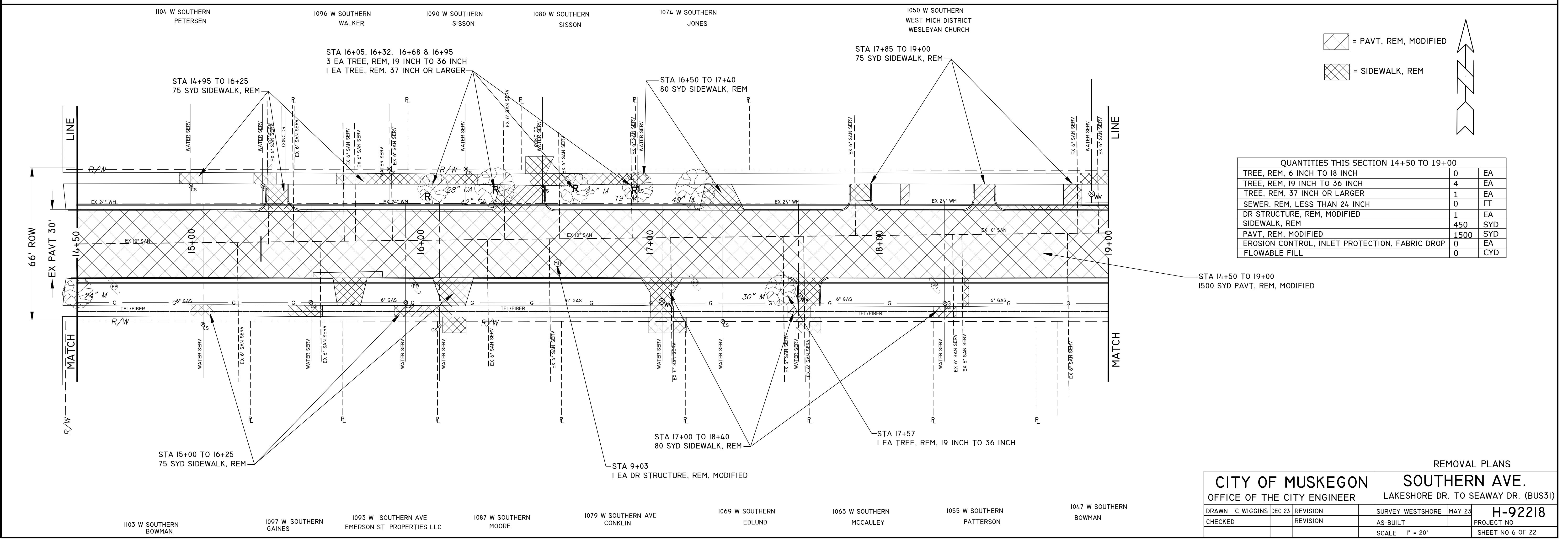
SOUTHERN AVE.
LAKESHORE DR. TO SEAWAY DR. (BUS31)



QUANTITIES THIS SECTION 9+25 TO 14+50

TREE, REM, 6 INCH TO 18 INCH	0	EA
TREE, REM, 19 INCH TO 36 INCH	1	EA
TREE, REM, 37 INCH OR LARGER	0	EA
SEWER, REM, LESS THAN 24 INCH	0	FT
DR STRUCTURE, REM, MODIFIED	3	EA
SIDEWALK, REM	400	SYD
PAVT, REM, MODIFIED	2000	SYD
EROSION CONTROL, INLET PROTECTION, FABRIC DROP	2	EA
FLOWABLE FILL, NON-STRUCTURAL	6	CYD

DAVIS ST
2 EA EROSION CONTROL, INLET PROTECTION, FABRIC DROP
(75 FT SOUTH OF CENTER LINE SOUTHERN)



QUANTITIES THIS SECTION 14+50 TO 19+00

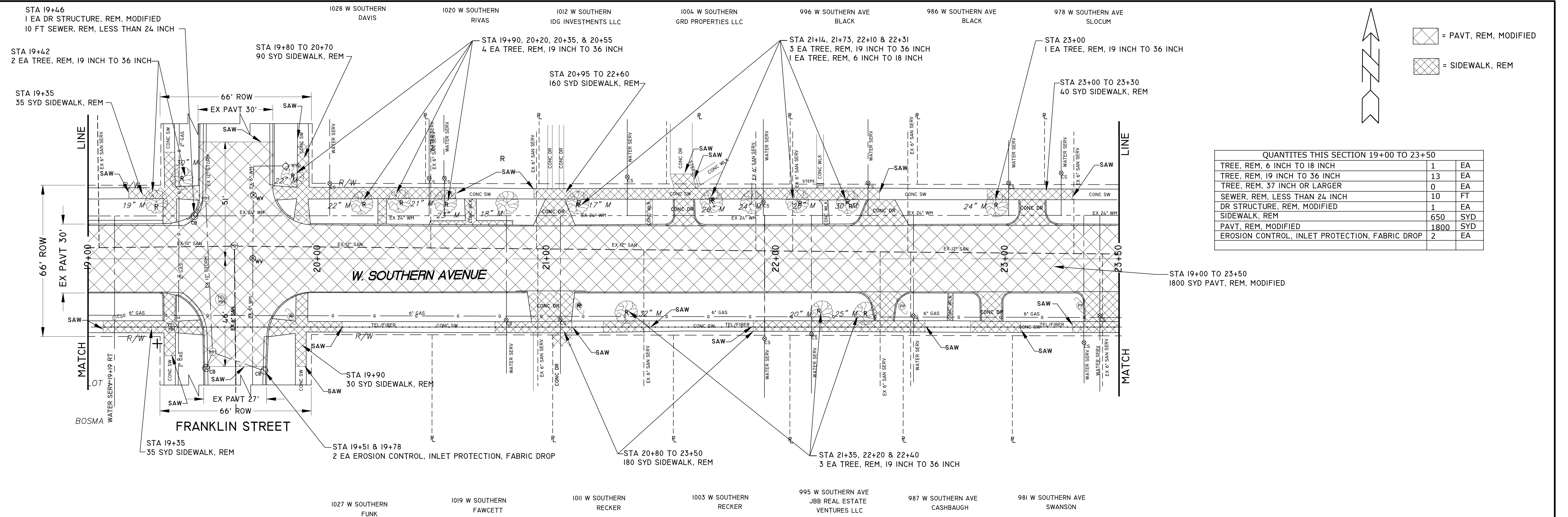
TREE, REM, 6 INCH TO 18 INCH	0	EA
TREE, REM, 19 INCH TO 36 INCH	4	EA
TREE, REM, 37 INCH OR LARGER	1	EA
SEWER, REM, LESS THAN 24 INCH	0	FT
DR STRUCTURE, REM, MODIFIED	1	EA
SIDEWALK, REM	450	SYD
PAVT, REM, MODIFIED	1500	SYD
EROSION CONTROL, INLET PROTECTION, FABRIC DROP	0	EA
FLOWABLE FILL	0	CYD

REMOVAL PLANS

CITY OF MUSKEGON
OFFICE OF THE CITY ENGINEER

SOUTHERN AVE.
LAKESHORE DR. TO SEAWAY DR. (BUS31)

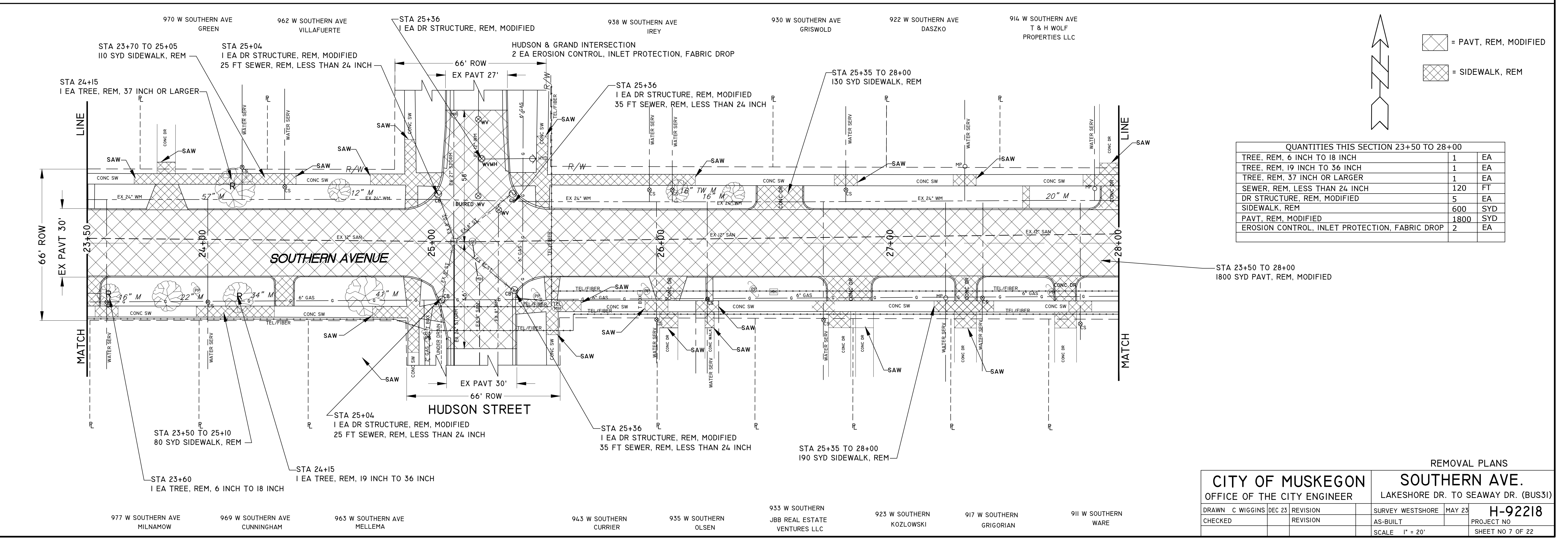
DRAWN C. WIGGINS DEC 23	REVISION	SURVEY WESTSHORE MAY 23	H-92218
CHECKED	REVISION	AS-BUILT	
		SCALE 1" = 20'	SHEET NO 6 OF 22



QUANTITIES THIS SECTION 19+00 TO 23+50

TREE, REM. 6 INCH TO 18 INCH	1	EA
TREE, REM. 19 INCH TO 36 INCH	13	EA
TREE, REM. 37 INCH OR LARGER	0	EA
SEWER, REM. LESS THAN 24 INCH	10	FT
DR STRUCTURE, REM. MODIFIED	1	EA
SIDEWALK, REM	650	SYD
PAVT, REM. MODIFIED	1800	SYD
EROSION CONTROL, INLET PROTECTION, FABRIC DROP	2	EA

STA 19+00 TO 23+50
1800 SYD PAVT, REM. MODIFIED



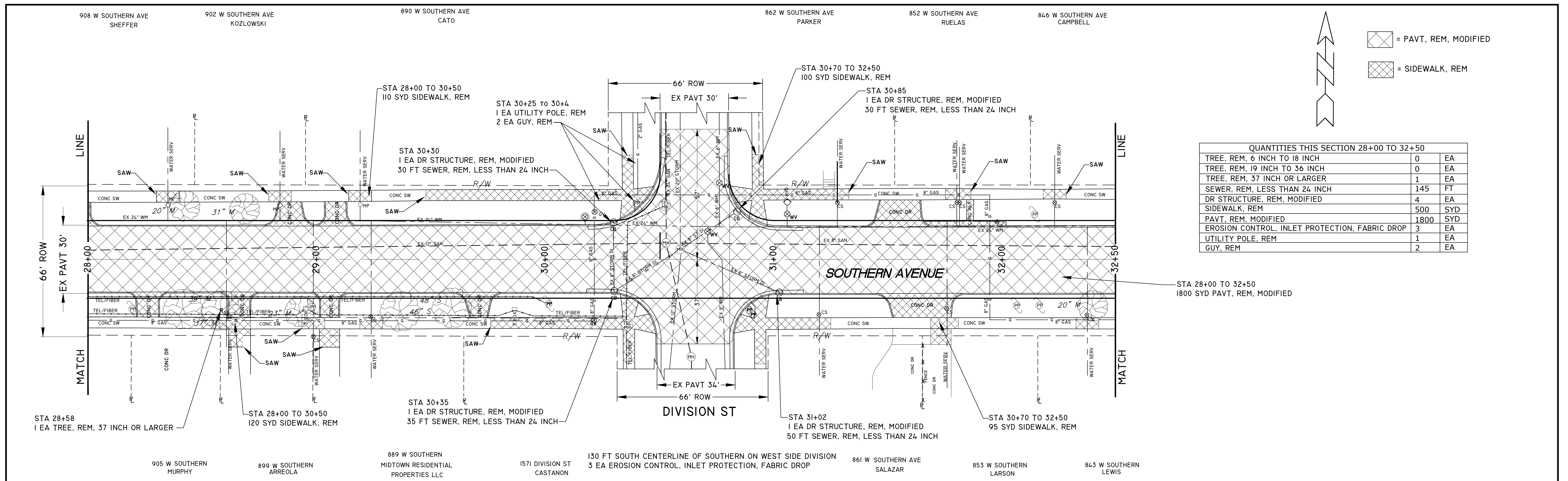
QUANTITIES THIS SECTION 23+50 TO 28+00

TREE, REM. 6 INCH TO 18 INCH	1	EA
TREE, REM. 19 INCH TO 36 INCH	1	EA
TREE, REM. 37 INCH OR LARGER	1	EA
SEWER, REM. LESS THAN 24 INCH	120	FT
DR STRUCTURE, REM. MODIFIED	5	EA
SIDEWALK, REM	600	SYD
PAVT, REM. MODIFIED	1800	SYD
EROSION CONTROL, INLET PROTECTION, FABRIC DROP	2	EA

STA 23+50 TO 28+00
1800 SYD PAVT, REM. MODIFIED

REMOVAL PLANS

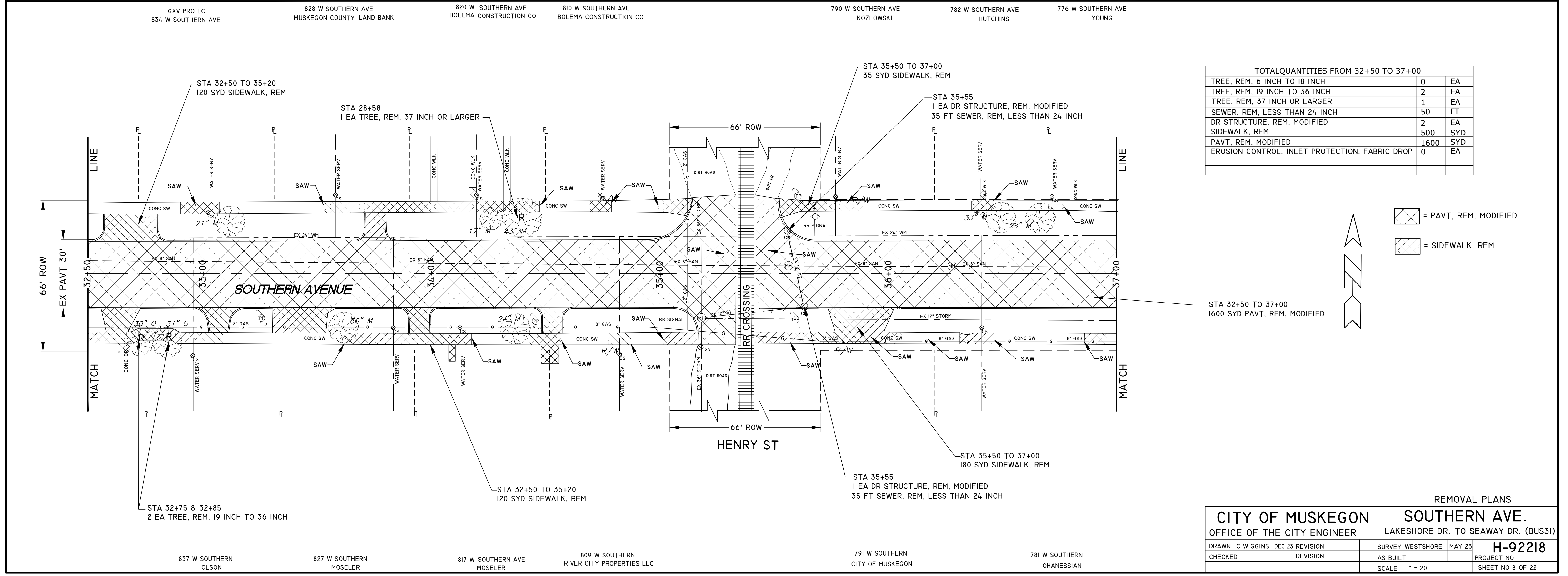
CITY OF MUSKEGON		SOUTHERN AVE.	
OFFICE OF THE CITY ENGINEER		LAKESHORE DR. TO SEAWAY DR. (BUS31)	
DRAWN C WIGGINS DEC 23	REVISION	SURVEY WESTSHORE MAY 23	H-92218
CHECKED	REVISION	AS-BUILT	PROJECT NO
		SCALE 1" = 20'	SHEET NO 7 OF 22



= PAVT, REM, MODIFIED
 = SIDEWALK, REM

QUANTITIES THIS SECTION 28+00 TO 32+50

TREE, REM, 6 INCH TO 18 INCH	0	EA
TREE, REM, 19 INCH TO 36 INCH	0	EA
TREE, REM, 37 INCH OR LARGER	1	EA
SEWER, REM, LESS THAN 24 INCH	145	FT
DR STRUCTURE, REM, MODIFIED	4	EA
SIDEWALK, REM	500	SYD
PAV'T, REM, MODIFIED	1800	SYD
EROSION CONTROL, INLET PROTECTION, FABRIC DROP	3	EA
UTILITY POLE, REM	1	EA
GUY, REM	2	EA



= PAVT, REM, MODIFIED
 = SIDEWALK, REM

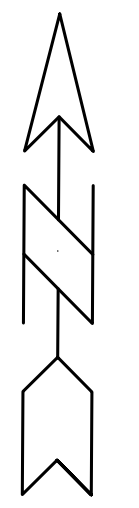
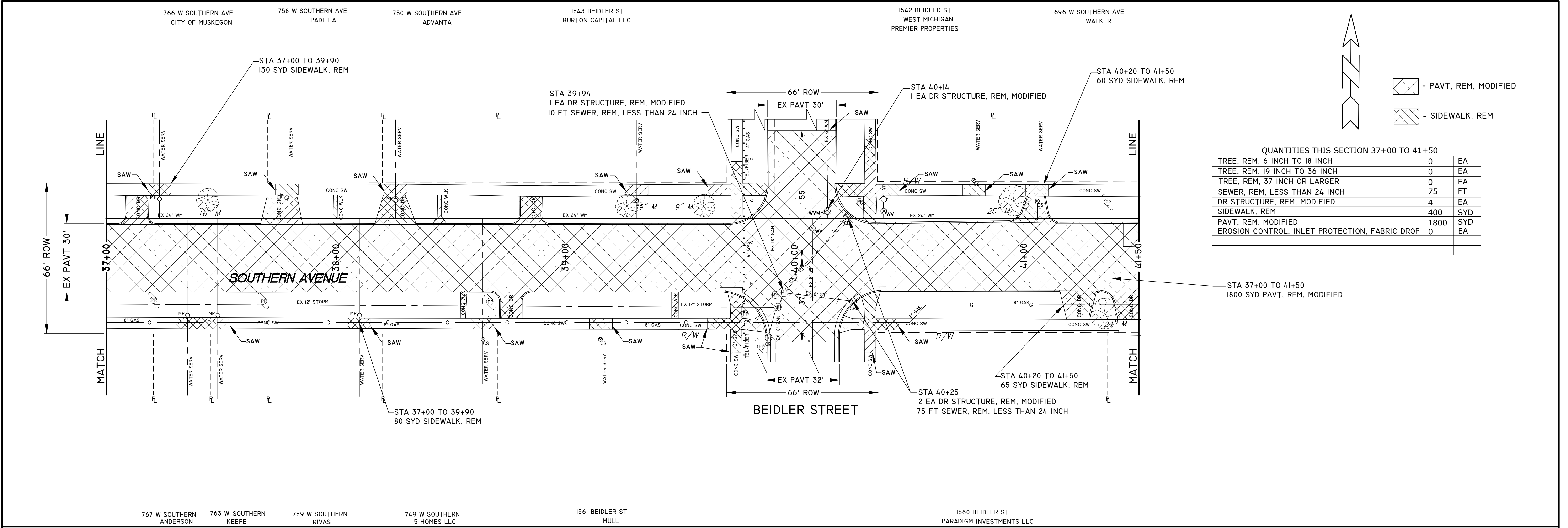
TOTAL QUANTITIES FROM 32+50 TO 37+00

TREE, REM, 6 INCH TO 18 INCH	0	EA
TREE, REM, 19 INCH TO 36 INCH	2	EA
TREE, REM, 37 INCH OR LARGER	1	EA
SEWER, REM, LESS THAN 24 INCH	50	FT
DR STRUCTURE, REM, MODIFIED	2	EA
SIDEWALK, REM	500	SYD
PAV'T, REM, MODIFIED	1600	SYD
EROSION CONTROL, INLET PROTECTION, FABRIC DROP	0	EA

REMOVAL PLANS

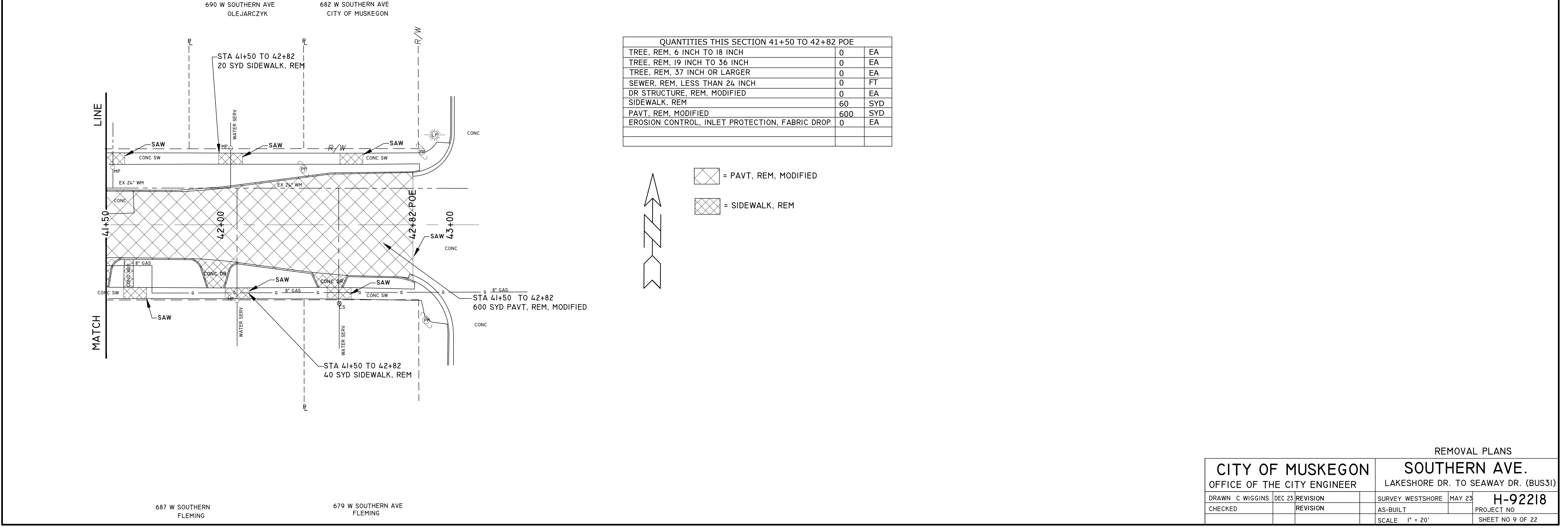
CITY OF MUSKEGON		SOUTHERN AVE.	
OFFICE OF THE CITY ENGINEER		LAKESHORE DR. TO SEAWAY DR. (BUS31)	
DRAWN C WIGGINS	DEC 23	REVISION	SURVEY WESTSHORE MAY 23
CHECKED		REVISION	AS-BUILT
		PROJECT NO. H-92218	
		SCALE 1" = 20'	
		SHEET NO 8 OF 22	

908 W SOUTHERN AVE SHEFFER 902 W SOUTHERN AVE KOZLOWSKI 890 W SOUTHERN AVE CATO 862 W SOUTHERN AVE PARKER 852 W SOUTHERN AVE RUELAS 846 W SOUTHERN AVE CAMPBELL
 905 W SOUTHERN MURPHY 899 W SOUTHERN ARREOLA 889 W SOUTHERN MIDTOWN RESIDENTIAL PROPERTIES LLC 1571 DIVISION ST CASTANON 130 FT SOUTH CENTERLINE OF SOUTHERN ON WEST SIDE DIVISION 3 EA EROSION CONTROL, INLET PROTECTION, FABRIC DROP 861 W SOUTHERN AVE SALAZAR 853 W SOUTHERN LARSON 843 W SOUTHERN LEWIS
 GXX PRO LC 834 W SOUTHERN AVE 828 W SOUTHERN AVE MUSKEGON COUNTY LAND BANK 820 W SOUTHERN AVE BOLEMA CONSTRUCTION CO 810 W SOUTHERN AVE BOLEMA CONSTRUCTION CO 790 W SOUTHERN AVE KOZLOWSKI 782 W SOUTHERN AVE HUTCHINS 776 W SOUTHERN AVE YOUNG
 837 W SOUTHERN OLSON 827 W SOUTHERN MOSELER 817 W SOUTHERN AVE MOSELER 809 W SOUTHERN RIVER CITY PROPERTIES LLC 791 W SOUTHERN CITY OF MUSKEGON 781 W SOUTHERN OHANESSIAN

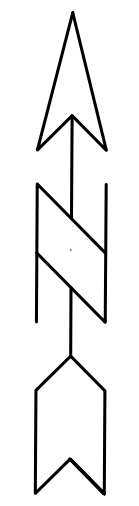


= PAVT, REM, MODIFIED
 = SIDEWALK, REM

QUANTITIES THIS SECTION 37+00 TO 41+50		
TREE, REM, 6 INCH TO 18 INCH	0	EA
TREE, REM, 19 INCH TO 36 INCH	0	EA
TREE, REM, 37 INCH OR LARGER	0	EA
SEWER, REM, LESS THAN 24 INCH	75	FT
DR STRUCTURE, REM, MODIFIED	4	EA
SIDEWALK, REM	400	SYD
PAVT, REM, MODIFIED	1800	SYD
EROSION CONTROL, INLET PROTECTION, FABRIC DROP	0	EA



QUANTITIES THIS SECTION 41+50 TO 42+82 POE		
TREE, REM, 6 INCH TO 18 INCH	0	EA
TREE, REM, 19 INCH TO 36 INCH	0	EA
TREE, REM, 37 INCH OR LARGER	0	EA
SEWER, REM, LESS THAN 24 INCH	0	FT
DR STRUCTURE, REM, MODIFIED	0	EA
SIDEWALK, REM	60	SYD
PAVT, REM, MODIFIED	600	SYD
EROSION CONTROL, INLET PROTECTION, FABRIC DROP	0	EA



= PAVT, REM, MODIFIED
 = SIDEWALK, REM

REMOVAL PLANS

CITY OF MUSKEGON
OFFICE OF THE CITY ENGINEER

SOUTHERN AVE.
LAKESHORE DR. TO SEAWAY DR. (BUS31)

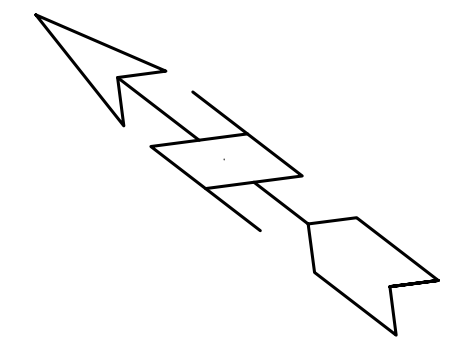
DRAWN C. WIGGINS	DEC 23	REVISION	SURVEY WESTSHORE	MAY 23	H-92218
CHECKED		REVISION	AS-BUILT		
SCALE 1" = 20'				PROJECT NO	

687 W SOUTHERN FLEMING 679 W SOUTHERN FLEMING

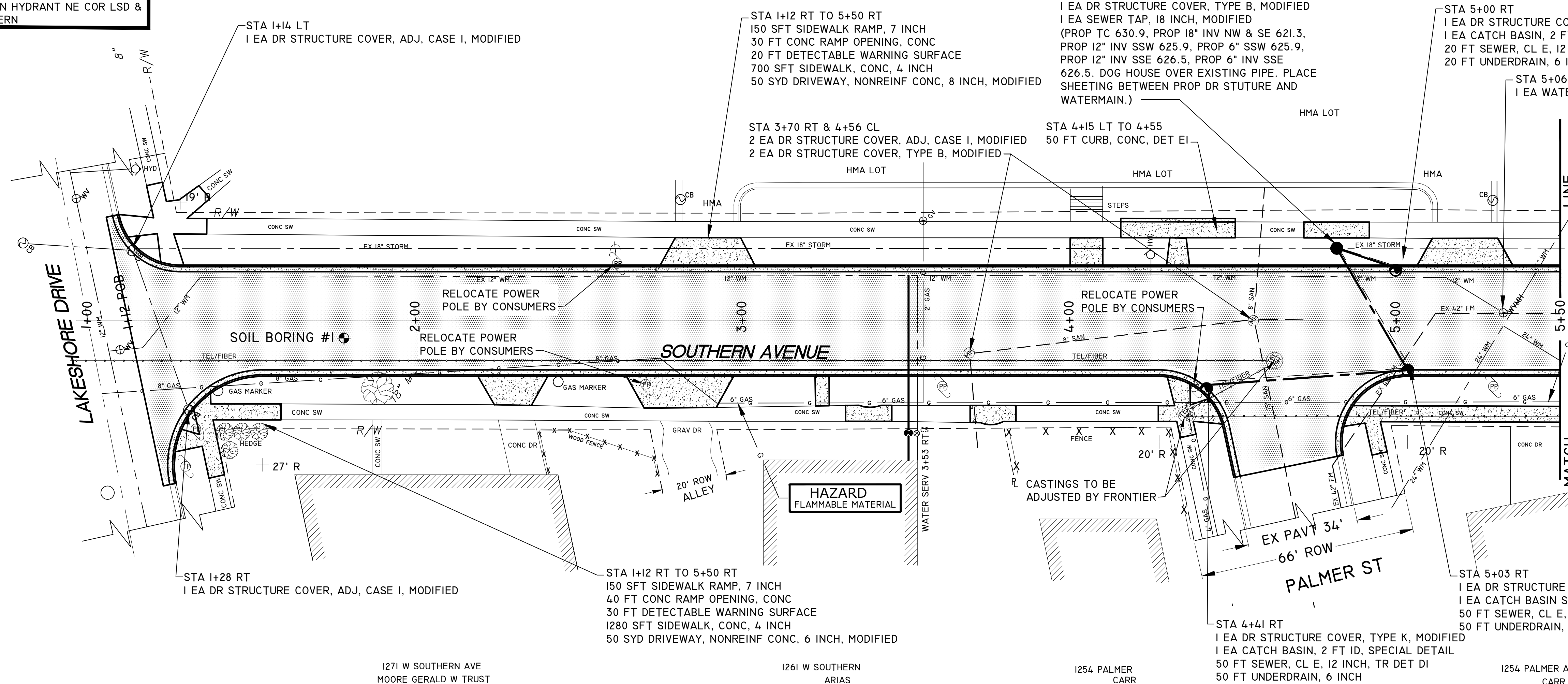
BM ELEVATION 630.55
FLANGE BOLT UNDER "E" IN
EJW ON HYDRANT NE COR LSD &
SOUTHERN

1190 W SOUTHERN AVE
HUME HOME

1190 W SOUTHERN AVE
HUME HOME



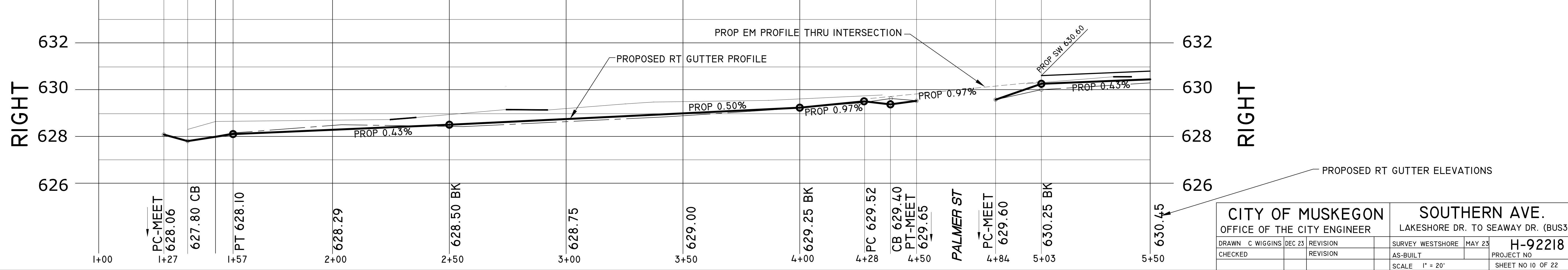
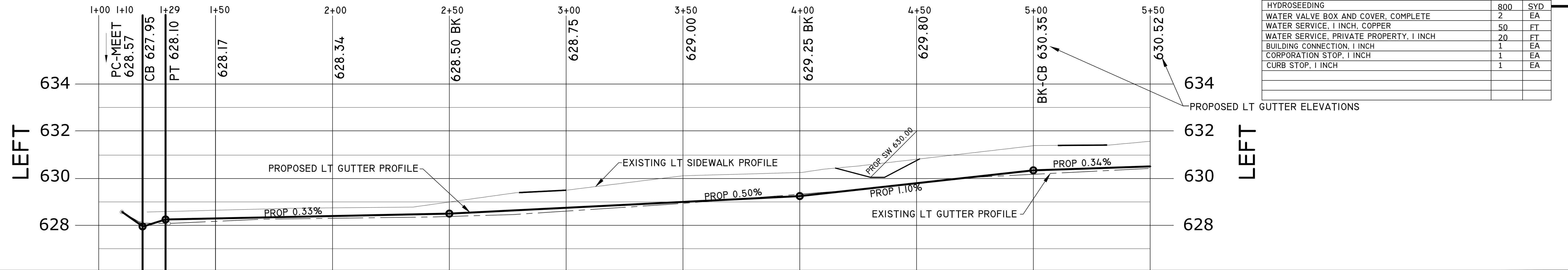
[Pattern] = NEW CONCRETE SIDEWALK,
DRIVEWAYS & CURB AND
GUTTER
[Pattern] = HMA, HAND PATCHING



STATION	1 INCH CORP	1 INCH TYPE	1 INCH CURB STOP	METER PIT	PRIVATE PROPERTY (FT)	BUILDING CONNECTION
3+52 RT	1 EACH	50 FT	1 EACH		20 FT	1 EACH

STA 1+12 POB TO 5+50 ADDITIONAL QUANTITIES
4.4 STA MACHINE GRADING, MODIFIED
1700 SYD AGGREGATE BASE, 8 INCH
390 TON HMA, 4E3
900 FT CURB AND GUTTER, CONC, DET F4, MODIFIED
800 SYD TOPSOIL SURFACE, FURN, 4 INCH
800 SYD HYDROSEEDING

DESCRIPTION	QUANTITY	UNIT	STA
MACHINE GRADING, MODIFIED	4.4	STA	
AGGREGATE BASE, 8 INCH	1700	SYD	
SEWER, CL E, 12 INCH, TR DET D	120	FT	
SEWER TAP, 18 INCH, MODIFIED	1	EA	
CATCH BASIN, 2 FT ID, SPECIAL DETAIL	2	EA	
CATCH BASIN SPECIAL DETAIL	1	EA	
DR STRUCTURE, ADJ. CASE I, MODIFIED	4	EA	
DR STRUCTURE COVER, TYPE B, MODIFIED	4	EA	
DR STRUCTURE COVER, TYPE K, MODIFIED	3	EA	
DR STRUCTURE, 48 INCH DIA	1	EA	
DR STRUCTURE, ADD DEPTH OF 48 INCH DIA, 8 FOOT TO 15 FOOT	1	FT	
UNDERDRAIN, 6 INCH, SUBGRADE	120	FT	
HMA 4E3	390	TON	
DRIVEWAY, NONREINF CONC, 6 INCH, MODIFIED	50	SYD	
DRIVEWAY, NONREINF CONC, 8 INCH, MODIFIED	50	SYD	
CURB AND GUTTER, CONC, DET F4, MODIFIED	900	FT	
CURB, CONC, DET EI	50	FT	
DETECTABLE WARNING SURFACE	60	FT	
CONC RAMP OPENING, CONC	80	FT	
SIDEWALK RAMP, 7 INCH	300	SFT	
SIDEWALK, CONC, 4 INCH	2000	SFT	
SIDEWALK, CONC, 7 INCH	400	SFT	
TOPSOIL SURFACE, FURN, 4 INCH	800	SYD	
HYDROSEEDING	800	SYD	
WATER VALVE BOX AND COVER, COMPLETE	2	EA	
WATER SERVICE, 1 INCH, COPPER	50	FT	
WATER SERVICE, PRIVATE PROPERTY, 1 INCH	20	FT	
BUILDING CONNECTION, 1 INCH	1	EA	
CORPORATION STOP, 1 INCH	1	EA	
CURB STOP, 1 INCH	1	EA	



CITY OF MUSKEGON		SOUTHERN AVE.	
OFFICE OF THE CITY ENGINEER		LAKESHORE DR. TO SEAWAY DR. (BUS31)	
DRAWN C WIGGINS DEC 23	REVISION	SURVEY WESTSHORE MAY 23	H-92218
CHECKED	REVISION	AS-BUILT	PROJECT NO
		SCALE 1" = 20'	SHEET NO 10 OF 22

BM ELEVATION 632.90
FLANGE BOLT UNDER "M" IN
MICH ON HYDRANT 6+58 RT

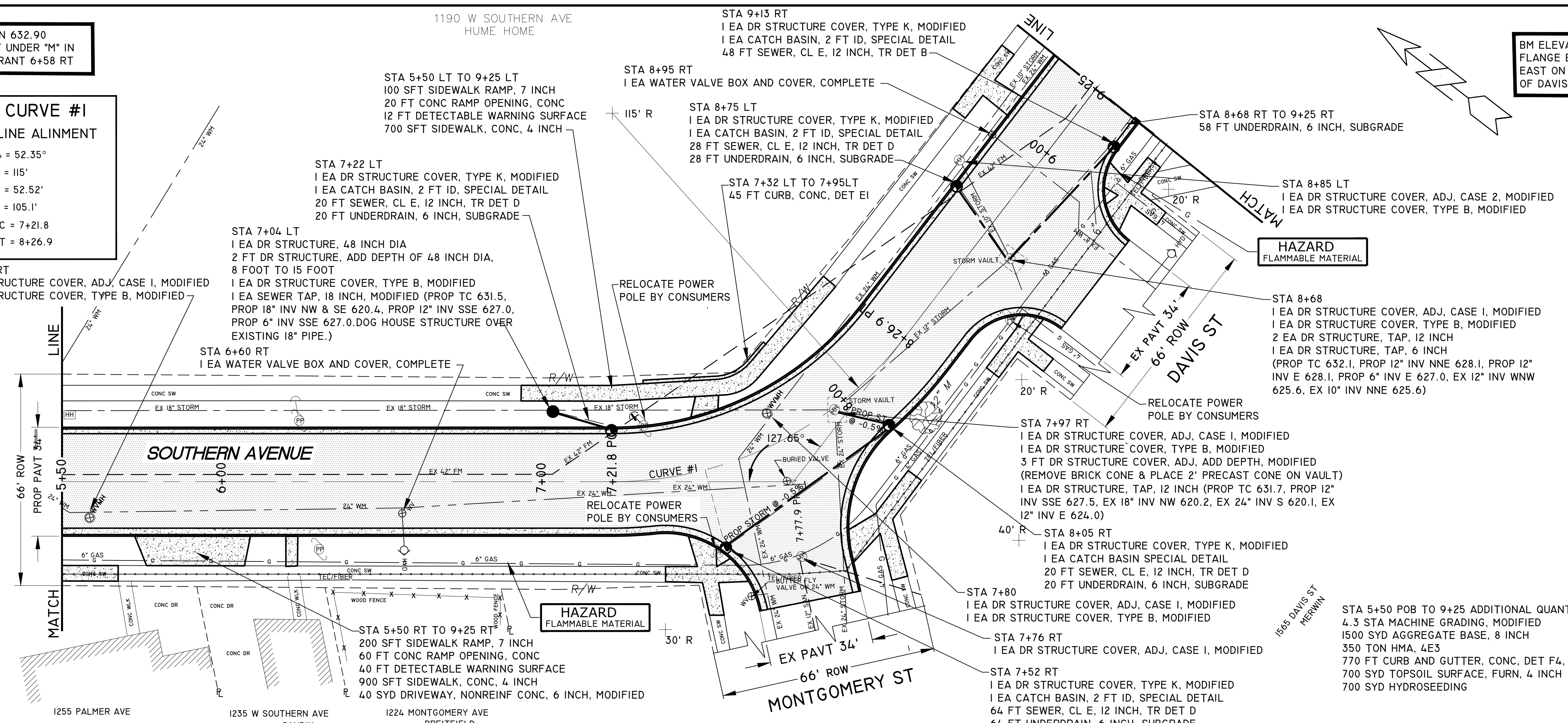
1190 W SOUTHERN AVE
HUME HOME

STA 9+13 RT
1 EA DR STRUCTURE COVER, TYPE K, MODIFIED
1 EA CATCH BASIN, 2 FT ID, SPECIAL DETAIL
48 FT SEWER, CL E, 12 INCH, TR DET B

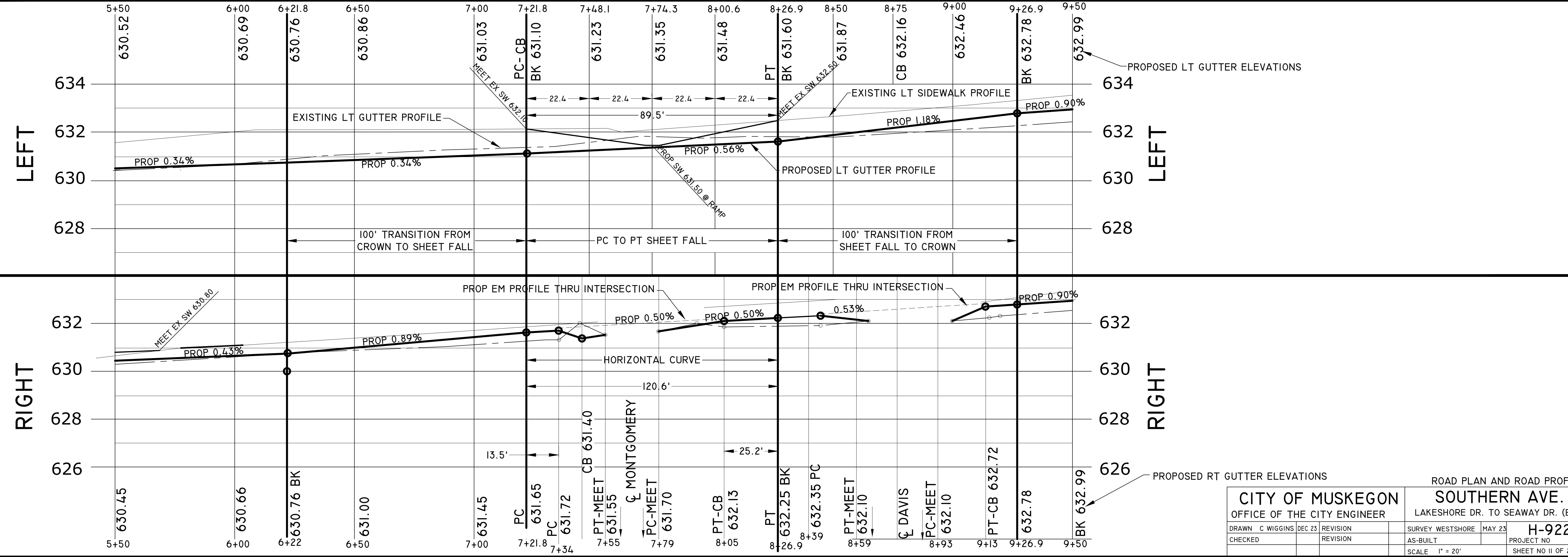
BM ELEVATION 634.78
FLANGE BOLT UNDER "E" IN
EAST ON HYDRANT SE CORNER
OF DAVIS & SOUTHERN

- = NEW CONCRETE SIDEWALK, DRIVEWAYS & CURB AND GUTTER
- = PROPOSED HMA, 4E3
- = PROPOSED HMA, HAND PATCHING

PROP CURVE #1
CENTER LINE ALIGNMENT
Δ = 52.35°
R = 115'
T = 52.52'
L = 105.1'
PC = 7+21.8
PT = 8+26.9

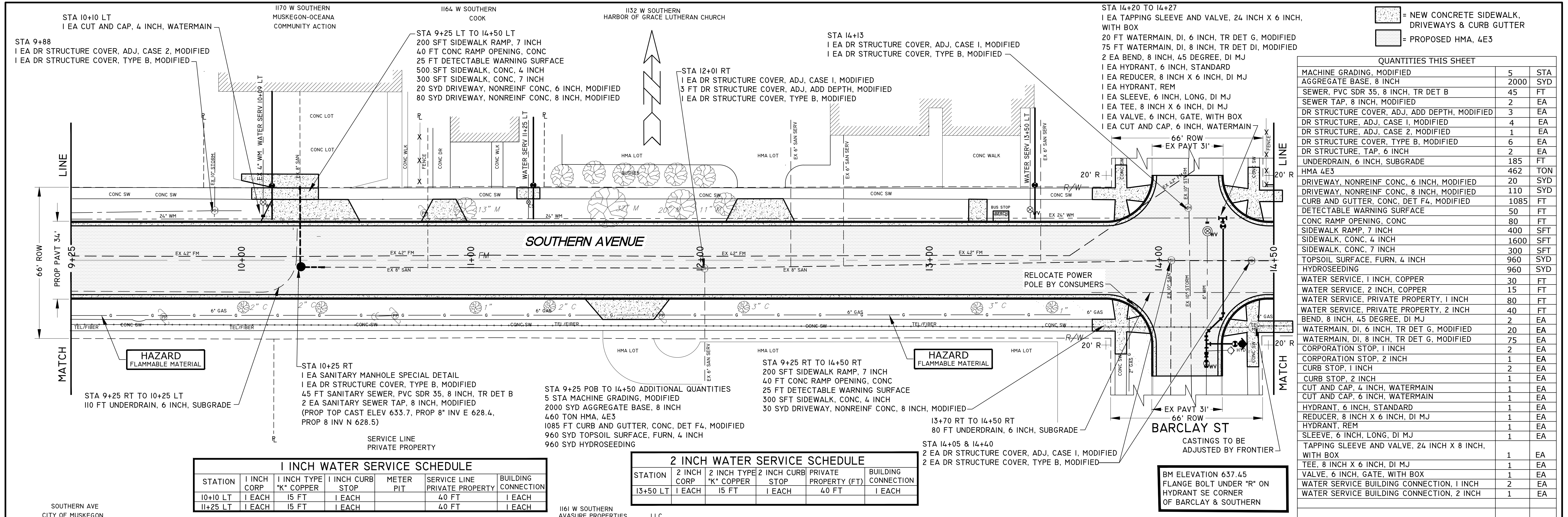


QUANTITIES THIS SHEET		
MACHINE GRADING, MODIFIED	4.3	STA
AGGREGATE BASE, 8 INCH	1500	SYD
SEWER, CL E, 12 INCH, TR DET D	132	FT
SEWER, CL E, 12 INCH, TR DET B	48	FT
SEWER TAP, 18 INCH, MODIFIED	1	EA
DR STRUCTURE COVER, ADJ. ADD DEPTH, MODIFIED	3	EA
DR STRUCTURE, TAP, 6 INCH	3	EA
DR STRUCTURE, TAP, 12 INCH	3	EA
CATCH BASIN, 2 FT ID, SPECIAL DETAIL	3	EA
CATCH BASIN SPECIAL DETAIL	1	EA
DR STRUCTURE, ADJ. CASE I, MODIFIED	5	EA
DR STRUCTURE, ADJ. CASE 2, MODIFIED	1	EA
DR STRUCTURE COVER, TYPE B, MODIFIED	6	EA
DR STRUCTURE COVER, TYPE K, MODIFIED	5	EA
DR STRUCTURE, 48 INCH DIA	1	EA
DR STRUCTURE, ADD DEPTH OF 48 INCH DIA, 8 FOOT TO 15 FOOT	2	FT
UNDERDRAIN, 6 INCH, SUBGRADE	190	FT
HMA 4E3	350	TON
DRIVEWAY, NONREINF CONC, 6 INCH, MODIFIED	50	SYD
CURB AND GUTTER, CONC, DET F4, MODIFIED	770	FT
CURB, CONC, DET EI	50	FT
DETECTABLE WARNING SURFACE	50	FT
CONC RAMP OPENING, CONC	80	FT
SIDEWALK RAMP, 7 INCH	400	SFT
SIDEWALK, CONC, 4 INCH	1600	SFT
TOPSOIL SURFACE, FURN, 4 INCH	700	SYD
HYDROSEEDING	700	SYD
WATER VALVE BOX AND COVER, COMPLETE	2	EA



ROAD PLAN AND ROAD PROFILE

CITY OF MUSKEGON		SOUTHERN AVE.	
OFFICE OF THE CITY ENGINEER		LAKESHORE DR. TO SEAWAY DR. (BUS31)	
DRAWN C WIGGINS DEC 23	REVISION	SURVEY WESTSHORE MAY 23	H-92218
CHECKED	REVISION	AS-BUILT	PROJECT NO
		SCALE 1" = 20'	SHEET NO II OF 22

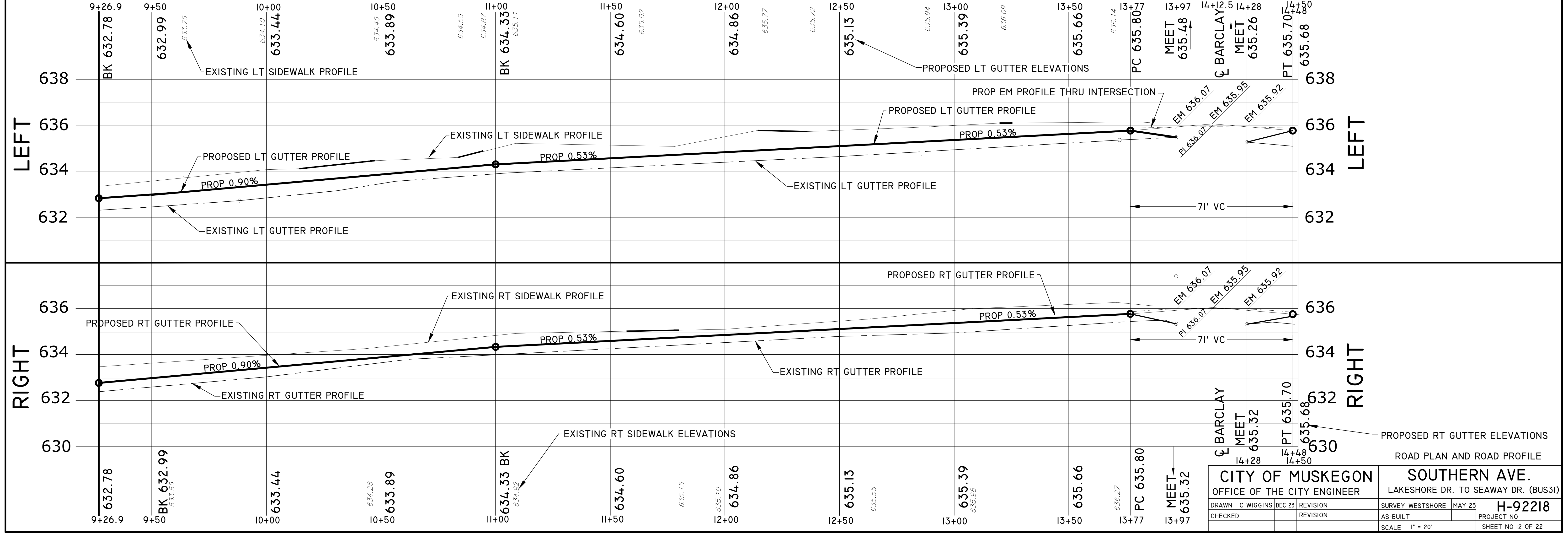


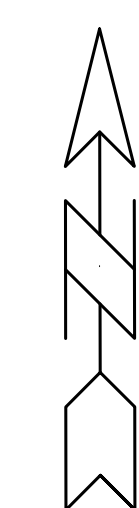
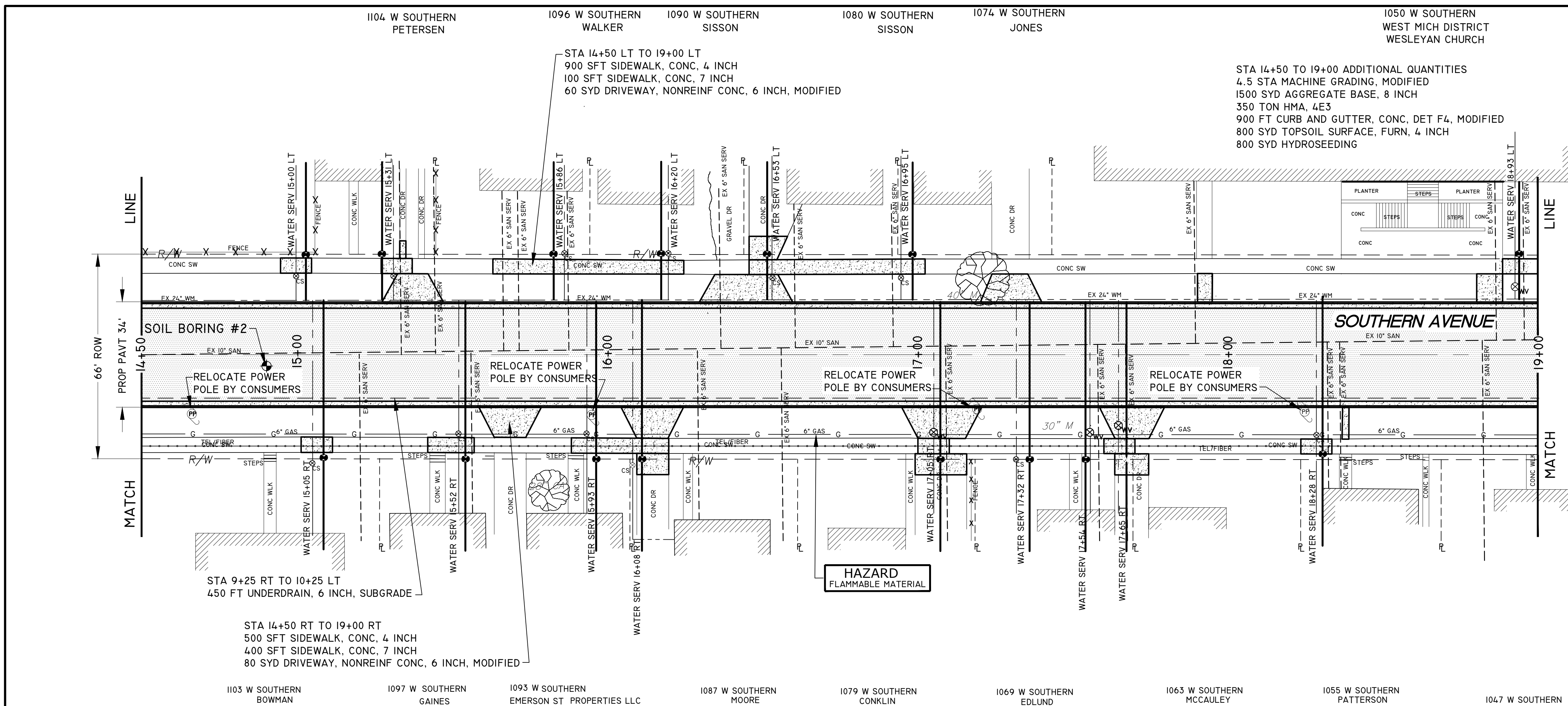
= NEW CONCRETE SIDEWALK, DRIVEWAYS & CURB GUTTER
 = PROPOSED HMA, 4E3

QUANTITIES THIS SHEET		
MACHINE GRADING, MODIFIED	5	STA
AGGREGATE BASE, 8 INCH	2000	SYD
SEWER, PVC SDR 35, 8 INCH, TR DET B	45	FT
SEWER TAP, 8 INCH, MODIFIED	2	EA
DR STRUCTURE COVER, ADJ, ADD DEPTH, MODIFIED	3	EA
DR STRUCTURE COVER, ADJ, CASE 1, MODIFIED	4	EA
DR STRUCTURE COVER, ADJ, CASE 2, MODIFIED	1	EA
DR STRUCTURE COVER, TYPE B, MODIFIED	6	EA
DR STRUCTURE COVER, TYPE B, MODIFIED	2	EA
UNDERDRAIN, 6 INCH, SUBGRADE	185	FT
HMA 4E3	462	TON
DRIVEWAY, NONREINF CONC, 6 INCH, MODIFIED	20	SYD
DRIVEWAY, NONREINF CONC, 8 INCH, MODIFIED	110	SYD
CURB AND GUTTER, CONC, DET F4, MODIFIED	1085	FT
DETECTABLE WARNING SURFACE	50	FT
CONC RAMP OPENING, CONC	80	FT
SIDEWALK RAMP, 7 INCH	400	SFT
SIDEWALK, CONC, 4 INCH	1600	SFT
SIDEWALK, CONC, 7 INCH	300	SFT
TOPSOIL SURFACE, FURN, 4 INCH	960	SYD
HYDROSEEDING	960	SYD
WATER SERVICE, 1 INCH, COPPER	30	FT
WATER SERVICE, 2 INCH, COPPER	15	FT
WATER SERVICE, PRIVATE PROPERTY, 1 INCH	80	FT
WATER SERVICE, PRIVATE PROPERTY, 2 INCH	40	FT
BEND, 8 INCH, 45 DEGREE, DI MJ	2	EA
WATERMAIN, DI, 6 INCH, TR DET G, MODIFIED	20	EA
WATERMAIN, DI, 8 INCH, TR DET G, MODIFIED	75	EA
CORPORATION STOP, 1 INCH	2	EA
CORPORATION STOP, 2 INCH	1	EA
CURB STOP, 1 INCH	2	EA
CURB STOP, 2 INCH	1	EA
CUT AND CAP, 4 INCH, WATERMAIN	1	EA
CUT AND CAP, 6 INCH, WATERMAIN	1	EA
HYDRANT, 6 INCH, STANDARD	1	EA
REDUCER, 8 INCH X 6 INCH, DI MJ	1	EA
HYDRANT, REM	1	EA
SLEEVE, 6 INCH, LONG, DI MJ	1	EA
TAPPING SLEEVE AND VALVE, 24 INCH X 8 INCH, WITH BOX	1	EA
TEE, 8 INCH X 6 INCH, DI MJ	1	EA
VALVE, 6 INCH, GATE, WITH BOX	1	EA
WATER SERVICE BUILDING CONNECTION, 1 INCH	2	EA
WATER SERVICE BUILDING CONNECTION, 2 INCH	1	EA

STATION	1 INCH CORP	1 INCH TYPE "K" COPPER	1 INCH CURB STOP	METER PIT	SERVICE LINE PRIVATE PROPERTY	BUILDING CONNECTION
10+10 LT	1 EACH	15 FT	1 EACH		40 FT	1 EACH
11+25 LT	1 EACH	15 FT	1 EACH		40 FT	1 EACH

STATION	2 INCH CORP	2 INCH TYPE "K" COPPER	2 INCH CURB STOP	PRIVATE PROPERTY (FT)	BUILDING CONNECTION
13+50 LT	1 EACH	15 FT	1 EACH	40 FT	1 EACH



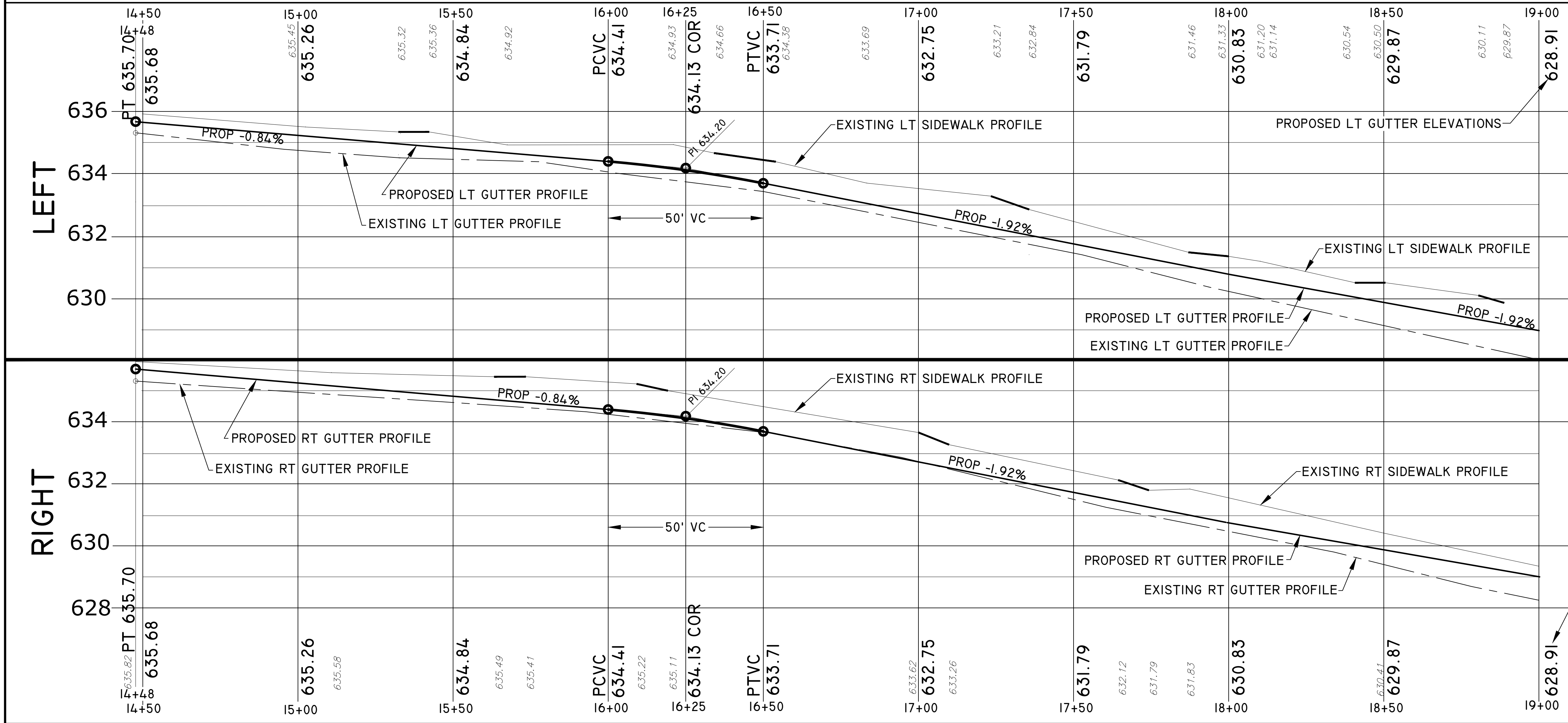


- = NEW CONCRETE SIDEWALK, DRIVEWAYS & CURB AND GUTTER
- = PROPOSED HMA, 4E3

QUANTITIES THIS SHEET		
MACHINE GRADING, MODIFIED	4.5	STA
AGGREGATE BASE, 8 INCH	1500	SYD
UNDERDRAIN, 6 INCH, SUBGRADE	450	FT
HMA 4E3	350	TON
DRIVEWAY, NONREINF CONC, 6 INCH, MODIFIED	50	SYD
CURB AND GUTTER, CONC, DET F4, MODIFIED	900	FT
SIDEWALK, CONC, 4 INCH	1600	SFT
SIDEWALK, CONC, 7 INCH	400	SFT
TOPSOIL SURFACE, FURN, 4 INCH	700	SYD
HYDROSEEDING	700	SYD
WATER SERVICE, 1 INCH, COPPER	472	FT
WATER SERVICE, 2 INCH, COPPER	15	FT
WATER SERVICE, PRIVATE PROPERTY, 1 INCH	430	FT
WATER SERVICE, PRIVATE PROPERTY, 2 INCH	40	FT
CORPORATION STOP, 1 INCH	14	EA
CORPORATION STOP, 2 INCH	1	EA
CURB STOP, 1 INCH	14	EA
CURB STOP, 2 INCH	1	EA
WATER SERVICE BUILDING CONNECTION, 1 INCH	14	EA
WATER SERVICE BUILDING CONNECTION, 2 INCH	1	EA

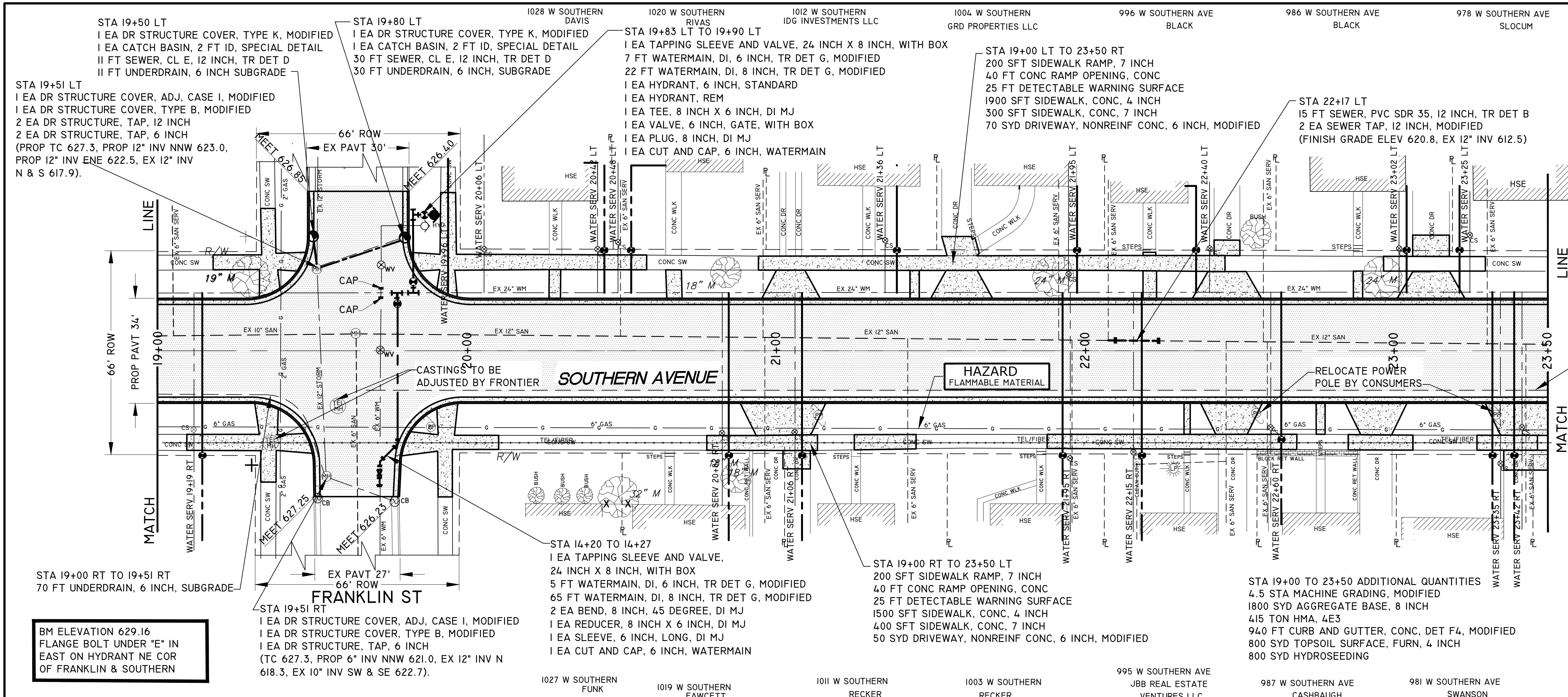
1 INCH WATER SERVICE SCHEDULE						
STATION	1 INCH CORP	1 INCH TYPE "K" COPPER	1 INCH CURB STOP	METER PIT	SERVICE LINE PRIVATE PROPERTY (FT)	BUILDING CONNECTION
15+05 RT	1 EACH	52 FT	1 EACH		25 FT	1 EACH
15+52 RT	1 EACH	52 FT	1 EACH		25 FT	1 EACH
15+93 RT	1 EACH	52 FT	1 EACH		25 FT	1 EACH
16+08 RT	1 EACH	52 FT	1 EACH		40 FT	1 EACH
17+05 RT	1 EACH	52 FT	1 EACH		40 FT	1 EACH
17+32 RT	1 EACH	52 FT	1 EACH		40 FT	1 EACH
17+64 RT	1 EACH	52 FT	1 EACH		40 FT	1 EACH
17+65 RT	1 EACH	52 FT	1 EACH		40 FT	1 EACH
15+00 LT	1 EACH	18 FT	1 EACH		40 FT	1 EACH
15+31 LT	1 EACH	18 FT	1 EACH		25 FT	1 EACH
15+86 LT	1 EACH	18 FT	1 EACH		25 FT	1 EACH
16+20 LT	1 EACH	18 FT	1 EACH		25 FT	1 EACH
16+53 LT	1 EACH	18 FT	1 EACH		40 FT	1 EACH
16+95 LT	1 EACH	18 FT	1 EACH		40 FT	1 EACH

2 INCH WATER SERVICE SCHEDULE					
STATION	2 INCH CORP	2 INCH TYPE "K" COPPER	2 INCH CURB STOP	PRIVATE PROPERTY (FT)	BUILDING CONNECTION
18+93 LT	1 EACH	15 FT	1 EACH	40 FT	1 EACH



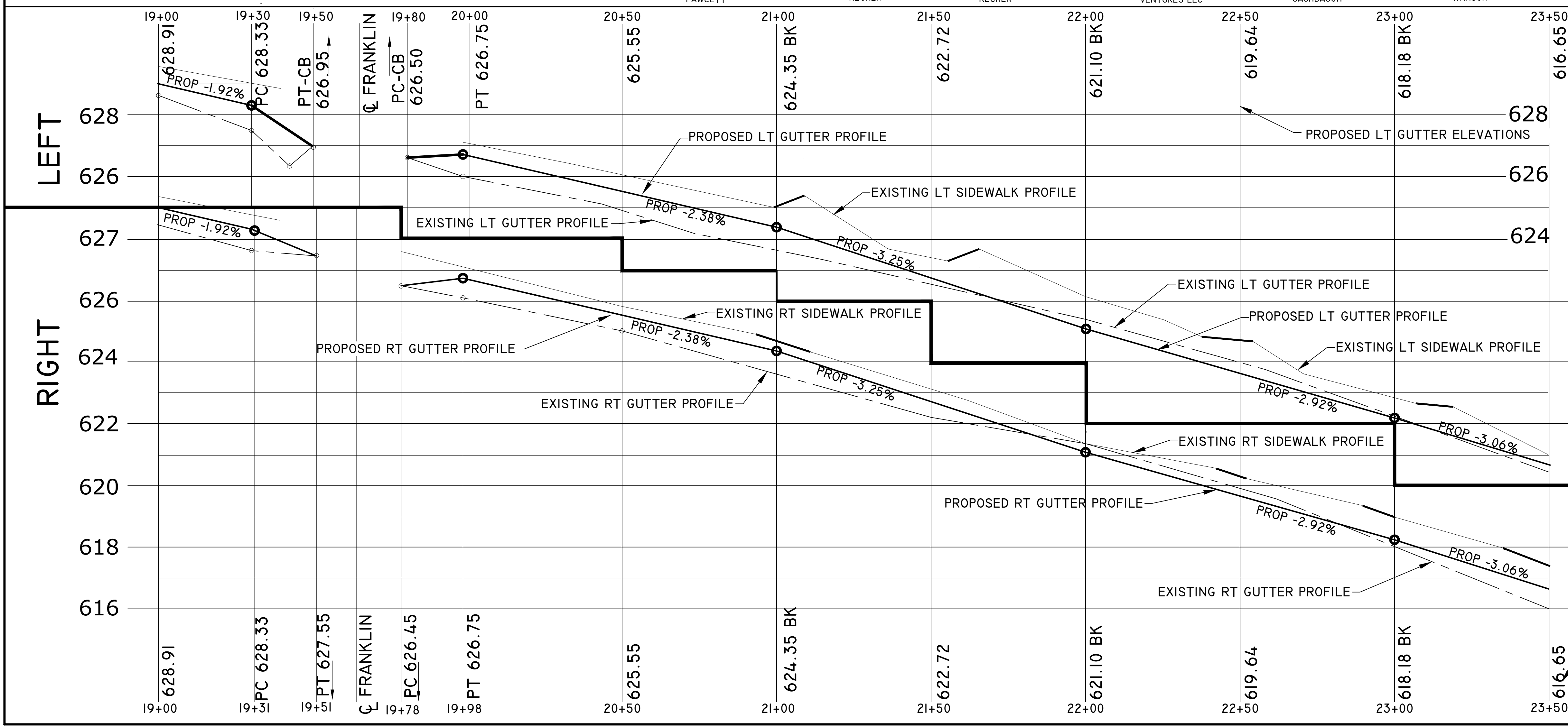
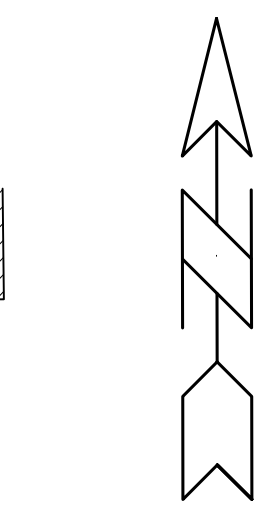
ROAD PLAN AND ROAD PROFILE

CITY OF MUSKEGON		SOUTHERN AVE.	
OFFICE OF THE CITY ENGINEER		LAKESHORE DR. TO SEAWAY DR. (BUS31)	
DRAWN C WIGGINS JAN 24	REVISION	SURVEY WESTSHORE MAY 16	H-92218
CHECKED	REVISION	AS-BUILT	PROJECT NO.
APPROVED		SCALE 1" = 20'	SHEET NO 13 OF 22



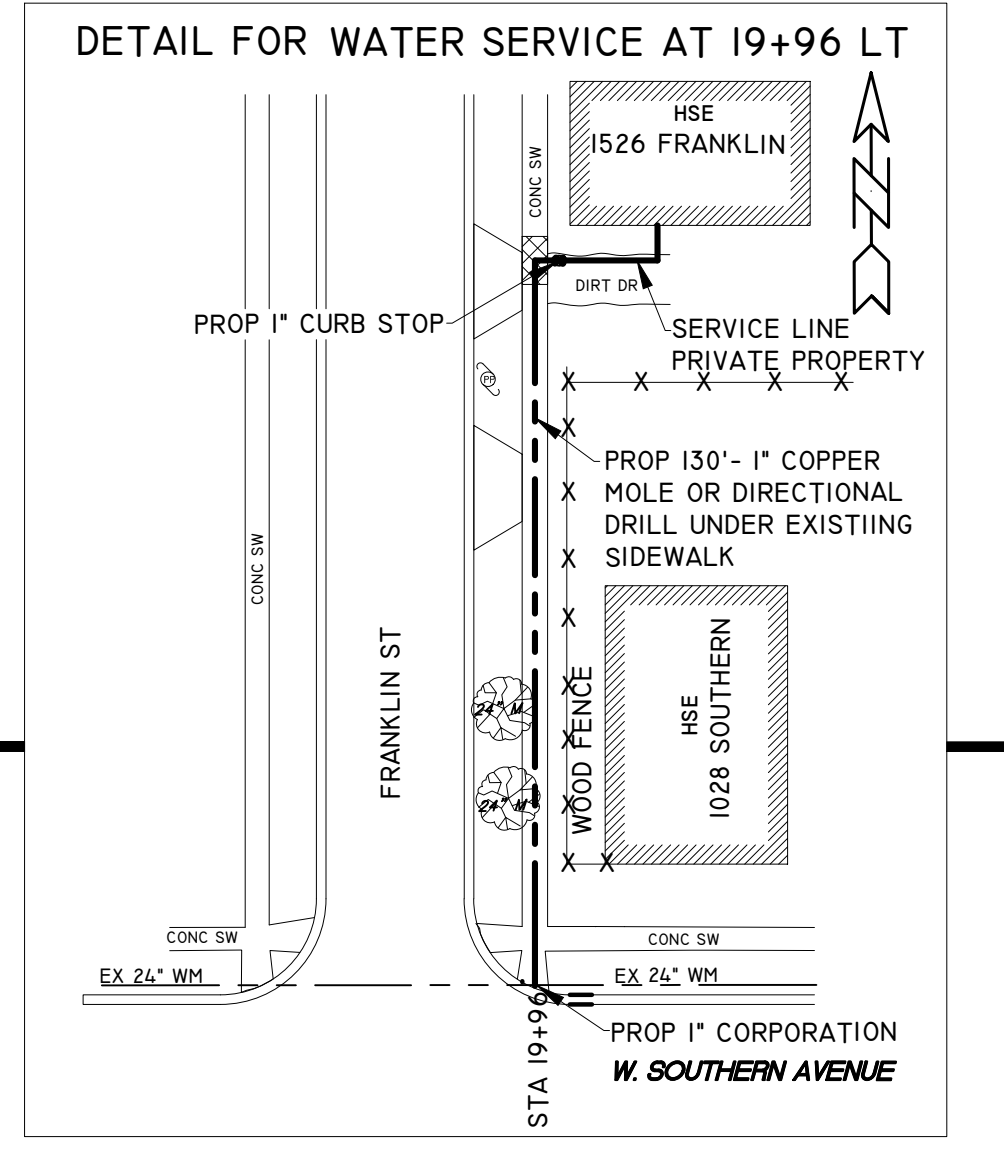
- [Pattern] = NEW CONCRETE SIDEWALK, DRIVEWAYS & CURB AND GUTTER
- [Pattern] = PROPOSED HMA, 4E3

QUANTITIES THIS SHEET		
MACHINE GRADING, MODIFIED	4.5	STA
AGGREGATE BASE, 8 INCH	1800	SYD
SEWER, CL E, 12 INCH, TR DET D	41	EA
SEWER, PVC SDR 35, 12 INCH, TR DET B	15	EA
SEWER TAP, 6 INCH, MODIFIED	1	EA
SEWER TAP, 12 INCH, MODIFIED	2	EA
CATCH BASIN, 2 FT ID, SPECIAL DETAIL	2	EA
DR STRUCTURE, ADJ, CASE I, MODIFIED	2	EA
DR STRUCTURE, TAP, 6 INCH	3	EA
DR STRUCTURE, TAP, 12 INCH	2	EA
DR STRUCTURE COVER, TYPE B, MODIFIED	3	EA
DR STRUCTURE COVER, TYPE K, MODIFIED	2	EA
UNDERDRAIN, 6 INCH, SUBGRADE	465	FT
HMA 4E3	415	TON
DRIVEWAY, NONREINF CONC, 6 INCH, MODIFIED	120	SYD
CURB AND GUTTER, CONC, DET F4, MODIFIED	940	FT
DETECTABLE WARNING SURFACE	50	FT
CONC RAMP OPENING, CONC	80	FT
SIDEWALK RAMP, 7 INCH	400	SFT
SIDEWALK, CONC, 4 INCH	3400	SFT
SIDEWALK, CONC, 7 INCH	700	SFT
TOPSOIL SURFACE, FURN, 4 INCH	800	SYD
HYDROSEEDING	800	SYD
WATER SERVICE, 1 INCH, COPPER	672	FT
WATER SERVICE, PRIVATE PROPERTY, 1 INCH	505	FT
WATERMAIN, DI, 6 INCH, TR DET G, MODIFIED	12	EA
WATERMAIN, DI, 8 INCH, TR DET G, MODIFIED	87	EA
ABANDON WATER SERVICE	1	EA
BEND, 8 INCH, 45 DEGREE, DI MJ	2	EA
CORPORATION STOP, 1 INCH	16	EA
CURB STOP, 1 INCH	16	EA
CUT AND CAP, 6 INCH, WATERMAIN	2	EA
HYDRANT, 6 INCH, STANDARD	1	EA
HYDRANT, REM	1	EA
PLUG, 8 INCH, DI MJ	1	EA
REDUCER, 8 INCH X 6 INCH, DI MJ	1	EA
SLEEVE, 6 INCH, LONG, DI MJ	1	EA
TAPPING SLEEVE AND VALVE, 24 INCH X 8 INCH, WITH BOX	2	EA
TEE, 8 INCH X 6 INCH, DI MJ	1	EA
VALVE, 6 INCH, GATE, WITH BOX	1	EA
WATER SERVICE BUILDING CONNECTION, 1 INCH	16	EA



1 INCH WATER SERVICE SCHEDULE						
STATION	1 INCH CORP	1 INCH TYPE "K" COPPER	1 INCH CURB STOP	METER PIT	SERVICE LINE PRIVATE PROPERTY	BUILDING CONNECTION ABANDON WATER SERV
19+19 RT	1 EACH	52 FT	1 EACH		25 FT	1 EACH
20+82 RT	1 EACH	52 FT	1 EACH		25 FT	1 EACH
21+06 RT	1 EACH	52 FT	1 EACH		25 FT	1 EACH
21+95 RT	1 EACH	52 FT	1 EACH		40 FT	1 EACH
22+15 RT	1 EACH	52 FT	1 EACH		40 FT	1 EACH
22+60 RT	1 EACH	52 FT	1 EACH		40 FT	1 EACH
23+35 RT	1 EACH	52 FT	1 EACH		40 FT	1 EACH
23+42 RT	1 EACH	52 FT	1 EACH		40 FT	1 EACH
*19+96 LT	1 EACH	130 FT	1 EACH		25 FT	1 EACH
20+06 LT						1 EACH
20+42 LT	1 EACH	18 FT	1 EACH		25 FT	1 EACH
20+48 LT	1 EACH	18 FT	1 EACH		25 FT	1 EACH
21+36 LT	1 EACH	18 FT	1 EACH		40 FT	1 EACH
21+95 LT	1 EACH	18 FT	1 EACH		40 FT	1 EACH
22+40 LT	1 EACH	18 FT	1 EACH		25 FT	1 EACH
23+02 LT	1 EACH	18 FT	1 EACH		25 FT	1 EACH
23+25 LT	1 EACH	18 FT	1 EACH		25 FT	1 EACH

* SEE DETAIL FOR 19+96 LT

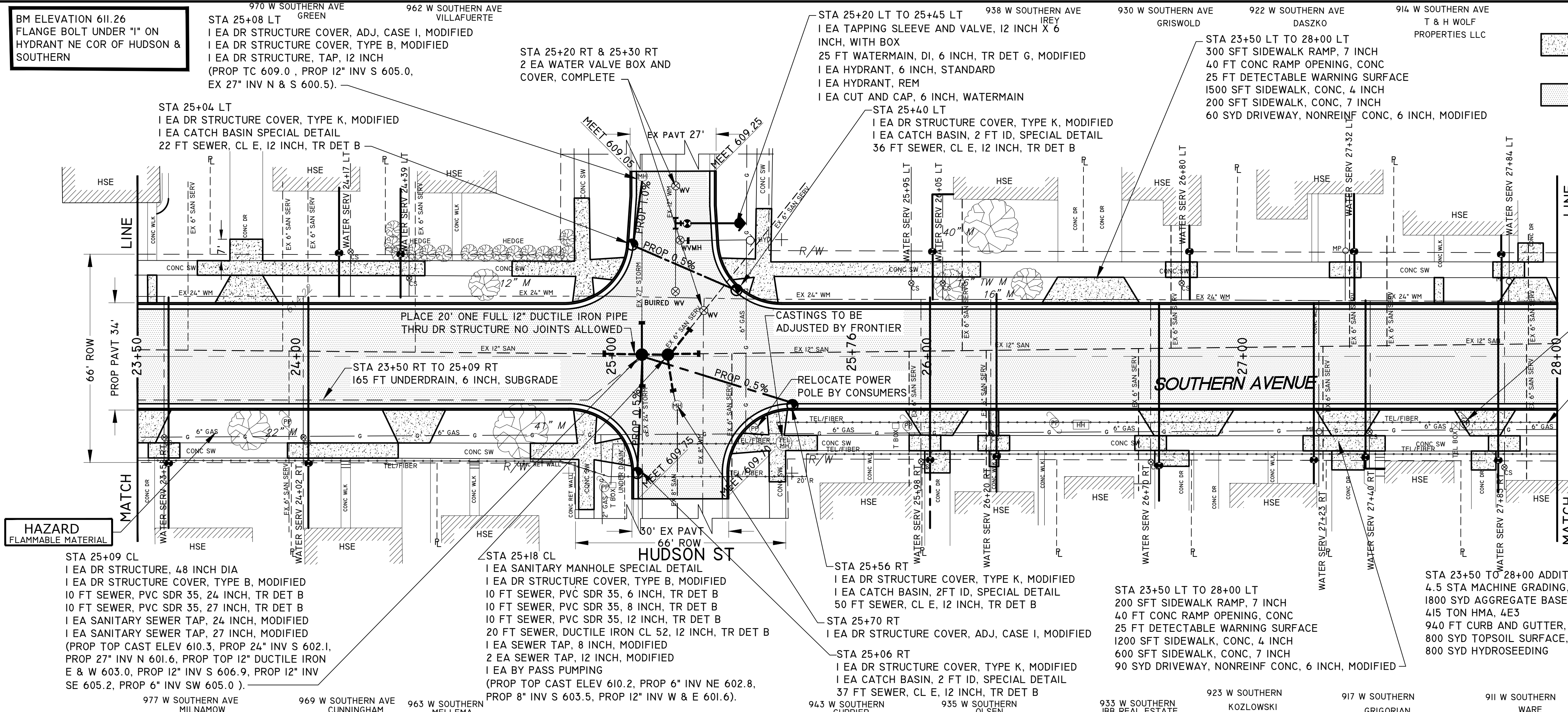


PROPOSED RT GUTTER ELEVATIONS ROAD PLAN AND ROAD PROFILE

CITY OF MUSKEGON
OFFICE OF THE CITY ENGINEER

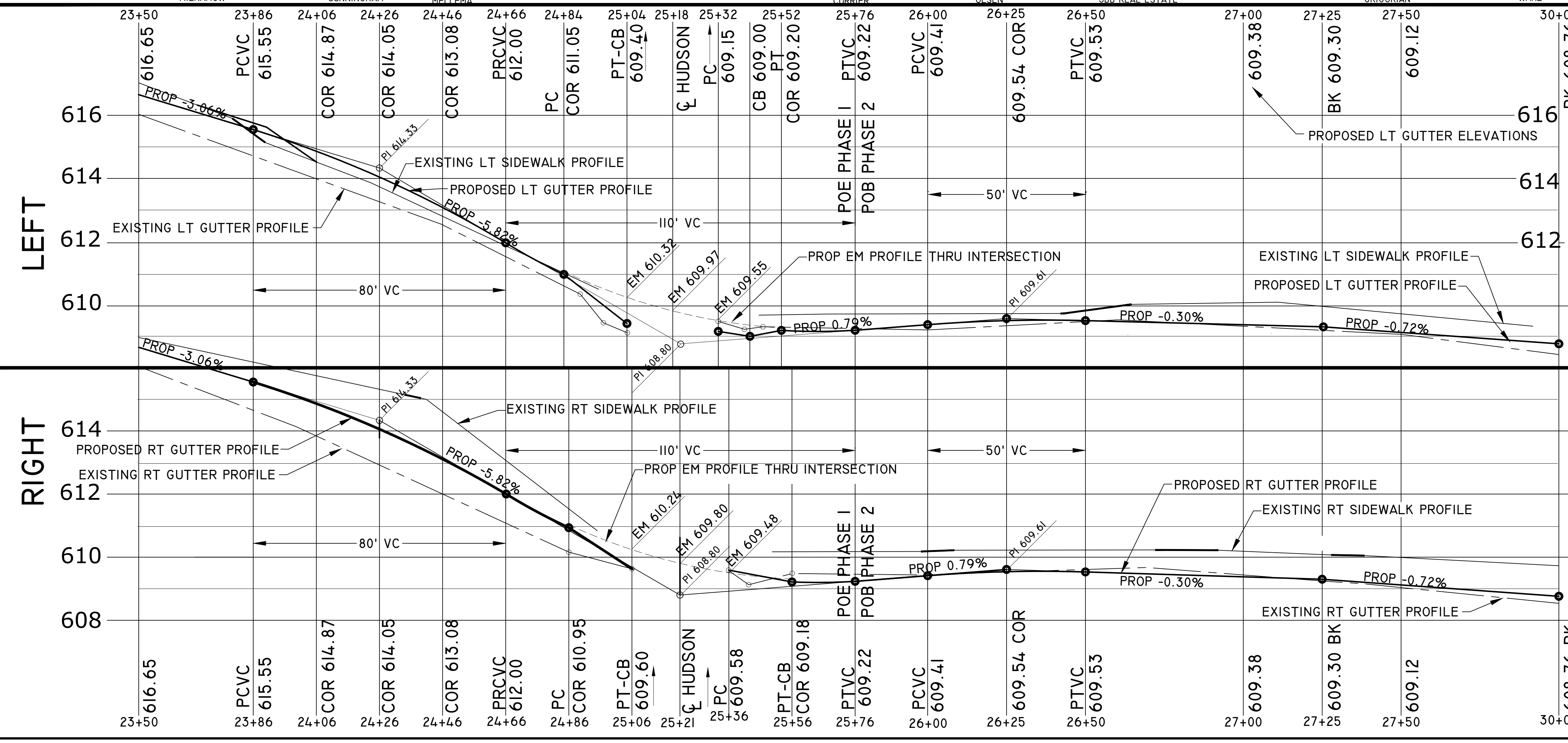
SOUTHERN AVE.
LAKESHORE DR. TO SEAWAY DR. (BUS31)

DRAWN C WIGGINS JAN 24	REVISION	SURVEY WESTSHORE MAY 16	H-92218
CHECKED	REVISION	AS-BUILT	PROJECT NO
APPROVED		SCALE 1" = 20'	SHEET NO 14 OF 22



QUANTITIES THIS SHEET		
MACHINE GRADING, MODIFIED	4.5	STA
AGGREGATE BASE, 8 INCH	1800	SYD
SEWER, CL E, 12 INCH, TR DET B	145	FT
SEWER, PVC SDR 35, 6 INCH, TR DET B	10	FT
SEWER, PVC SDR 35, 8 INCH, TR DET B	10	FT
SEWER, PVC SDR 35, 12 INCH, TR DET B	10	FT
SEWER, PVC SDR 35, 24 INCH, TR DET B	10	FT
SEWER, PVC SDR 35, 27 INCH, TR DET B	10	FT
SEWER, DI CL52, 12 INCH, TR DET B	20	FT
UNDERDRAIN, 6 INCH, SUBGRADE	165	FT
BY PASS PUMPING	1	EA
SEWER TAP, 8 INCH, MODIFIED	1	EA
SEWER TAP, 12 INCH, MODIFIED	2	EA
SEWER TAP, 24 INCH, MODIFIED	1	EA
SEWER TAP, 27 INCH, MODIFIED	1	EA
DR STRUCTURE, 48 INCH DIA	1	EA
CATCH BASIN SPECIAL DETAIL	1	EA
CATCH BASIN, 2 FT ID, SPECIAL DETAIL	3	EA
DR STRUCTURE, ADJ, CASE I, MODIFIED	2	EA
DR STRUCTURE, TAP, 12 INCH	1	EA
DR STRUCTURE COVER, TYPE B, MODIFIED	3	EA
DR STRUCTURE COVER, TYPE K, MODIFIED	4	EA
HMA 4E3	415	TON
DRIVEWAY, NONREINF CONC, 6 INCH, MODIFIED	150	SYD
CURB AND GUTTER, CONC, DET F4, MODIFIED	940	FT
DETECTABLE WARNING SURFACE	50	FT
CONC RAMP OPENING, CONC	80	FT
SIDEWALK RAMP, 7 INCH	600	SFT
SIDEWALK, CONC, 4 INCH	2700	SFT
SIDEWALK, CONC, 7 INCH	800	SFT
TOPSOIL SURFACE, FURN, 4 INCH	800	SYD
HYDROSEEDING	800	SYD
WATER SERVICE, 1 INCH, COPPER	524	FT
WATER SERVICE, PRIVATE PROPERTY, 1 INCH	385	FT
WATERMAIN, DI, 6 INCH, TR DET G, MODIFIED	25	FT
ABANDON WATER SERVICE	1	EA
CORPORATION STOP, 1 INCH	14	EA
CURB STOP, 1 INCH	11	EA
CUT AND CAP, 6 INCH, WATERMAIN	1	EA
HYDRANT, 6 INCH, STANDARD	1	EA
HYDRANT, REM	1	EA
METER PIT, COMPLETE	3	EA
TAPPING SLEEVE AND VALVE, 12 INCH X 6 INCH, WITH BOX	1	EA
VALVE, 6 INCH, GATE, WITH BOX	1	EA
WATER SERVICE BUILDING CONNECTION, 1 INCH	14	EA
WATER VALVE BOX AND COVER, COMPLETE	2	EA
SANITARY MANHOLE SPECIAL DETAIL	1	EA

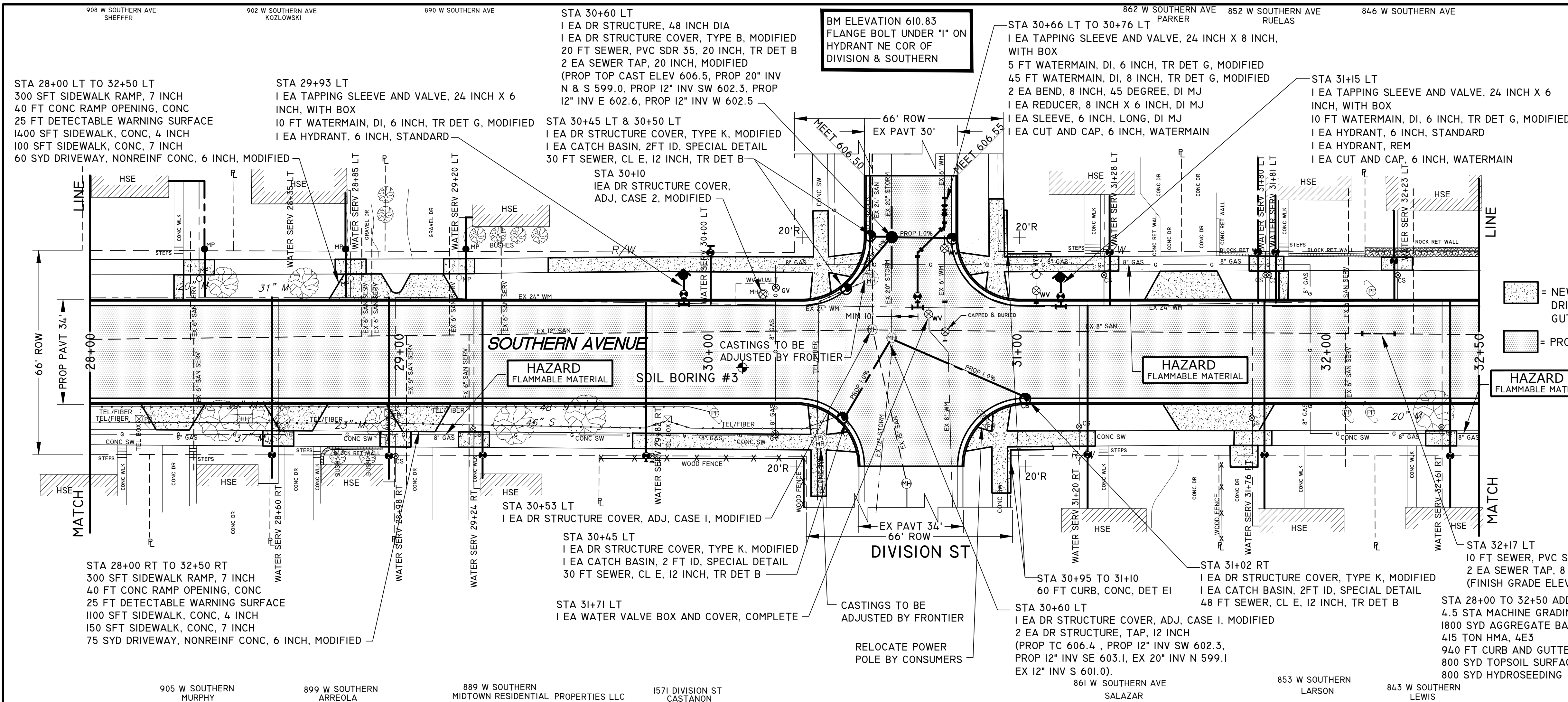
1 INCH WATER SERVICE SCHEDULE						
STATION	1 INCH CORP	1 INCH TYPE "K" COPPER	1 INCH CURB STOP	METER SERVICE LINE PRIVATE PROPERTY	BUILDING CONNECTION	ABANDON WATER SERV
23+58 RT	I EACH	52 FT	I EACH	25 FT	I EACH	
24+02 RT	I EACH	52 FT	I EACH	25 FT	I EACH	
25+98 RT	I EACH	52 FT	I EACH	40 FT	I EACH	
26+20 RT	I EACH	52 FT	I EACH	25 FT	I EACH	
26+70 RT	I EACH	52 FT	I EACH	40 FT	I EACH	
27+23 RT	I EACH	52 FT	I EACH	40 FT	I EACH	
27+40 RT	I EACH	52 FT	I EACH	40 FT	I EACH	
27+85 RT	I EACH	52 FT	I EACH	40 FT	I EACH	
24+17 LT	I EACH	18 FT	I EACH	25 FT	I EACH	
24+39 LT	I EACH	18 FT	I EACH	25 FT	I EACH	
25+95 LT	I EACH	18 FT	I EACH	25 FT	I EACH	I EACH
26+05 LT	I EACH	18 FT	I EACH	25 FT	I EACH	
26+80 LT	I EACH	18 FT	I EACH	25 FT	I EACH	
27+32 LT	I EACH	18 FT	I EACH	25 FT	I EACH	
27+84 LT	I EACH	18 FT	I EACH	25 FT	I EACH	



ROAD PLAN AND ROAD PROFILE

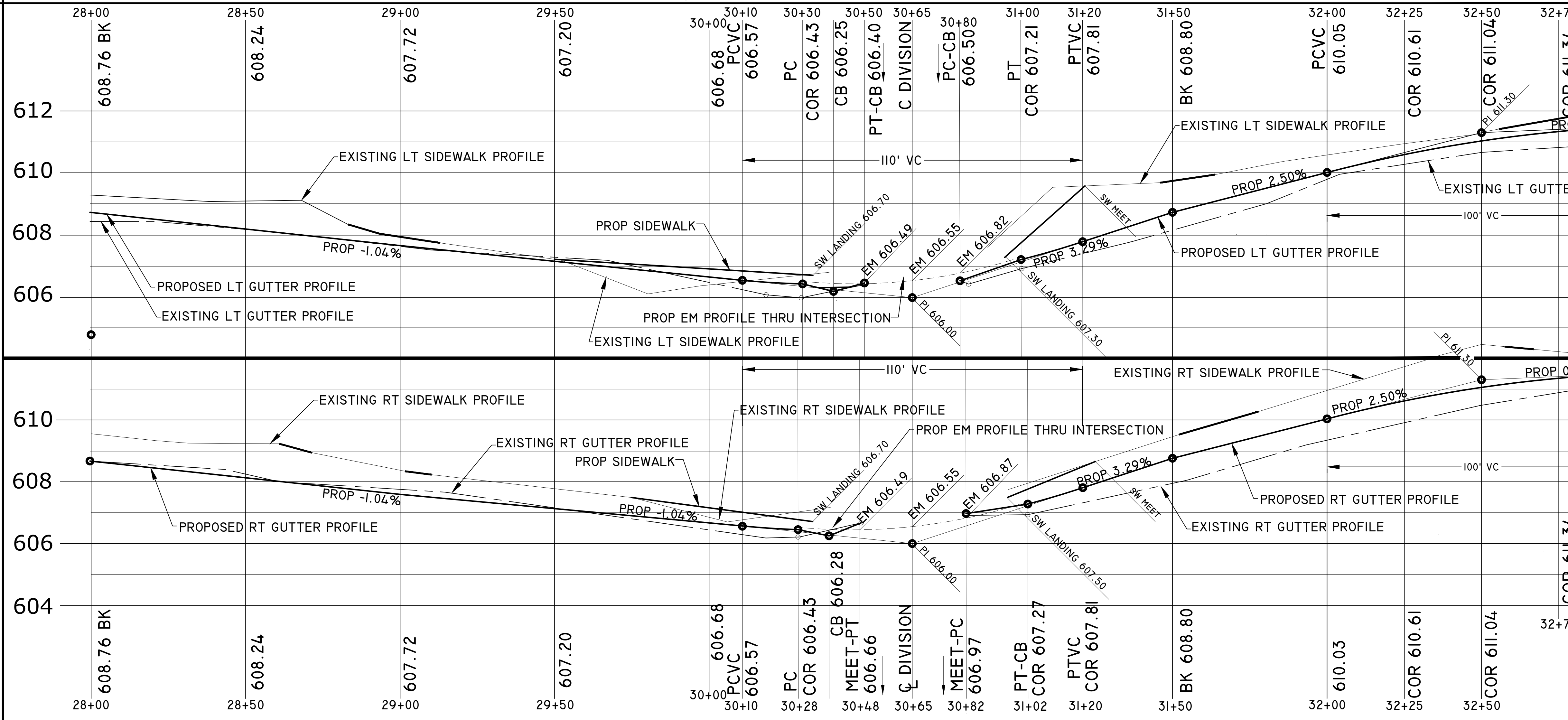
CITY OF MUSKEGON **SOUTHERN AVE.**
 OFFICE OF THE CITY ENGINEER LAKESHORE DR. TO SEAWAY DR. (BUS31)

DRAWN C WIGGINS JAN 24	REVISION	SURVEY WESTSHORE JUNE 23	H-92218
CHECKED	REVISION	AS-BUILT	PROJECT NO
APPROVED		SCALE 1" = 20'	SHEET NO 15 OF 22



1 INCH WATER SERVICE SCHEDULE							
STATION	I INCH CORP	I INCH TYPE	I INCH CURB STOP	METER PIT	SERVICE LINE	BUILDING CONNECTION	ABANDON WATER SERV
28+60 RT	I EACH	52 FT	I EACH		25 FT	I EACH	
28+98 RT	I EACH	52 FT	I EACH		25 FT	I EACH	
29+24 RT	I EACH	52 FT	I EACH		25 FT	I EACH	
29+82 RT	I EACH	52 FT	I EACH				
31+20 RT	I EACH	52 FT	I EACH		25 FT	I EACH	
31+76 RT	I EACH	52 FT	I EACH		25 FT	I EACH	
32+61 RT	I EACH	52 FT	I EACH		25 FT	I EACH	
32+35 LT	I EACH	52 FT	I EACH		25 FT	I EACH	
28+85 LT	I EACH	18 FT	I EACH		25 FT	I EACH	
29+20 LT	I EACH	18 FT	I EACH		25 FT	I EACH	
30+00 LT	I EACH	18 FT	I EACH				
31+28 LT	I EACH	18 FT	I EACH		25 FT	I EACH	
31+80 LT	I EACH	18 FT	I EACH		90 FT	I EACH	
31+81 LT	I EACH	18 FT	I EACH		25 FT	I EACH	
32+23 LT	I EACH	18 FT	I EACH		25 FT	I EACH	

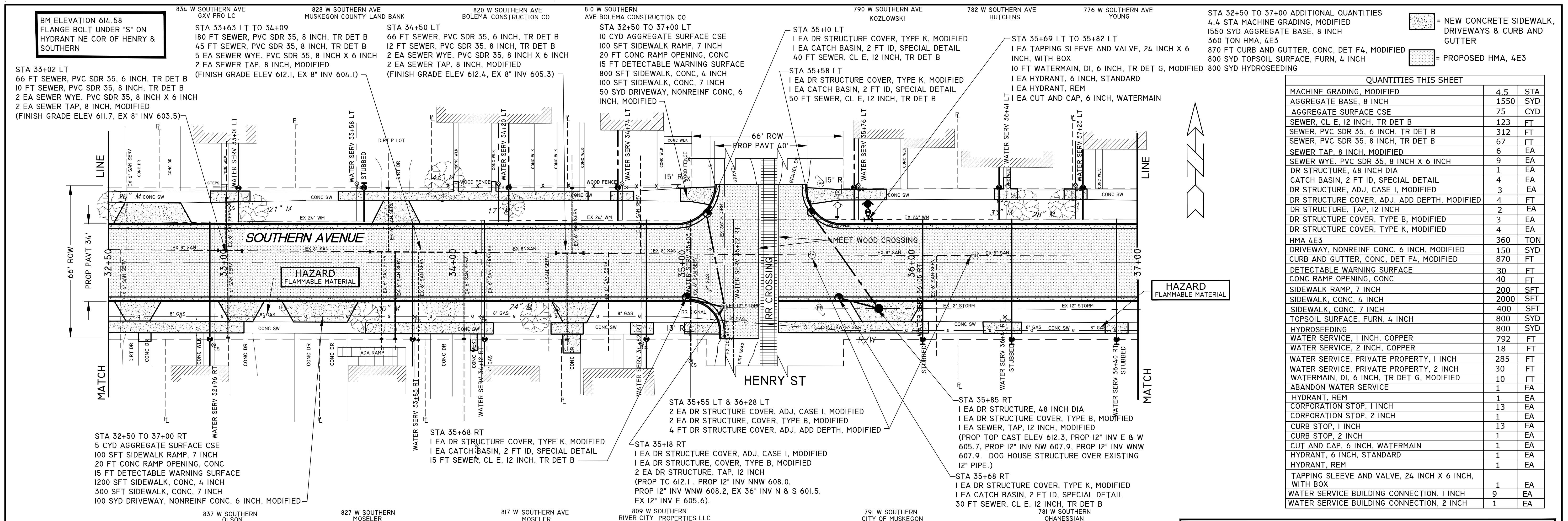
QUANTITIES THIS SHEET		
MACHINE GRADING, MODIFIED	4.5	STA
AGGREGATE BASE, 8 INCH	1800	SYD
SEWER, CL E, 12 INCH, TR DET B	108	FT
SEWER, PVC SDR 35, 8 INCH, TR DET B	10	FT
SEWER, PVC SDR 35, 20 INCH, TR DET B	20	FT
SEWER TAP, 8 INCH, MODIFIED	2	EA
SEWER TAP, 20 INCH, MODIFIED	2	EA
DR STRUCTURE, 48 INCH DIA	1	EA
CATCH BASIN, 2 FT ID, SPECIAL DETAIL	5	EA
DR STRUCTURE, ADJ. CASE 1, MODIFIED	2	EA
DR STRUCTURE, ADJ. CASE 2, MODIFIED	1	EA
DR STRUCTURE, TAP, 12 INCH	2	EA
DR STRUCTURE COVER, TYPE B, MODIFIED	1	EA
DR STRUCTURE COVER, TYPE K, MODIFIED	5	EA
HMA 4E3	415	TON
DRIVEWAY, NONREINF CONC, 6 INCH, MODIFIED	150	SYD
CURB AND GUTTER, CONC, DET F4, MODIFIED	940	FT
CURB, CONC, DET E1	60	FT
DETECTABLE WARNING SURFACE	50	FT
CONC RAMP OPENING, CONC	80	FT
SIDEWALK RAMP, 7 INCH	600	SFT
SIDEWALK, CONC, 4 INCH	2500	SFT
SIDEWALK, CONC, 7 INCH	800	SFT
TOPSOIL SURFACE, FURN, 4 INCH	800	SYD
HYDROSEEDING	800	SYD
WATER SERVICE, 1 INCH, COPPER	542	FT
WATER SERVICE, PRIVATE PROPERTY, 1 INCH	415	FT
WATERMAIN, DI, 6 INCH, TR DET G, MODIFIED	25	FT
WATERMAIN, DI, 8 INCH, TR DET G, MODIFIED	45	FT
BEND, 8 INCH, 45 DEGREE, DI MJ	2	EA
CORPORATION STOP, 1 INCH	15	EA
CURB STOP, 1 INCH	12	EA
CUT AND CAP, 6 INCH, WATERMAIN	2	EA
HYDRANT, 6 INCH, STANDARD	2	EA
HYDRANT, REM	1	EA
METER PIT COMPLETE	3	EA
REDUCER, 8 INCH X 6 INCH, DI MJ	1	EA
SLEEVE, 6 INCH, LONG, DI MJ	1	EA
TAPPING SLEEVE AND VALVE, 24 INCH X 6 INCH, WITH BOX	2	EA
TAPPING SLEEVE AND VALVE, 24 INCH X 8 INCH, WITH BOX	1	EA
WATER SERVICE BUILDING CONNECTION, 1 INCH	13	EA
WATER VALVE BOX AND COVER, COMPLETE	1	EA



ROAD PLAN AND ROAD PROFILE

CITY OF MUSKEGON **SOUTHERN AVE.**
 OFFICE OF THE CITY ENGINEER LAKESHORE DR. TO SEAWAY DR. (BUS31)

DRAWN C WIGGINS JAN 24	REVISION	SURVEY WESTSHORE JUNE 23	H-92218
CHECKED	REVISION	AS-BUILT	PROJECT NO
APPROVED		SCALE 1" = 20'	SHEET NO 16 OF 22

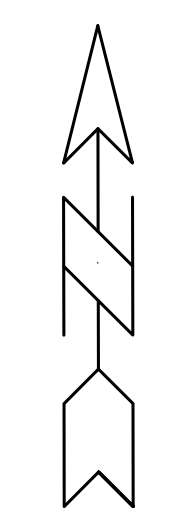


STA 32+50 TO 37+00 ADDITIONAL QUANTITIES

4.4 STA MACHINE GRADING, MODIFIED	
1550 SYD AGGREGATE BASE, 8 INCH	
360 TON HMA, 4E3	
870 FT CURB AND GUTTER, CONC, DET F4, MODIFIED	
800 SYD TOPSOIL SURFACE, FURN, 4 INCH	
800 SYD HYDROSEEDING	

QUANTITIES THIS SHEET

MACHINE GRADING, MODIFIED	4.5	STA
AGGREGATE BASE, 8 INCH	1550	SYD
AGGREGATE SURFACE CSE	75	CYD
SEWER, CL E, 12 INCH, TR DET B	123	FT
SEWER, PVC SDR 35, 6 INCH, TR DET B	312	FT
SEWER, PVC SDR 35, 8 INCH, TR DET B	67	FT
SEWER TAP, 8 INCH, MODIFIED	6	EA
SEWER WYE, PVC SDR 35, 8 INCH X 6 INCH	9	EA
DR STRUCTURE, 48 INCH DIA	1	EA
CATCH BASIN, 2 FT ID, SPECIAL DETAIL	4	EA
DR STRUCTURE, ADJ. CASE I, MODIFIED	3	EA
DR STRUCTURE COVER, ADJ. ADD DEPTH, MODIFIED	4	FT
DR STRUCTURE, TAP, 12 INCH	2	EA
DR STRUCTURE COVER, TYPE B, MODIFIED	3	EA
DR STRUCTURE COVER, TYPE K, MODIFIED	4	EA
HMA 4E3	360	TON
DRIVEWAY, NONREINF CONC, 6 INCH, MODIFIED	150	SYD
CURB AND GUTTER, CONC, DET F4, MODIFIED	870	FT
DETECTABLE WARNING SURFACE	30	FT
CONC RAMP OPENING, CONC	40	FT
SIDEWALK RAMP, 7 INCH	200	SFT
SIDEWALK, CONC, 4 INCH	2000	SFT
SIDEWALK, CONC, 7 INCH	400	SFT
TOPSOIL SURFACE, FURN, 4 INCH	800	SYD
HYDROSEEDING	800	SYD
WATER SERVICE, 1 INCH, COPPER	792	FT
WATER SERVICE, 2 INCH, COPPER	18	FT
WATER SERVICE, PRIVATE PROPERTY, 1 INCH	285	FT
WATER SERVICE, PRIVATE PROPERTY, 2 INCH	30	FT
WATERMAIN, DI, 6 INCH, TR DET G, MODIFIED	10	FT
ABANDON WATER SERVICE	1	EA
HYDRANT, REM	1	EA
CORPORATION STOP, 1 INCH	13	EA
CORPORATION STOP, 2 INCH	1	EA
CURB STOP, 1 INCH	13	EA
CURB STOP, 2 INCH	1	EA
CUT AND CAP, 6 INCH, WATERMAIN	1	EA
HYDRANT, 6 INCH, STANDARD	1	EA
HYDRANT, REM	1	EA
TAPPING SLEEVE AND VALVE, 24 INCH X 6 INCH, WITH BOX	1	EA
WATER SERVICE BUILDING CONNECTION, 1 INCH	9	EA
WATER SERVICE BUILDING CONNECTION, 2 INCH	1	EA



HAZARD
FLAMMABLE MATERIAL

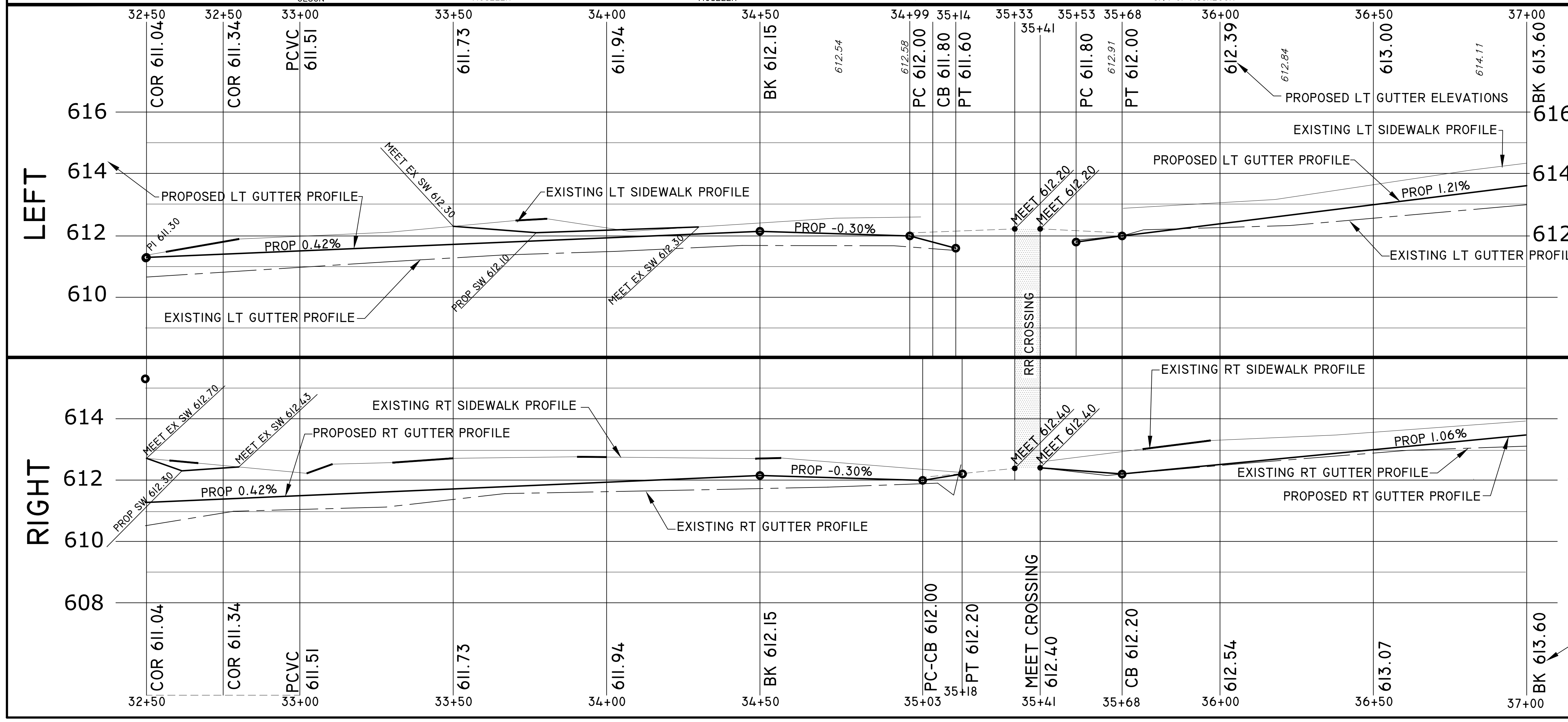
**METER PIT HAS BEEN MOVED INSIDE HOUSE
*** SEE DETAIL FOR WATER SERVICE AT 35+22 RT ON SHEET 19 OF THESE PLANS.

I INCH WATER SERVICE SCHEDULE

STATION	I INCH CORP	I INCH TYPE "K" COPPER	I INCH CURB STOP	METER SERVICE LINE PRIVATE PROPERTY	BUILDING CONNECTION	ABANDON WATER SERV
32+96 RT	I EACH	52 FT	I EACH	25 FT	I EACH	
33+83 RT	I EACH	52 FT	I EACH	25 FT	I EACH	
34+12 RT	I EACH	52 FT	I EACH	25 FT	I EACH	
34+82 RT	I EACH	52 FT	I EACH	25 FT	I EACH	
35+02 RT	I EACH					I EACH
**35+22 RT	I EACH	270 FT	I EACH	25 FT	I EACH	
36+05 RT	I EACH	52 FT	I EACH			
36+41 RT	I EACH	52 FT	I EACH			
36+90 RT	I EACH	52 FT	I EACH			
33+01 LT	I EACH	18 FT	I EACH	20 FT	I EACH	
33+58 LT	I EACH	18 FT	I EACH			
34+74 LT	I EACH	18 FT	I EACH	25 FT	I EACH	
35+76 LT	I EACH	18 FT	I EACH	25 FT	I EACH	
**36+41 LT	I EACH	18 FT	I EACH	25 FT	I EACH	
37+23 LT	I EACH	18 FT	I EACH	90 FT	I EACH	

2 INCH WATER SERVICE SCHEDULE

STATION	2 INCH CORP	2 INCH TYPE "K" COPPER	2 INCH CURB STOP	PRIVATE PROPERTY (FT)	BUILDING CONNECTION
34+20 LT	I EACH	15 FT	I EACH	40 FT	I EACH

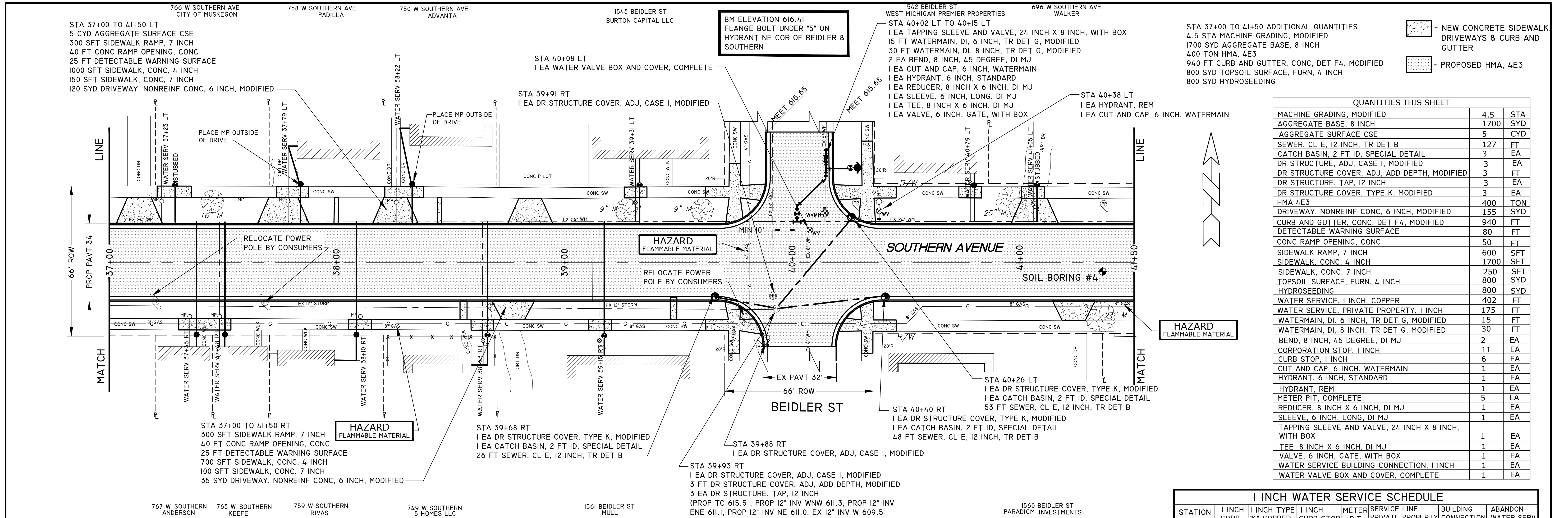


ROAD PLAN AND ROAD PROFILE

CITY OF MUSKEGON
OFFICE OF THE CITY ENGINEER

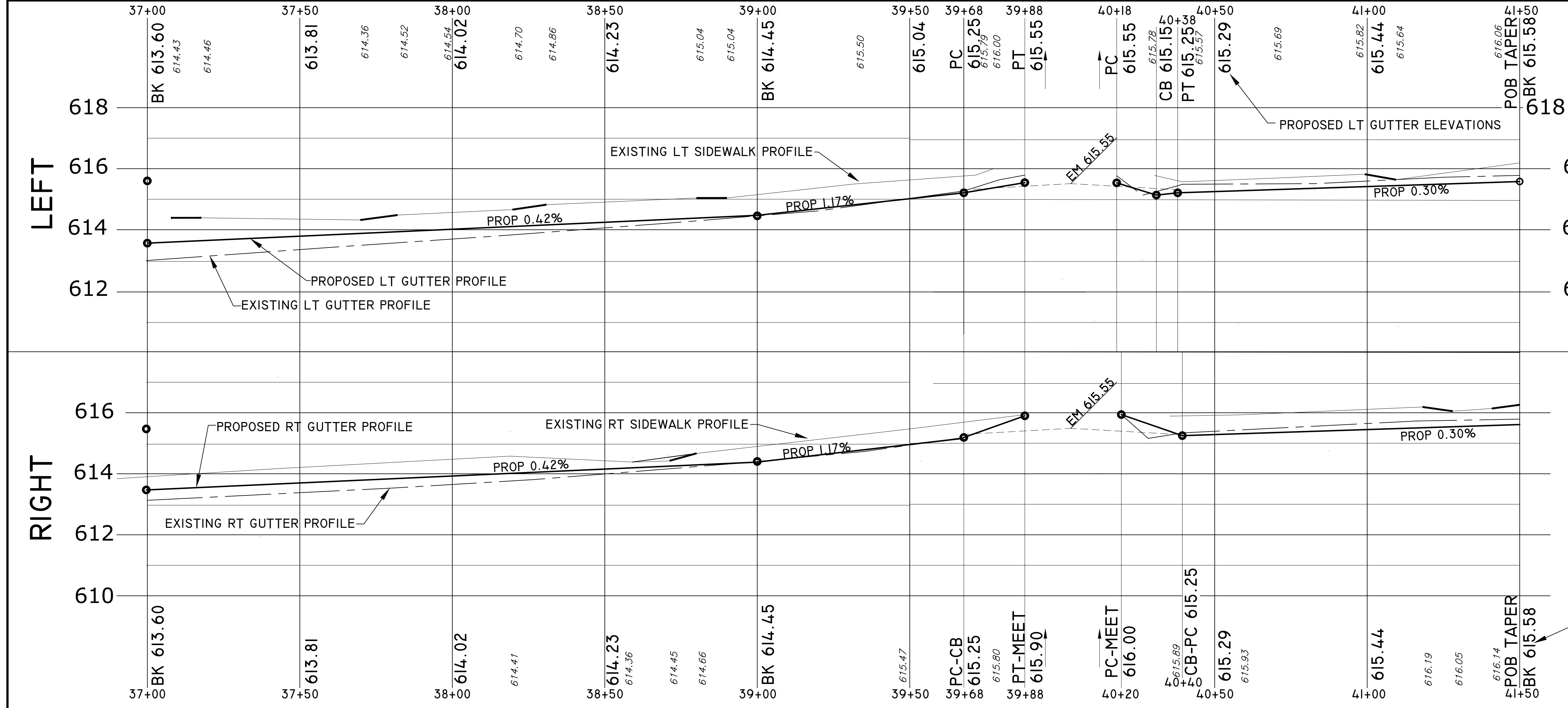
SOUTHERN AVE.
LAKE SHORE DR. TO SEAWAY DR. (BUS31)

DRAWN C WIGGINS JAN 24	REVISION	SURVEY WESTSHORE JUNE 23	H-92218
CHECKED	REVISION	AS-BUILT	PROJECT NO
APPROVED		SCALE 1" = 20'	SHEET NO 17 OF 22



QUANTITIES THIS SHEET		
MACHINE GRADING, MODIFIED	4.5	STA
AGGREGATE BASE, 8 INCH	1700	SYD
AGGREGATE SURFACE CSE	5	CYD
SEWER, CL E, 12 INCH, TR DET B	127	FT
CATCH BASIN, 2 FT ID, SPECIAL DETAIL	3	EA
DR STRUCTURE, ADJ, CASE I, MODIFIED	3	EA
DR STRUCTURE COVER, ADJ, ADD DEPTH, MODIFIED	3	EA
DR STRUCTURE, TAP, 12 INCH	3	EA
DR STRUCTURE COVER, TYPE K, MODIFIED	3	EA
HMA 4E3	400	TON
DRIVEWAY, NONREINF CONC, 6 INCH, MODIFIED	155	SYD
CURB AND GUTTER, CONC, DET F4, MODIFIED	940	FT
DETECTABLE WARNING SURFACE	80	FT
CONC RAMP OPENING, CONC	50	FT
SIDEWALK RAMP, 7 INCH	600	SFT
SIDEWALK, CONC, 4 INCH	1700	SFT
SIDEWALK, CONC, 7 INCH	250	SFT
TOPSOIL SURFACE, FURN, 4 INCH	800	SYD
HYDROSEEDING	800	SYD
WATER SERVICE, 1 INCH, COPPER	402	FT
WATER SERVICE, PRIVATE PROPERTY, 1 INCH	175	FT
WATERMAIN, DI, 6 INCH, TR DET G, MODIFIED	15	FT
WATERMAIN, DI, 8 INCH, TR DET G, MODIFIED	30	FT
BEND, 8 INCH, 45 DEGREE, DI MJ	2	EA
CORPORATION STOP, 1 INCH	11	EA
CURB STOP, 1 INCH	6	EA
CUT AND CAP, 6 INCH, WATERMAIN	1	EA
HYDRANT, 6 INCH, STANDARD	1	EA
HYDRANT, REM	1	EA
METER PIT, COMPLETE	5	EA
REDUCER, 8 INCH X 6 INCH, DI MJ	1	EA
SLEEVE, 6 INCH, LONG, DI MJ	1	EA
TAPPING SLEEVE AND VALVE, 24 INCH X 8 INCH, WITH BOX	1	EA
TEE, 8 INCH X 6 INCH, DI MJ	1	EA
VALVE, 6 INCH, GATE, WITH BOX	1	EA
WATER SERVICE BUILDING CONNECTION, 1 INCH	1	EA
WATER VALVE BOX AND COVER, COMPLETE	1	EA

1 INCH WATER SERVICE SCHEDULE							
STATION	1 INCH CORP	1 INCH TYPE "K" COPPER	1 INCH CURB STOP	METER PIT	SERVICE LINE PRIVATE PROPERTY	BUILDING CONNECTION	ABANDON WATER SERV
37+35 RT	I EACH	52 FT		I EACH	10 FT	I EACH	
37+48 RT	I EACH	52 FT		I EACH	10 FT	I EACH	
38+10 RT	I EACH	52 FT		I EACH	25 FT	I EACH	
38+63 RT	I EACH	52 FT	I EACH		25 FT	I EACH	
39+15 RT	I EACH	52 FT	I EACH		25 FT	I EACH	
37+23 LT	I EACH	52 FT	I EACH				
37+79 LT	I EACH	18 FT		I EACH	20 FT	I EACH	
38+22 LT	I EACH	18 FT		I EACH	30 FT	I EACH	
39+31 LT	I EACH	18 FT	I EACH		15 FT	I EACH	
40+79 LT	I EACH	18 FT	I EACH		15 FT	I EACH	
41+05 LT	I EACH	18 FT	I EACH				



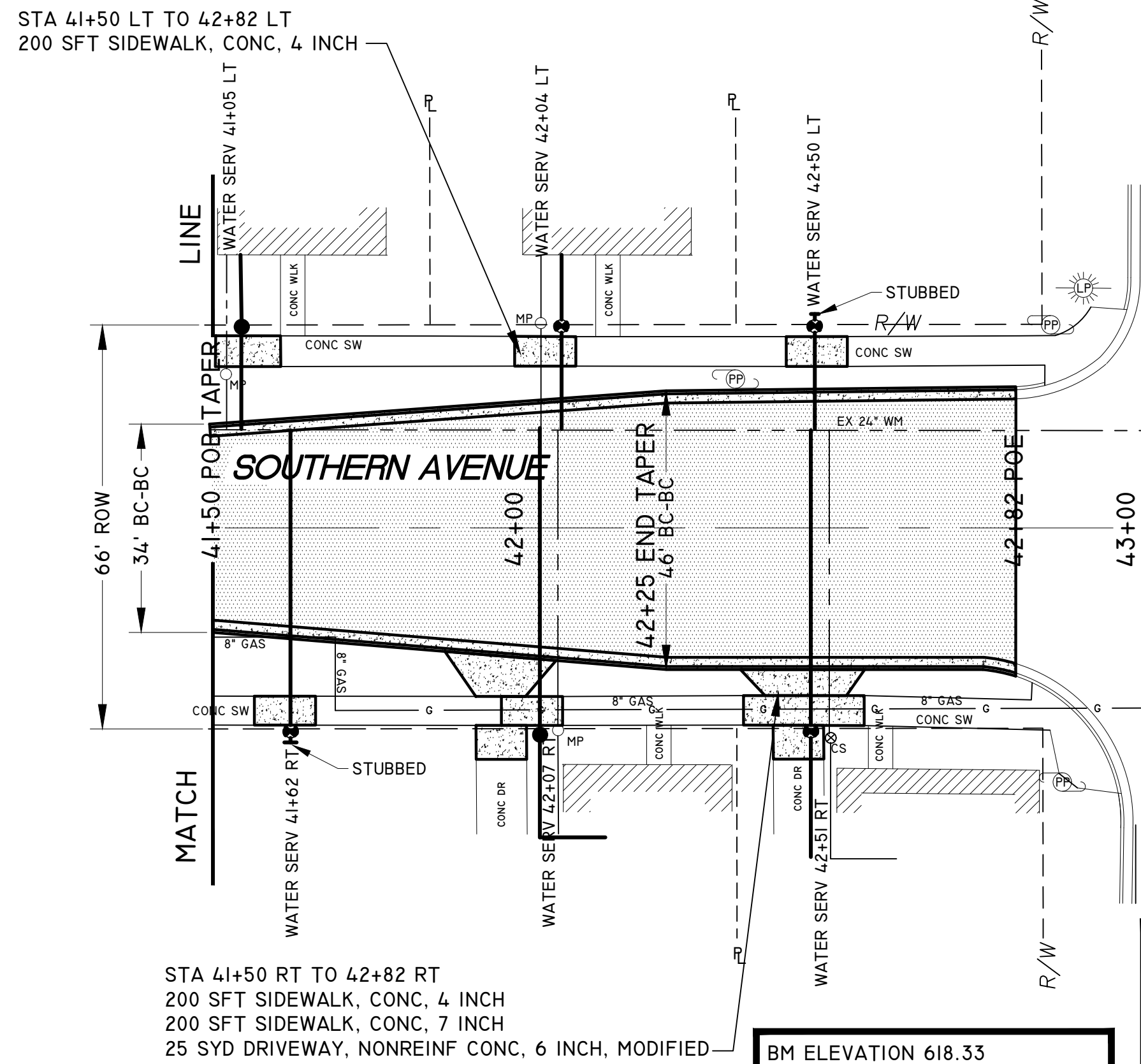
ROAD PLAN AND ROAD PROFILE

CITY OF MUSKOGON
OFFICE OF THE CITY ENGINEER

SOUTHERN AVE.
LAKESHORE DR. TO SEAWAY DR. (BUS31)

DRAWN C WIGGINS JAN 24	REVISION	SURVEY WESTSHORE JUNE 23	H-92218
CHECKED	REVISION	AS-BUILT	PROJECT NO
		SCALE 1" = 20'	SHEET NO 18 OF 22

STA 41+50 TO 42+82 ADDITIONAL QUANTITIES
 1.3 STA MACHINE GRADING, MODIFIED
 600 SYD AGGREGATE BASE, 8 INCH
 140 TON HMA, 4E3
 262 FT CURB AND GUTTER, CONC, DET F4, MODIFIED
 200 SYD TOPSOIL SURFACE, FURN, 4 INCH
 200 SYD HYDROSEEDING



STA 41+50 RT TO 42+82 RT
 200 SFT SIDEWALK, CONC, 4 INCH
 200 SFT SIDEWALK, CONC, 7 INCH
 25 SYD DRIVEWAY, NONREINF CONC, 6 INCH, MODIFIED

BM ELEVATION 618.33
 TOP OF NORTH BOLT ON STRAIN
 POLE BASE SW COR SEAWAY AND
 SOUTHERN

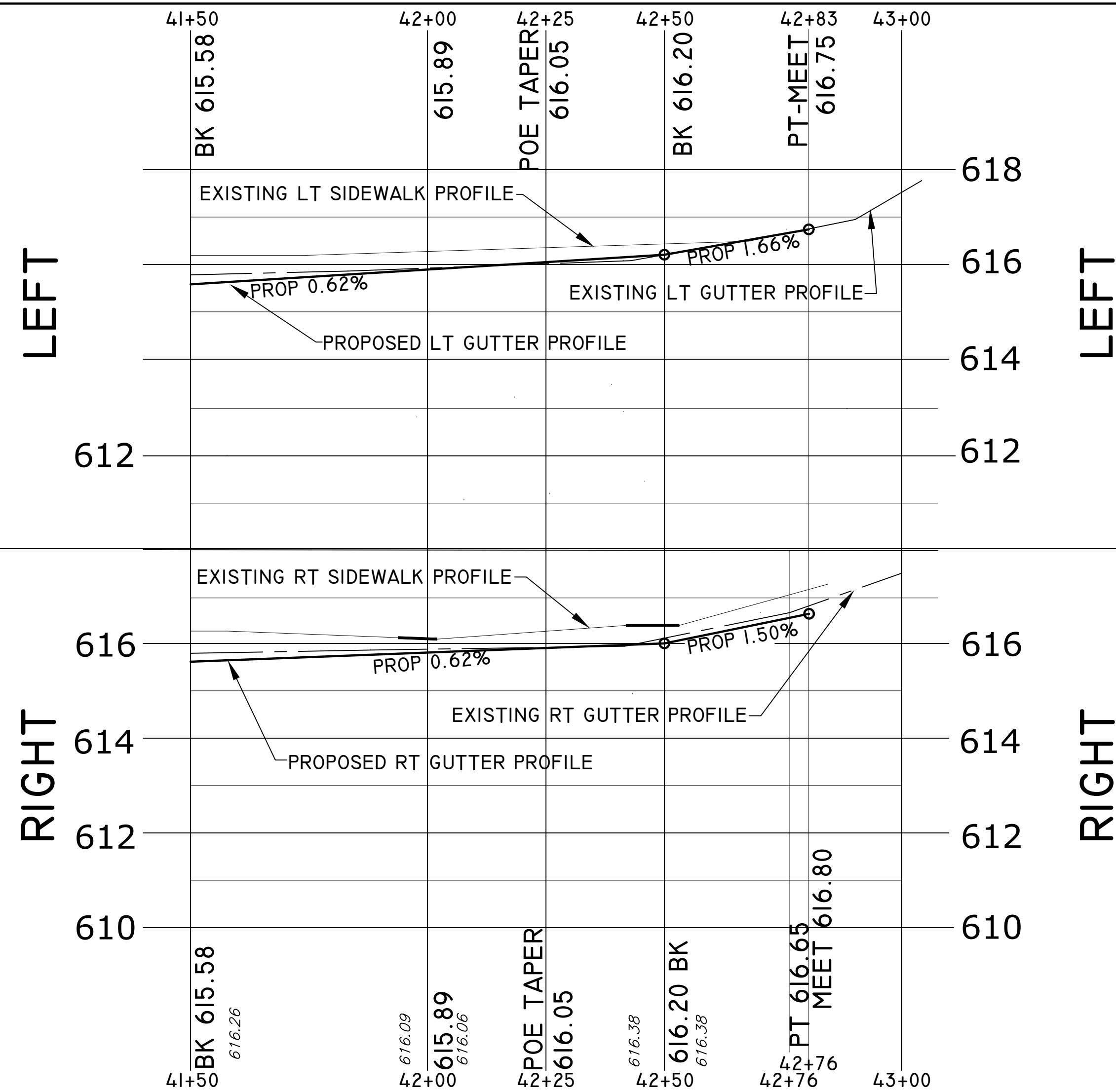
687 W SOUTHERN FLEMING
 679 W SOUTHERN AVE FLEMING

SEAWAY DRIVE (BUS 31)

QUANTITIES THIS SHEET		
MACHINE GRADING, MODIFIED	1.3	STA
AGGREGATE BASE, 8 INCH	600	SYD
HMA 4E3	140	TON
DRIVEWAY, NONREINF CONC, 6 INCH, MODIFIED	155	SYD
CURB AND GUTTER, CONC, DET F4, MODIFIED	262	FT
SIDEWALK, CONC, 4 INCH	400	SFT
SIDEWALK, CONC, 7 INCH	200	SFT
TOPSOIL SURFACE, FURN, 4 INCH	200	SYD
HYDROSEEDING	200	SYD
WATER SERVICE, 1 INCH, COPPER	210	FT
WATER SERVICE, PRIVATE PROPERTY, 1 INCH	90	FT
CORPORATION STOP, 1 INCH	6	EA
CURB STOP, 1 INCH	5	EA
METER PIT, COMPLETE	1	EA
WATER SERVICE BUILDING CONNECTION, 1 INCH	4	EA
WATER VALVE BOX AND COVER, COMPLETE	1	EA

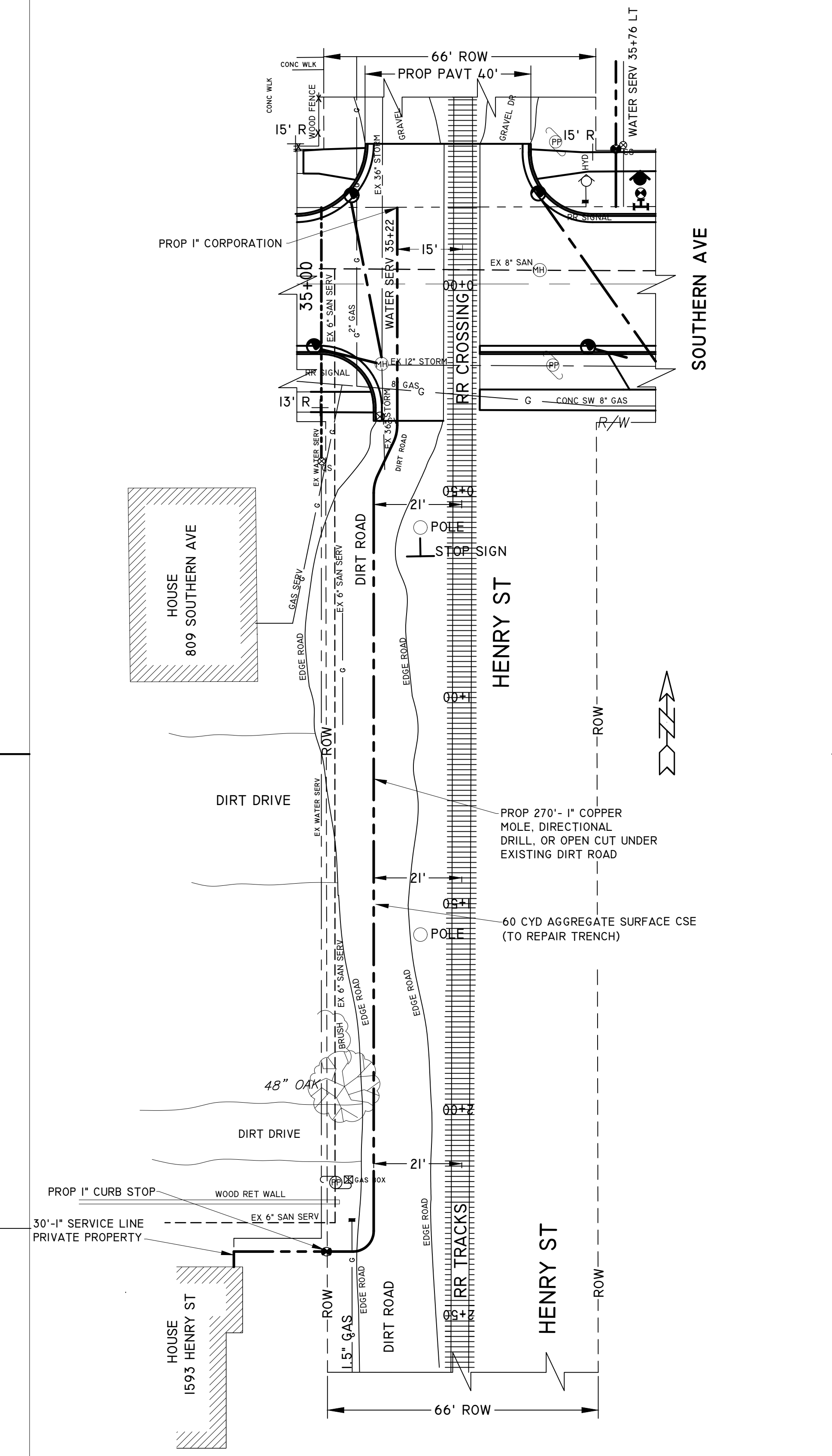
1 INCH WATER SERVICE SCHEDULE							
STATION	1 INCH CORP	1 INCH TYPE "K" COPPER	1 INCH CURB STOP	METER PIT	SERVICE LINE PRIVATE PROPERTY	BUILDING CONNECTION	ABANDON WATER SERV
41+62 RT	1 EACH	52 FT	1 EACH				
**42+07 RT	1 EACH	52 FT	1 EACH		25 FT	1 EACH	
42+51 RT	1 EACH	52 FT	1 EACH		25 FT	1 EACH	
41+05 LT	1 EACH	18 FT	1 EACH	1 EACH	15 FT	1 EACH	
42+04 LT	1 EACH	18 FT	1 EACH		25 FT	1 EACH	
42+50 LT	1 EACH	18 FT	1 EACH				

**METER PIT HAS BEEN MOVED INSIDE HOUSE



[Pattern] = NEW CONCRETE SIDEWALK, DRIVEWAYS & CURB AND GUTTER
 [Pattern] = PROPOSED HMA, 4E3

DETIL FOR WATER SERVICE ON HENRY ST (STA 35+22)



ROAD PLAN AND ROAD PROFILE

CITY OF MUSKEGON		SOUTHERN AVE.	
OFFICE OF THE CITY ENGINEER		LAKESHORE DR. TO SEAWAY DR. (BUS31)	
DRAWN C WIGGINS JAN 20	REVISION	SURVEY WESTSHORE JUNE 23	H-92218
CHECKED	REVISION	PROJECT NO	
		SCALE 1" = 20'	SHEET NO 19 OF 22

TRAFFIC CONTROL DETAIL

TRAFFIC CONTROL NOTE:

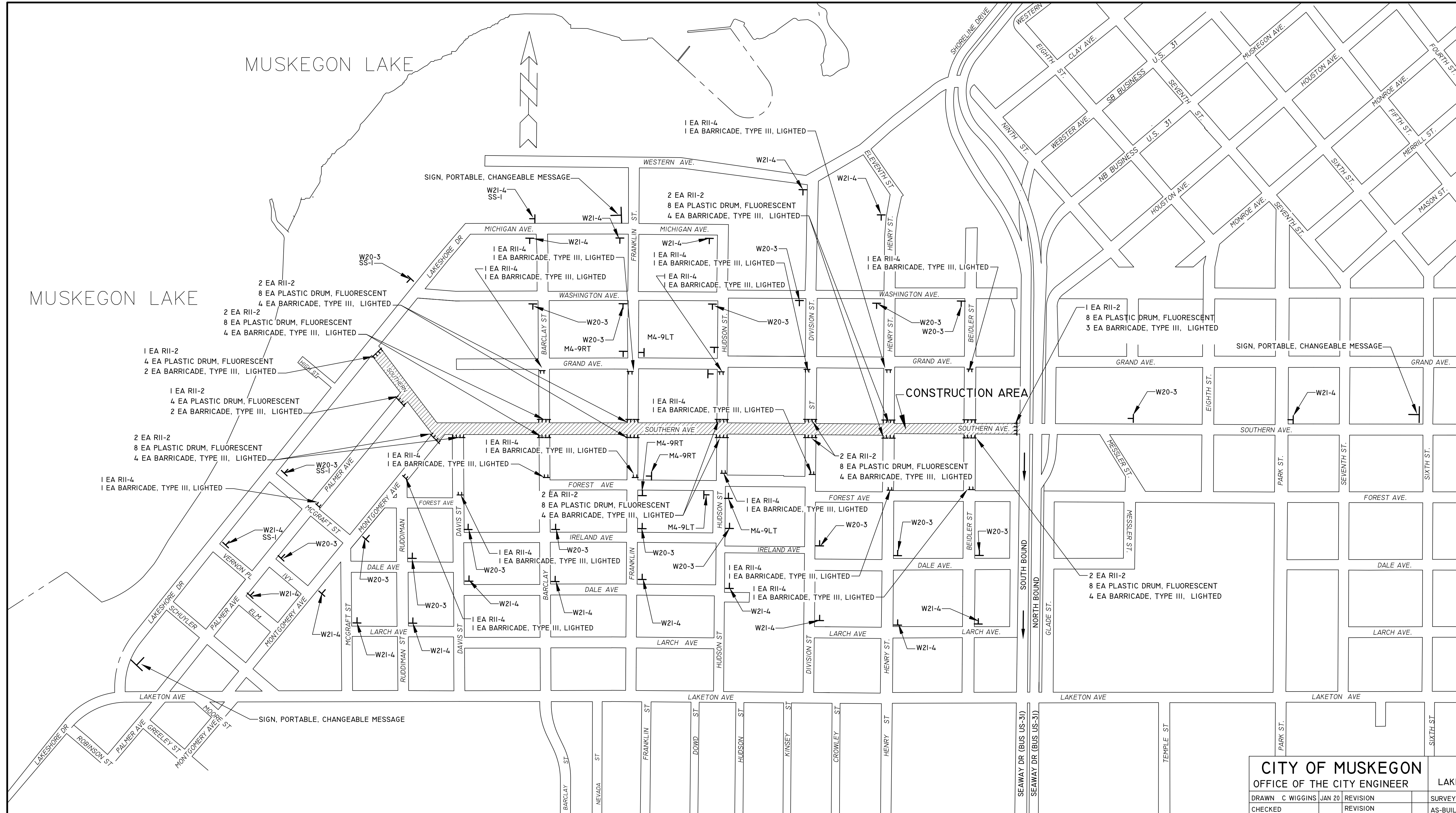
EITHER HUDSON ST. OR FRANKLIN ST. MUST BE OPEN AT ALL TIMES FOR LOCAL TRAFFIC CROSSING SOUTHERN. CONTRACTOR WILL MAINTAIN TRAFFIC ACROSS SOUTHERN AT THESE INTERSECTIONS WITH MAINTENANCE GRAVEL, LM. WHEN THE CONTRACTOR IS WORKING IN THE FRANKLIN INTERSECTION THEN THE HUDSON INTERSECTION MUST BE MAINTAINED FOR TRAFFIC CROSSING SOUTHERN. WHEN WORKING IN THE HUDSON INTERSECTION THEN FRANKLIN MUST BE MAINTAINED FOR CROSSING SOUTHERN. THIS WORK WILL INCLUDE PLACING FACE DOWN ON THE TERRACE W-20 (ROAD CLOSED) SIGNS AND BARRICADES WITH THE RII-4 (ROAD CLOSED TO THRU TRAFFIC) SIGNS WHEN PREPARING TO OPEN HUDSON OR FRANKLIN FOR TEMPORARY CROSS SOUTHERN TRAFFIC. IN ADDITION THE 4 BARRICADES, 8 PLASTIC DRUMS AND RII-2 (ROAD CLOSED) SIGNS LOCATED AT EACH INTERSECTION WILL BE USED TO BLOCK TRAFFIC FROM TURNING DOWN SOUTHERN AVE. PAYMENT FOR THIS WORK OF REARRANGING THE SIGNS AND BARRICADES AS OFTEN AS NEEDED WILL BE INCLUDED IN THE PAYMENT FOR MINOR TRAFFIC DEVICES. PAYMENT FOR PLACING AND MAINTAINING GRAVEL ACROSS THESE INTERSECTIONS WILL PAID AS MAINTENANCE GRAVEL, LM BY THE CUBIC YARD.

ESTIMATED PHASE 2 TRAFFIC CONTROL DEVICES		
BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED, LIGHTED, FURN	45	EA
BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED, LIGHTED, OPER	45	EA
PLASTIC DRUM, FLUORESCENT, FURN	114	EA
PLASTIC DRUM, FLUORESCENT, OPER	114	EA
SIGN, TYPE B TEMP, PRISMATIC, FURN	989	SFT
SIGN, TYPE B TEMP, PRISMATIC, OPER	989	SFT
SIGN, TYPE B, TEMP, SPEC, FURN	16	SFT
SIGN, TYPE B, TEMP, SPEC, OPER	16	SFT
MINOR TRAFFIC DEVICES	1	LS
MAINTENANCE GRAVEL, LM	600	CYD
SIGN, PORTABLE, CHANGEABLE MESSAGE, FURN	3	EA
SIGN, PORTABLE, CHANGEABLE MESSAGE, OPER	3	EA
SIGN COVER	5	EA

PHASE 2 ESTIMATED QUANTITIES SIGN, TYPE B TEMPORARY, SPECIAL				
SIGN	DESCRIPTION	QUANTITY	AREA	TOTAL AREA
SS-1	SOUTHERN	4	4	16 SFT
		TOTAL		16 SFT

PHASE 2 ESTIMATED QUANTITIES SIGN, TYPE B TEMPORARY				
SIGN	DESCRIPTION	QUANTITY	AREA	TOTAL AREA
RII-2	ROAD CLOSED	15	10 SFT	150 SFT
RII-4	ROAD CLOSED TO THRU TRAFFIC	14	12.5 SFT	175 SFT
M4-9LT	DETOUR LEFT	4	5 SFT	20 SFT
M4-9RT	DETOUR RIGHT	4	5 SFT	20 SFT
W20-3	ROAD CLOSED AHEAD	19	16 SFT	304 SFT
W21-4	ROAD WORK AHEAD	20	16 SFT	320 SFT
		TOTAL		989 SFT

 CONSTRUCTION AREA (CLOSED TO TRAFFIC)



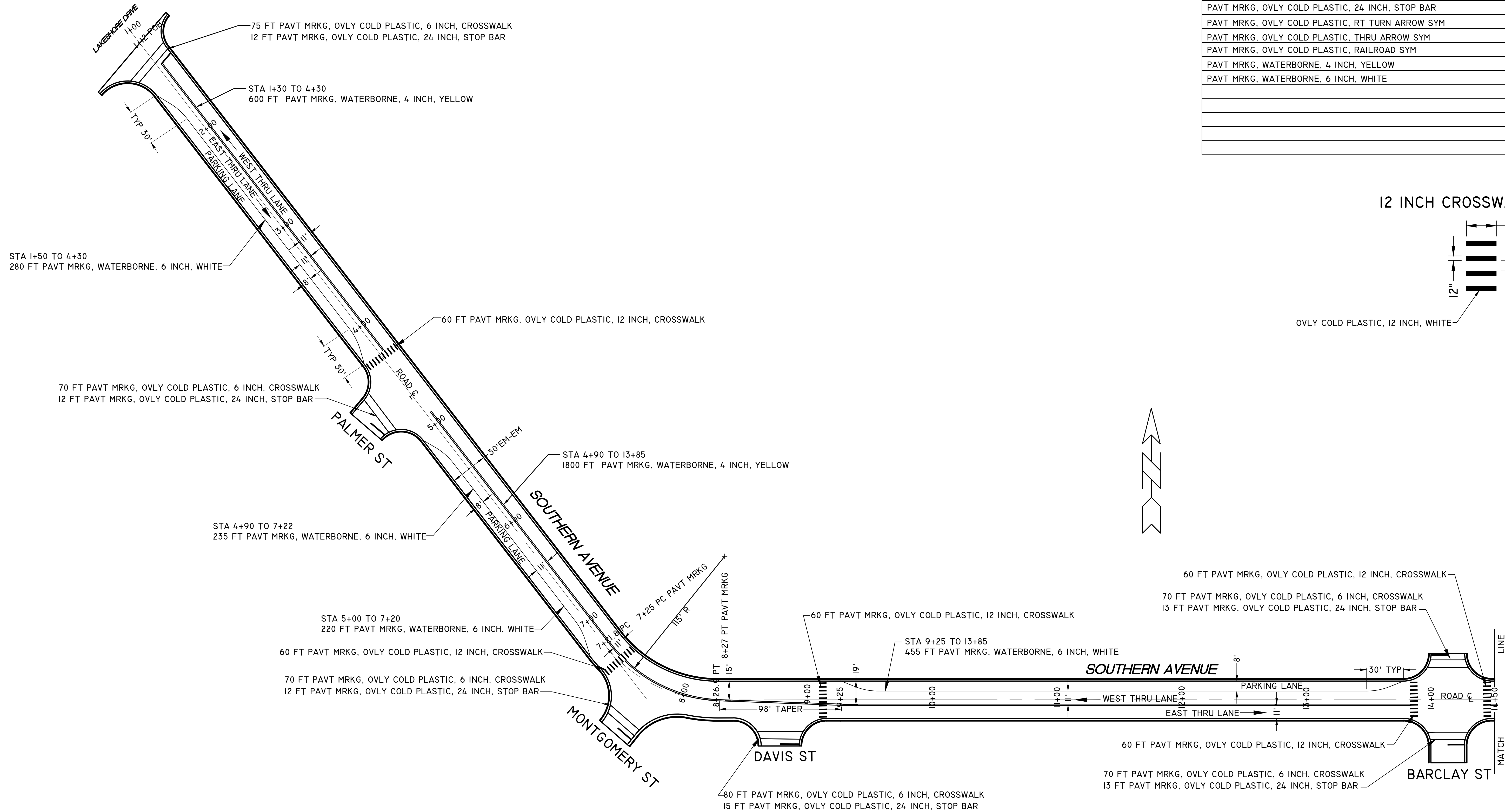
TRAFFIC CONTROL DETAIL
CITY OF MUSKEGON
SOUTHERN AVE.
 LAKESHORE DR. TO SEAWAY DR. (BUS31)
 OFFICE OF THE CITY ENGINEER
 DRAWN C WIGGINS JAN 20 REVISION SURVEY WESTSHORE JUNE 23 H-92218
 CHECKED REVISION AS-BUILT PROJECT NO
 SCALE 1" = 20' SHEET NO 20 OF 22

PERMANENT PAVEMENT MARKING DETAIL

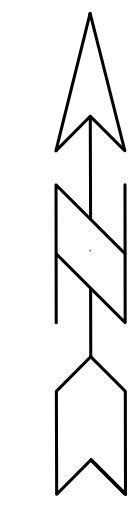
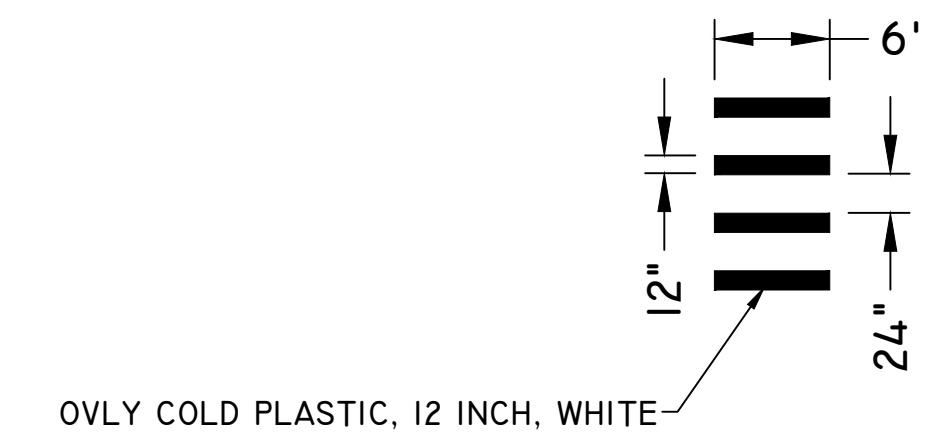
SHEET 1 OF 2

70 FT PAVT MRKG, OVLY COLD PLASTIC, 6 INCH, CROSSWALK
12 FT PAVT MRKG, OVLY COLD PLASTIC, 24 INCH, STOP BAR

TOTAL PAVEMENT MARKING QUANTITIES		
PAVT MRKG, OVLY COLD PLASTIC, 6 INCH, CROSSWALK	1050	FT
PAVT MRKG, OVLY COLD PLASTIC, 12 INCH, CROSSWALK	780	FT
PAVT MRKG, OVLY COLD PLASTIC, 24 INCH, STOP BAR	240	FT
PAVT MRKG, OVLY COLD PLASTIC, RT TURN ARROW SYM	1	EA
PAVT MRKG, OVLY COLD PLASTIC, THRU ARROW SYM	1	EA
PAVT MRKG, OVLY COLD PLASTIC, RAILROAD SYM	1	EA
PAVT MRKG, WATERBORNE, 4 INCH, YELLOW	7450	FT
PAVT MRKG, WATERBORNE, 6 INCH, WHITE	3305	FT



12 INCH CROSSWALK DETAIL



PERMANENT PAVEMENT MARKING DETAIL

CITY OF MUSKEGON		SOUTHERN AVE.	
OFFICE OF THE CITY ENGINEER		LAKESHORE DR. TO SEAWAY DR. (BUS31)	
DRAWN C WIGGINS JAN 20	REVISION	SURVEY WESTSHORE JUNE 23	H-92218
CHECKED	REVISION	AS-BUILT	PROJECT NO
		SCALE 1" = 20'	SHEET NO 21 OF 22

