

STANDARD PLANS

R-28-J SIDEWALK RAMP AND DETECTABLE WARNING DETAILS
R-29-I DRIVEWAY OPENINGS & APPROACHES AND CONCRETE SIDEWALKS
R-30-G CONCRETE CURB & GUTTER
R-96-E SOIL EROSION & SEDIMENTATION CONTROL MEASURES

TRAFFIC/SAFETY STANDARD PLANS

WZD-100-A GROUND DRIVEN SIGN SUPPORTS FOR TEMPORARY SIGNS
WZD-125-E TEMPORARY TRAFFIC CONTROL DEVICES

UTILITIES

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

TELEPHONE
MIKE THOMPSON
FRONTIER COMMUNICATIONS
860 TERRACE STREET
MUSKEGON MI 49440

NATURAL GAS
ANTHONY FERRIER
DTE ENERGY
2359 OLTHOFF DRIVE
MUSKEGON MI 49444

CABLE
COMCAST
TBA

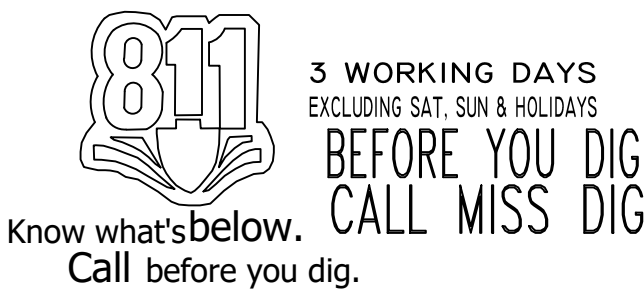
WATER & SEWER
CITY OF MUSKEGON - DPW
1350 E KEATING AVENUE
MUSKEGON MI 49442
(231) 724-4100

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 2018 AASHTO GUIDELINES.

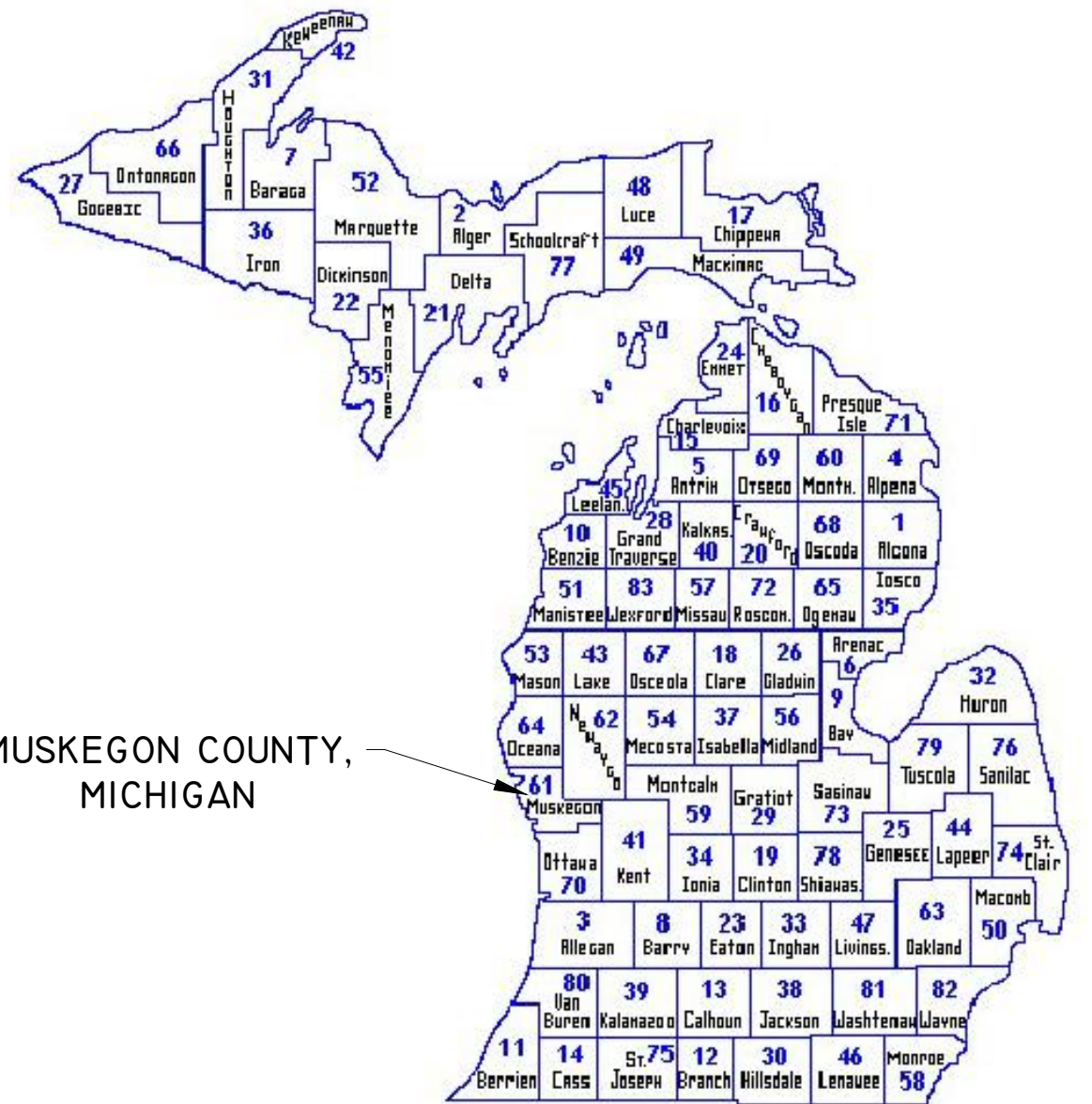
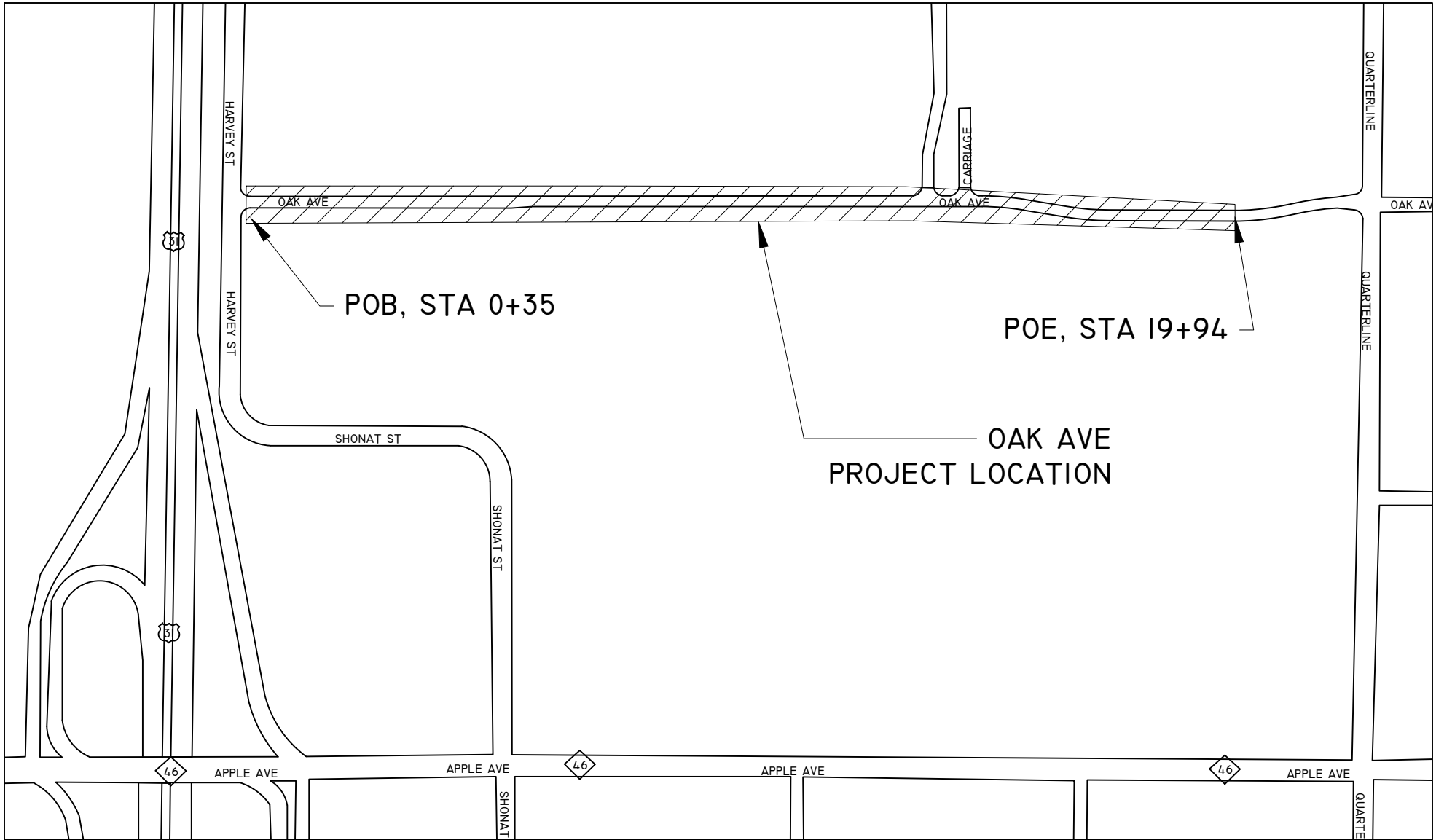
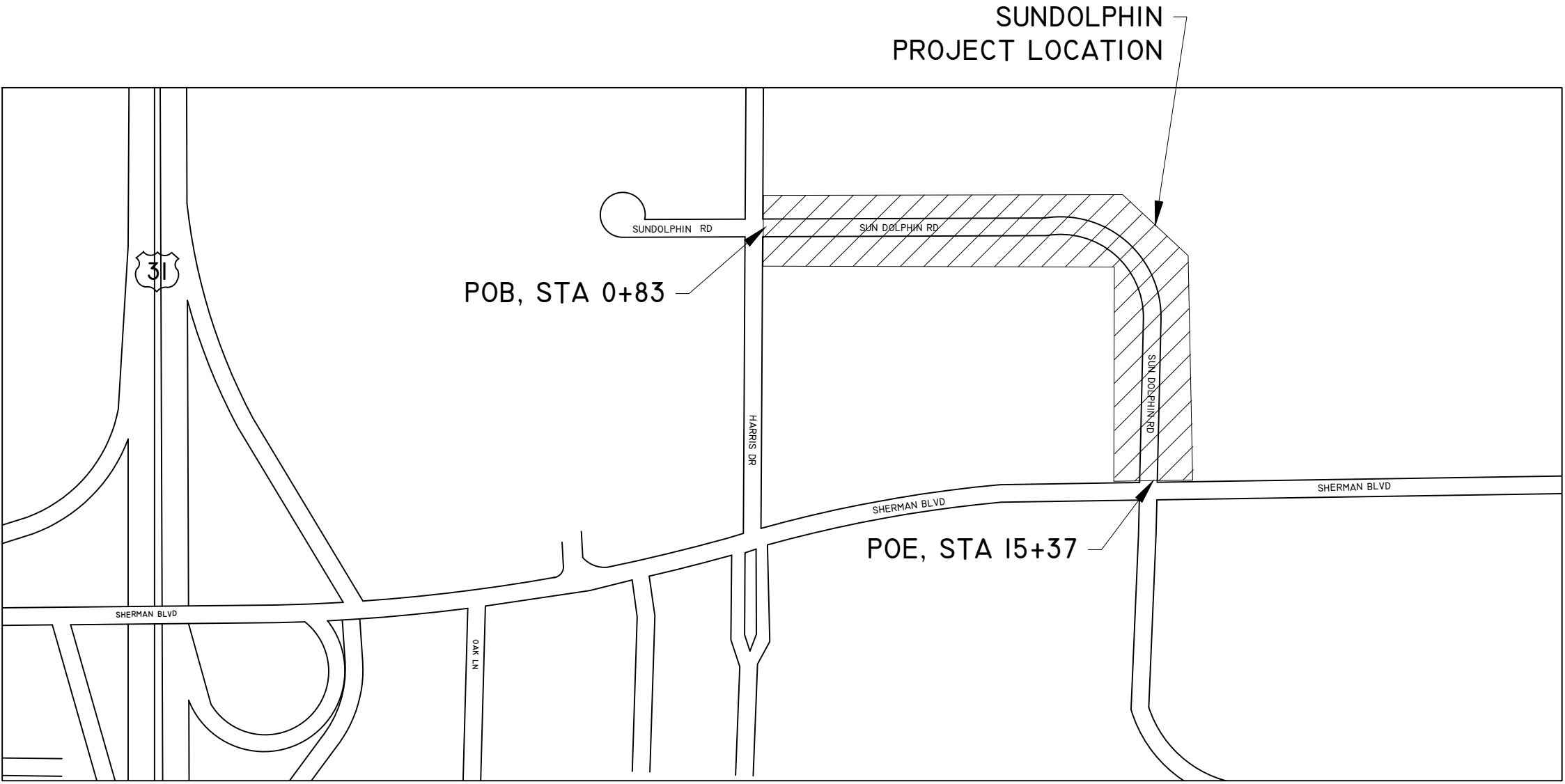
GENERAL NOTES:

- EXISTING CONDITIONS INCLUDING ELEVATIONS ARE SUBJECT TO CHANGE DUE TO CONSTRUCTION OUTSIDE THE CONTROL OF THE CITY OF MUSKEGON. CONTRACTOR IS TO VERIFY EXISTING CONDITIONS OF THE SITE, MATCH ALL EXISTING MEETS AND COORDINATE WORK ACTIVES WITH NEIGHBORING CONTRACTORS.
- 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.
- 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 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; AND/OR SIDEWALK, REM. NO ADDITIONAL PAYMENT WILL ALLOWED FOR SAW CUTTING.
- 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 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 AND SILT FENCE SHALL BE INCLUDED WITH THE PAY ITEM PROJECT CLEAN UP. NO OTHER PAYMENT SHALL BE MADE.



CITY OF MUSKEGON

PLAN AND PROFILE OF PROPOSED
SUN DOLPHIN RD & OAK AVE
HMA RESURFACING
JOB NUMBER: H92405



SHEET INDEX

SHEET	DESCRIPTION
1.	TITLE SHEET
2.	SUNDOLPHIN RD PLAN SHEET
3.	OAK AVE PLAN SHEET



CONSTRUCTION INCLUDES 0.64 MILES OF HMA PAVEMENT RECONSTRUCTION; INCLUDING HMA REMOVAL, HMA PAVEMENT, CONCRETE SIDEWALKS, AND CURB & GUTTER ON SUN DOLPHIN RD AND OAK 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

SUN DOLPHIN RD & OAK
AVE HMA RESURFACING

DRAWN K PARKER 2/2024	REVISION	SURVEY	PROJECT NO H-92405
CHECKED	REVISION	AS-BUILT	
APPROVED	REVISION		SHEET NO. 1 OF 3

NOTES:

Date:

Revisions:

Drawn: K PARKER
Date: FEB 2024
Checked:
Date:

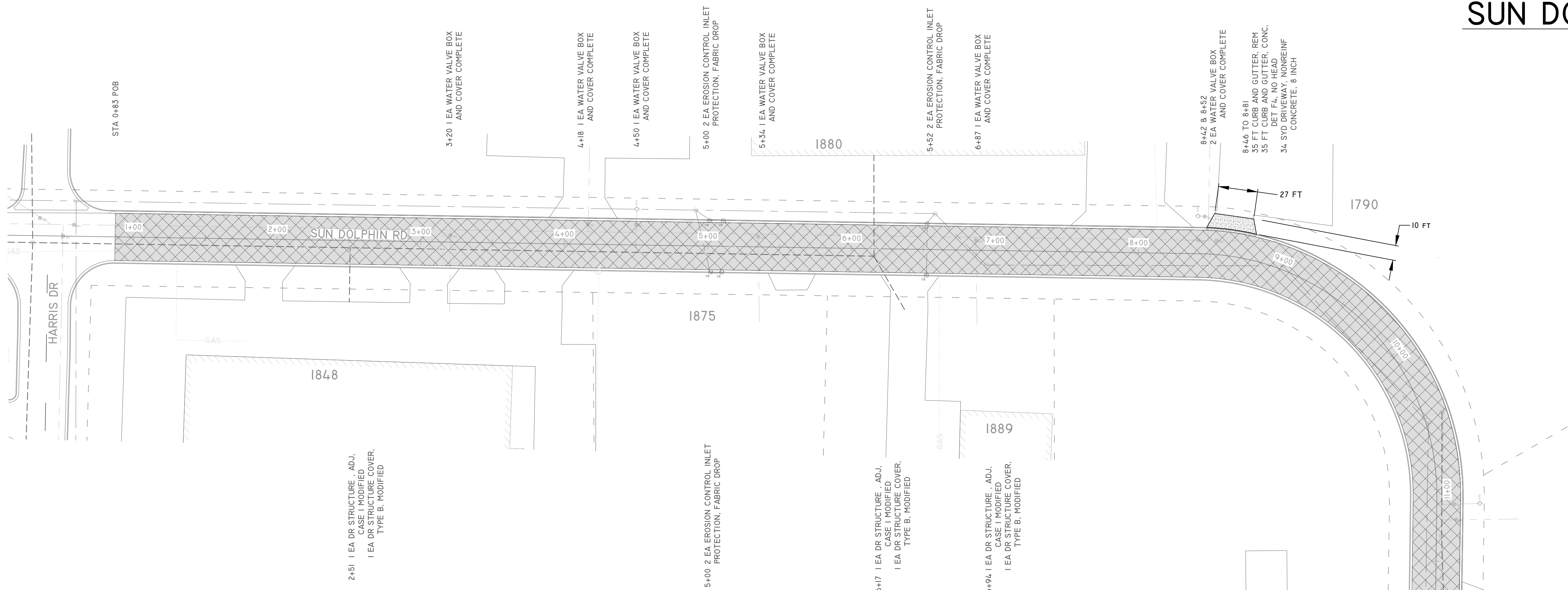
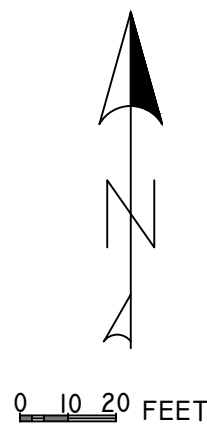
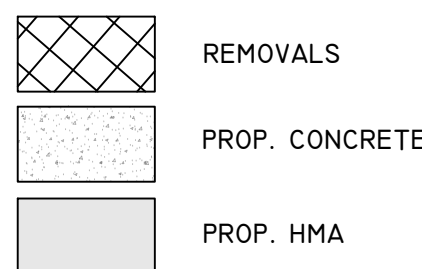
TITLE PAGE

SUN DOLPHIN RD &
OAK AVE
HMA RESURFACING

CITY OF MUSKEGON
OFFICE OF THE CITY ENGINEER

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SUN DOLPHIN PLAN SHEET



STA 9+01, 10+50
2 EA DR STRUCTURE COVER, ADJ, CASE I, MODIFIED
2 EA DR STRUCTURE COVER TYPE B, MODIFIED

10+53 & 11+17
2 EA DR STRUCTURE COVER, ADJ, CASE I, MODIFIED
2 EA DR STRUCTURE COVER TYPE B, MODIFIED

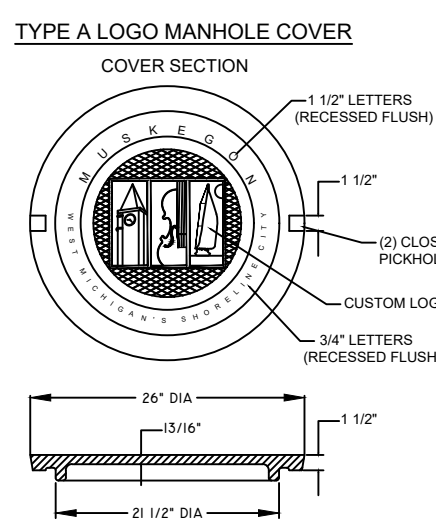
II+06 TO II+32
2 EA WATER VALVE BOX AND COVER COMPLETE

12+42
1 EA DR STRUCTURE COVER, ADJ, CASE I, MODIFIED
1 EA DR STRUCTURE COVER TYPE B, MODIFIED

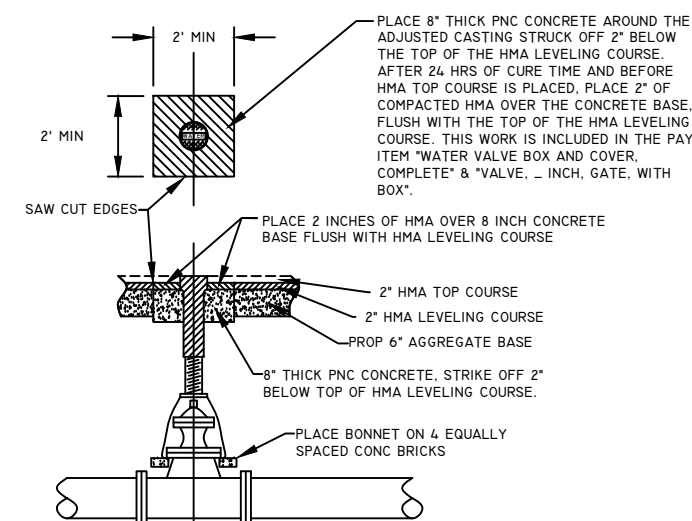
STA 13+87 TO 13+96
16 FT CURB AND GUTTER, REM
16 FT CURB AND GUTTER, CONC, DET F4
15 SYD SIDEWALK, REM
14 SYD DRIVEWAY, NONREINF CONC, 8 INCH
1 EA DR STRUCTURE COVER, ADJ, CASE 1 MODIFIED
1 EA DR STRUCTURE COVER, TYPE D, MODIFIED
2 EA EROSION CONTROL INLET PROTECTION, FABRIC DROP

STA 15+28
3 EA WATER VALVE BOX AND COVER COMPLETE
8 FT CURB AND GUTTER, REM
8 FT CURB AND GUTTER, CONC, DET F4

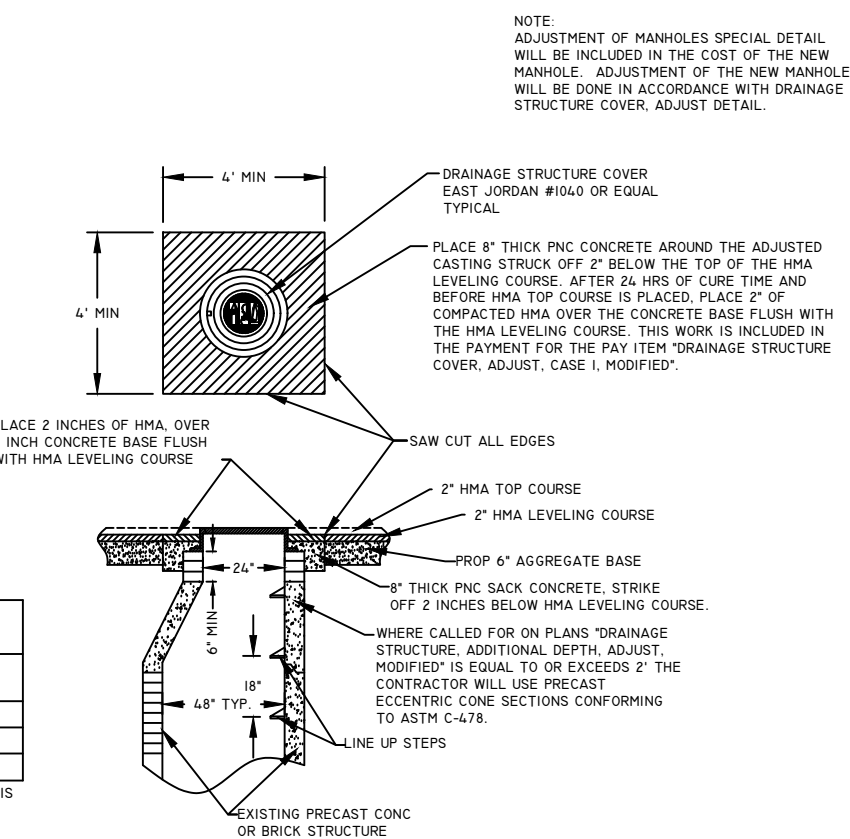
DETAIL FOR: TYPE B
SOLID COVER



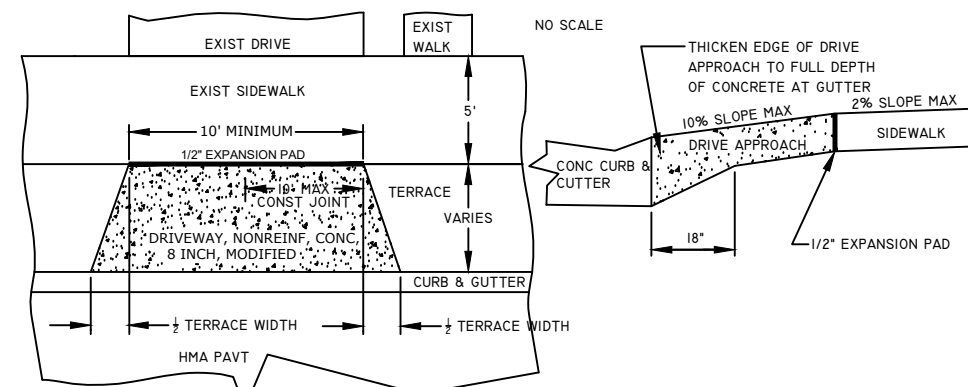
DETAIL FOR: WATER VALVE BOX AND
COVER, COMPLETE



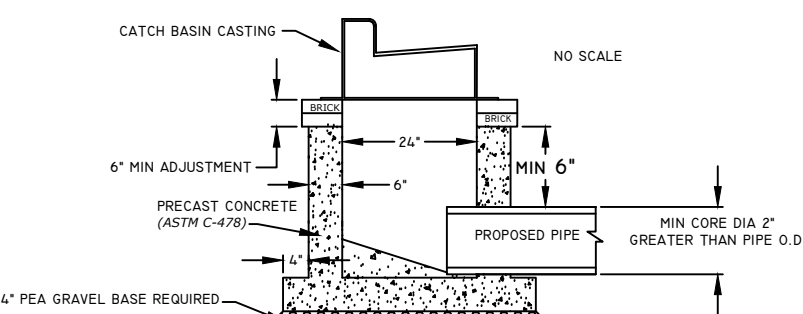
DETAIL FOR: DRAINAGE STRUCTURE COVER,
ADJUST, CASE I, MOD.



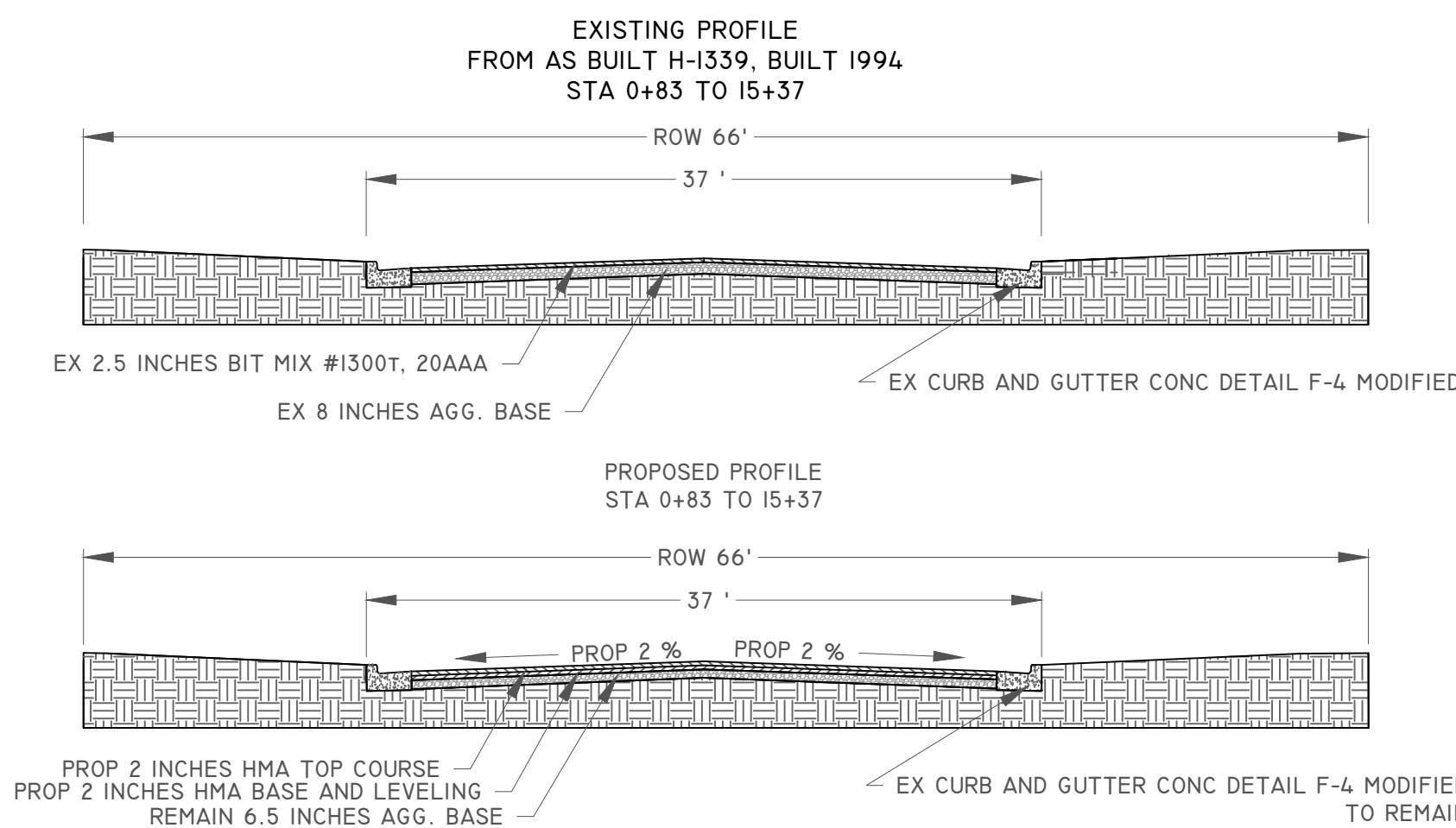
DETAIL FOR: TYPICAL DRIVE APPROACH



DETAIL FOR: CATCH BASIN 2 FT ID
SPECIAL DETAIL



STA 13+89
1 EA DR STRUCTURE COVER, ADJ, CASE I, MODIFIED
1 EA DR STRUCTURE COVER TYPE B, MODIFIED



DRAINAGE STRUCTURE COVERS		
TYPE	CASTING DESCRIPTION	QTY
COVER B, MODIFIED	MANHOLE CASTING EAST JORDAN #1040 OR EQUAL TYPE A - SOLID COVER AS DETAILED BELOW	9
COVER D, MODIFIED	CATCH BASIN CASTING EAST JORDAN #5105 OR EQUAL	1

HMA APPLICATION			
HMA MIX	RATE	PERFORMANCE GRADE	
HMA 4.5M TOP COURSE	220# / SYD	6A-2B	2 INCH-1 LIFT
HMA 4.5M BASE AND LEVELING	220# / SYD	5B-22	2 INCH-1 LIFT
HAND PATCHING (HMA 4.5M)	640# / SYD	6A-2B	4 INCH-2 LIFTS

*HMA BOND COAT: SS-1H AT 0.05 GAL/SY, SHALL BE PLACED BETWEEN EACH LIFT. THE COST IS INCLUDED WITH THE HMA, 4.5M PLAY ITEM.

QUANTITIES THIS SHEET		
DESCRIPTION	QUANTITY	UNIT
EROSION CONTROL, INLET PROTECTION, FABRIC DROP	8	EA
MACHINE GRADING, MODIFIED	14.53	STA
SIDEWALK, REM	15	SYD
HMA SURFACE, REM	5335	SYD
CURB AND GUTTER, REM	59	FT
DR STRUCTURE COVER, ADJ. CASE 1, MODIFIED	10	EA
DR STRUCTURE COVER, TYPE B, MODIFIED	9	EA
DR STRUCTURE COVER, TYPE D, MODIFIED	1	EA
HMA, 4EML, BASE AND LEVELING	587	TON
HMA, 4EML, TOP COURSE	587	TON
HAND PATCHING	10	TON
WATER VALVE BOX AND COVER, COMPLETE	12	EA
DRIVEWAY, NONREINF CONC, 8 INCH	48	SYD
CURB AND GUTTER, CONC, DET F4	59	FT
TOPSOIL SURFACE, FURN, 4 INCH	10	SYD
HYDROSEEDING	10	SYD

NOTE.
MACHINE GRADING, MODIFIED: STA 0+83 TO 15+37:
THERE WILL BE APPROXIMATELY 143 CYD. L.M. EXCAVATION, OF WHICH 30 CYD WILL BE USED FOR MAINTENANCE OF DRIVEWAYS. THE REMAINING 113 CYD WILL BE REMOVED FROM THE JOB SITE AND BECOME PROPERTY OF THE CONTRACTOR. PAYMENT FOR REMOVING THE EXCAVATION, PLACING EMBANKMENT, COMPACTING SUBGRADE, SHAPING SUBGRADE TO PROPOSED CROSS SECTION AND REMOVING EXCESS MATERIAL WILL BE INCLUDED IN THE PAYMENT FOR MACHINE GRADING, MODIFIED PAY ITEM.

DUE CONSTRUCTION PHASING, STOCK PILING MAY BE REQUIRED. IF STOCKING PILING IS NOT DESIRABLE, CONTRACTOR MAY REMOVE SOILS FROM THE SITE AND PROVIDE FILL AS NEEDED AT NO ADDITIONAL COST TO THE CITY. IN THIS CASE, FILL WILL BE INCLUDED IN THE PAY ITEM MACHINE GRADING, MODIFIED.

NOTES:

Date:

Revisions:

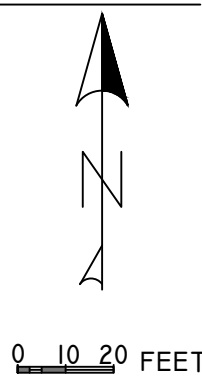
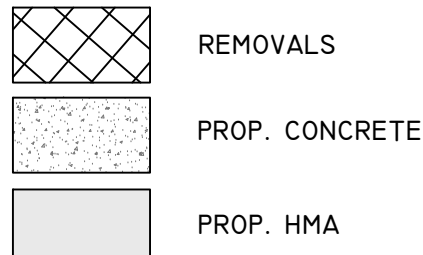
Drawn: K PARKER

SUN DOLPHIN RD &
OAK AVE
HMA RESURFACING

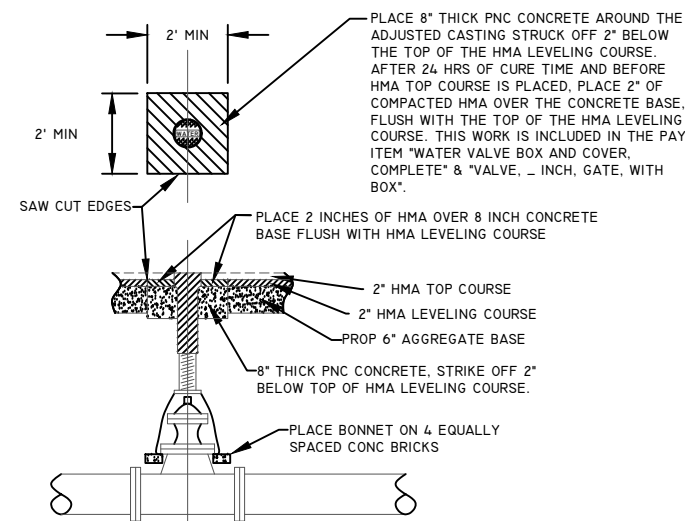
CITY OF MUSKEGON
OFFICE OF THE CITY ENGINEER

2

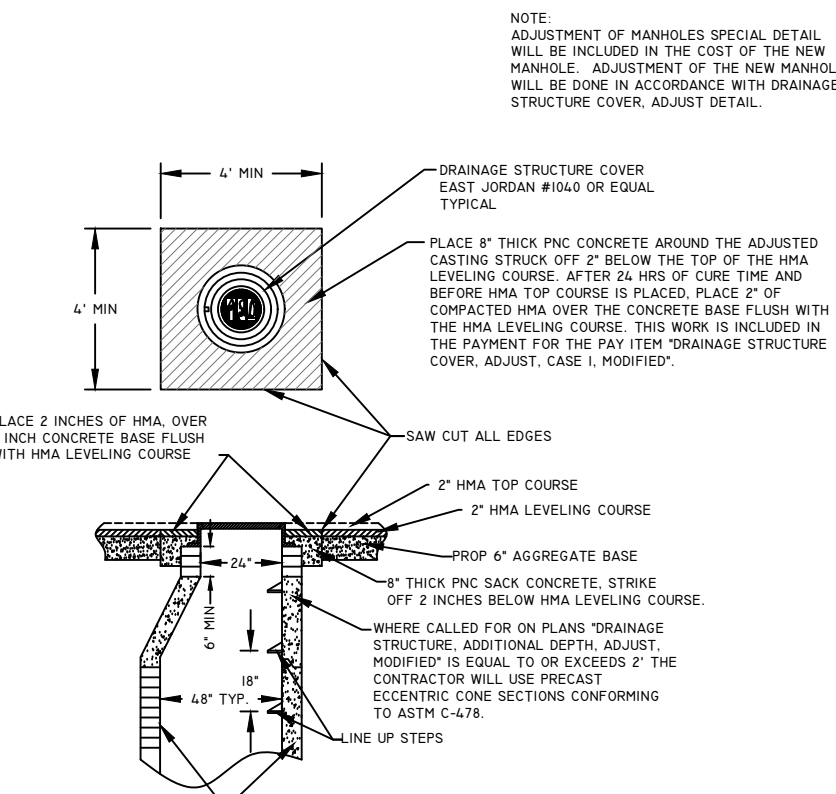
OAK AVE PLAN SHEET



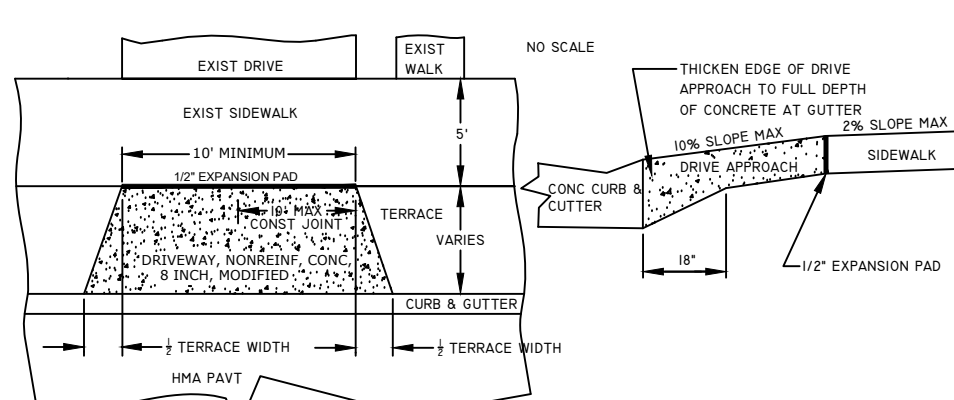
DETAIL FOR: WATER VALVE BOX AND COVER, COMPLETE



DETAIL FOR: DRAINAGE STRUCTURE COVER, ADJUST, CASE I, MOD.

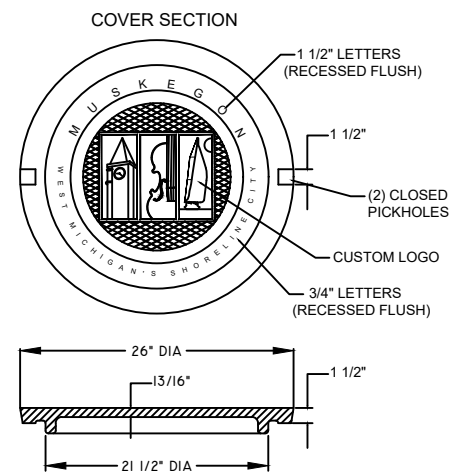


DETAIL FOR: TYPICAL DRIVE APPROACH



DETAIL FOR TYPE B SOLID COVER

TYPE A LOGO MANHOLE COVER



DRAINAGE STRUCTURE COVERS		
TYPE	CASTING DESCRIPTION	QTY
COVER B, MODIFIED	MANHOLE CASTING EAST JORDAN #1040 OR EQUAL	8
COVER D, MODIFIED	CATCH BASIN CASTING EAST JORDAN #3105 OR EQUAL	0

HMA APPLICATION		
HMA MIX	RATE	PERFORMANCE GRADE
HMA 4EML TOP COURSE	220# / SYD	6A-28
HMA 4EML BASE AND LEVELING	220# / SYD	5B-22
HAND PATCHING (DRAL 4EML)	6A-28	6A-28

NOTE:
HMA PAVING TO BE PERFORMED AFTER REGULAR BUSINESS HOURS MONDAY THROUGH SATURDAY OR ANYTIME ON SUNDAY. THIS WILL BEST FACILITATE THE BUSINESS ON THIS INDUSTRIAL AND RETAIL ROAD.

QUANTITIES THIS SHEET		
DESCRIPTION	QUANTITY	UNIT
EROSION CONTROL, INLET PROTECTION, FABRIC DROP	11	EA
COLD MILLING HMA SURFACE	5575	SYD
DR STRUCTURE COVER, ADJ, CASE I, MODIFIED	8	EA
DR STRUCTURE COVER, TYPE B, MODIFIED	8	EA
HMA, 4EML, BASE AND LEVELING	614	TON
HMA, 4EML, TOP COURSE	614	TON
HAND PATCHING	10	TON

NOTES:

Date:

Revisions:

OAK AVE PLAN SHEET

SUN DOLPHIN RD & OAK AVE

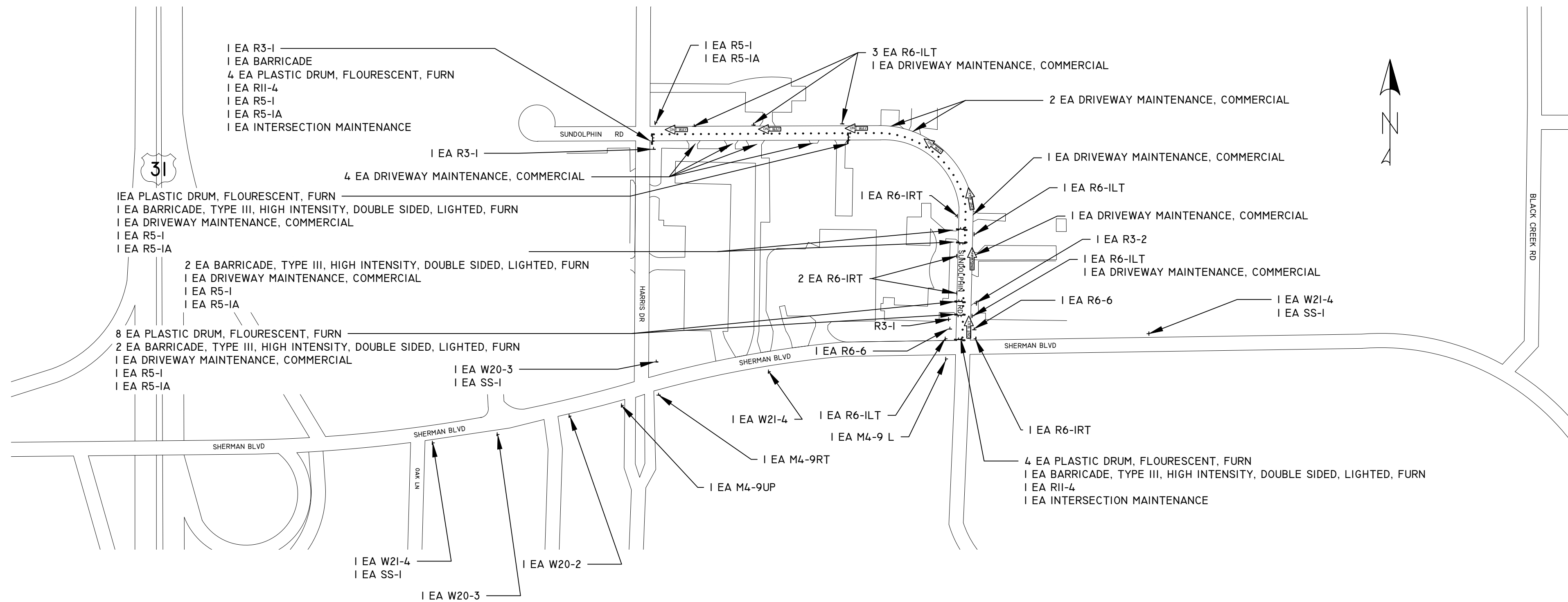
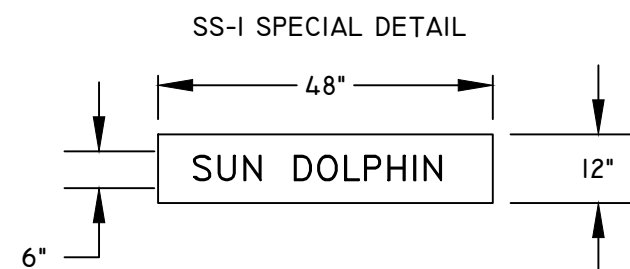
CITY OF MUSKEGON OFFICE OF THE CITY ENGINEER

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SUN DOLPHIN TRAFFIC CONTROL

SUNDOLPHIN NOTE:

- 1- CONTRACTOR SHALL MAINTAIN ONE WAY NORTHBOUND LOCAL TRAFFIC FROM SHERMAN TO HARRIS.
- 2- INTERSECTION AND DRIVEWAY MAINTENANCE TO BE ACCOMPLISHED BY MILLING. ALL BARRELS BY ENGINEER AS PAY ITEM. INTERSECTION MAINTENANCE AND DRIVEWAY MAINTENANCE, COMMERCIAL BY THE EA. MAINTENANCE NO LONGER NECESSARY A FTER BASE COURSE HMA.
- 3- IN ADDITION TO THE 100 BARRELS IN THE TRAFFIC CONTROL PLAN, AN ADDITIONAL 20 BARRELS SHOULD BE AVAILABLE TO MARK OBSTRUCTIONS AND DEFINE DRIVE OPENINGS.
- 4- HMA TOP COURSE TO BE DONE ON SATURDAY OR SUNDAY WHEN TRAFFIC VOLUMES ARE THE LOWEST



SIGN, TYPE B, TEMPORARY					
SIGN	DESCRIPTION	QUANTITY	DIM	AREA	TOTAL
M4-9 L	DETOUR LEFT	1	24X30	5 SFT	5 SFT
M4-9 UP	DETOUR UP	1	24X30	5 SFT	5 SFT
M4-9 RT	DETOUR RIGHT	1	24X30	5 SFT	5 SFT
R3-1	NO RIGHT TURN	2	24X24	4 SFT	8 SFT
R3-2	NO LEFT TURN	1	24X24	4 SFT	4 SFT
R5-1	DO NOT ENTER	5	30X30	6.25 SFT	32 SFT
R5-1A	WRONG WAY	5	24X36	6 SFT	30 SFT
R6-6	ONE WAY BEGINS	2	30X36	7.5 SFT	15 SFT
R6-1 RT	ONE WAY ARROW RIGHT	4	36X12	3 SFT	12 SFT
R6-1 LT	ONE WAY ARROW LEFT	6	36X12	3 SFT	18 SFT
R11-4	ROAD CLOSED TO THRU TRAFFIC	2	30X60	12.5 SFT	25 SFT
W20-2	DETOUR AHEAD	1	48X48	16 SFT	16 SFT
W20-3	ROAD CLOSED AHEAD	2	48X48	16 SFT	32 SFT
W21-4	ROAD WORK AHEAD	3	48X48	16 SFT	48 SFT
					255 SFT

SIGN, TYPE B, TEMPORARY, SPECIAL			
DESCRIPTION	QUANTITY	AREA	TOTAL
SS-I	3	4 SFT	12 SFT
			12 SFT

QUANTITIES FOR SUN DOLPHIN RD		
DESCRIPTION	QUANTITY	UNIT
MINOR TRAFFIC DEVICES	1	LS
BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED, LIGHTED, FURN	6	EA
BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED, LIGHTED, OPER	6	EA
PLASTIC DRUM, FLUORESCENT, FURN	130	EA
PLASTIC DRUM, FLUORESCENT, OPER	130	EA
SIGN, TYPE B, TEMP, PRISMATIC, FURN	255	SFT
SIGN, TYPE B, TEMP, PRISMATIC, OPER	255	SFT
SIGN, TYPE B, TEMP, PRISMATIC, SPECIAL, FURN	12	SFT
SIGN, TYPE B, TEMP, PRISMATIC, SPECIAL, OPER	12	SFT
DRIVEWAY MAINTENANCE, COMMERCIAL	15	EA
INTERSECTION MAINTENANCE	4	EA

NOTES:

Date:

Revisions:

1.

Drawn: K PARKER
Date: FEB 2024

TRAFFIC CONTROL PLANS

SUN DOLPHIN RD &

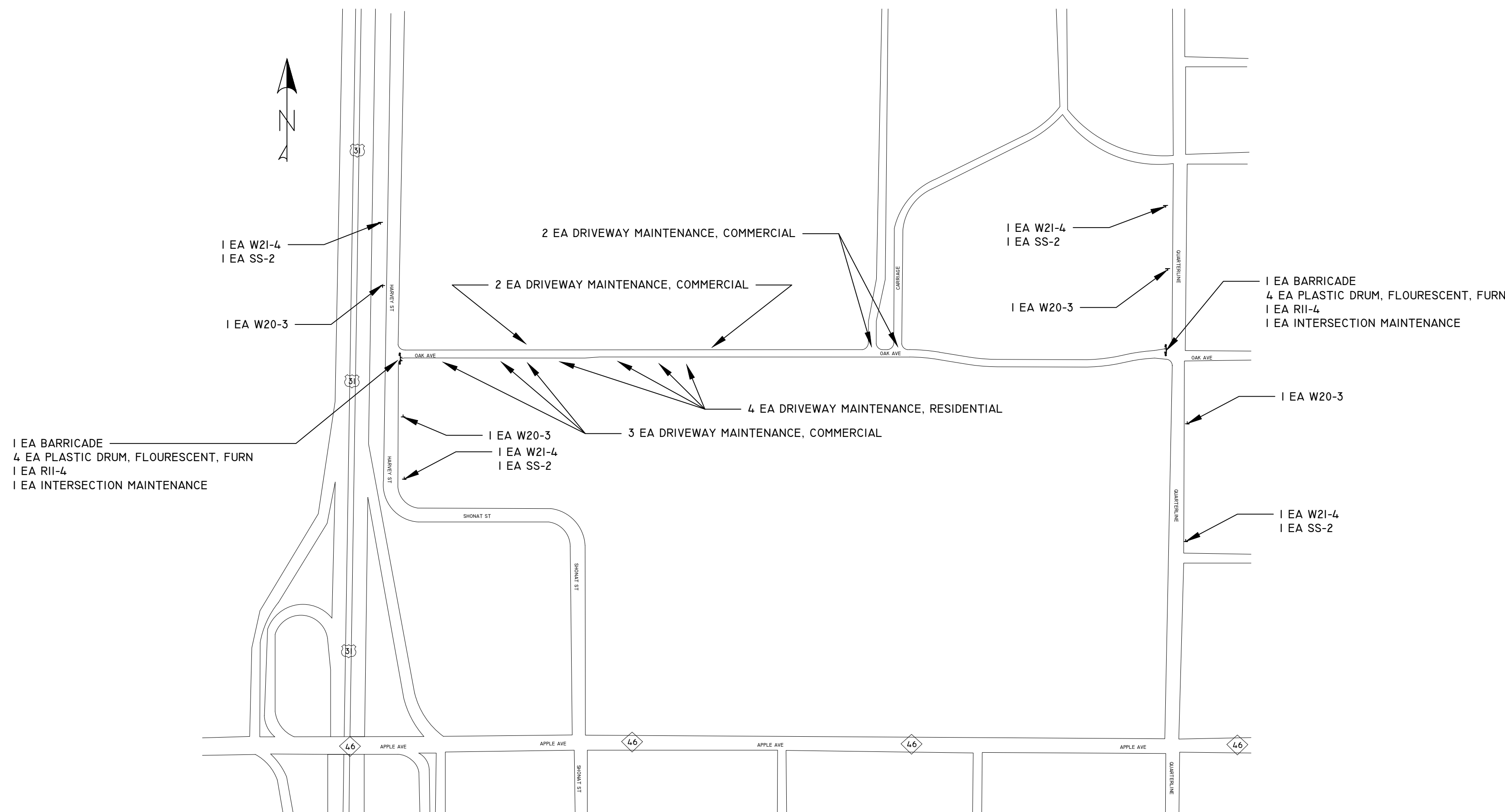
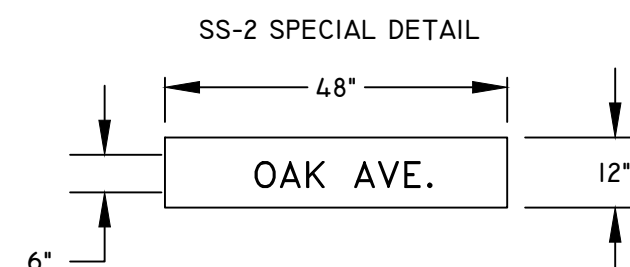
CITY OF MUSKEGON

4

OAK AVE TRAFFIC CONTROL

OAK AVE. NOTE:

- 1- CONTRACTOR SHALL MAINTAIN LOCAL TRAFFIC FROM HARVEY ST. TO QUARTERLINE RD. ON MILLED SURFACE.
- 2- INTERSECTION AND DRIVEWAY MAINTENANCE TO BE ACCOMPLISHED WITH MILLINGS AS DIRECTED BY ENGINEER AS PAY ITEM. INTERSECTION MAINTENANCE AND DRIVEWAY MAINTENANCE, COMMERCIAL BY THE EA. MAINTENANCE NO LONGER NECESSARY AFTER BASE COURSE HMA.
- 3- IN ADDITION TO THE 8 BARRELS IN THE TRAFFIC CONTROL PLAN, AN ADDITIONAL 30 BARRELS SHOULD BE AVAILABLE TO MARK OBSTRUCTIONS AND DEFINE DRIVE OPENINGS.



SIGN, TYPE B, TEMPORARY					
SIGN	DESCRIPTION	QUANTITY	DIM	AREA	TOTAL
R11-4	ROAD CLOSED TO THRU TRAFFIC	2	30X60	12.5 SFT	25 SFT
W20-3	ROAD CLOSED AHEAD	4	48X48	16 SFT	64 SFT
W21-4	ROAD WORK AHEAD	4	48X48	16 SFT	64 SFT
					153 SFT

SIGN, TYPE B, TEMPORARY, SPECIAL			
DESCRIPTION	QUANTITY	AREA	TOTAL
SS-2	4	4 SFT	16 SFT

QUANTITIES FOR OAK AVE		
DESCRIPTION	QUANTITY	UNIT
MINOR TRAFFIC DEVICES	1	LS
BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED, LIGHTED, FURN	2	EA
BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED, LIGHTED, OPER	2	EA
PLASTIC DRUM, FLUORESCENT, FURN	38	EA
PLASTIC DRUM, FLUORESCENT, OPER	38	EA
SIGN, TYPE B, TEMP, PRISMATIC, FURN	153	SFT
SIGN, TYPE B, TEMP, PRISMATIC, OPER	153	SFT
SIGN, TYPE B, TEMP, PRISMATIC, SPECIAL, FURN	16	SFT
SIGN, TYPE B, TEMP, PRISMATIC, SPECIAL, OPER	16	SFT
DRIVEWAY MAINTENANCE, COMMERCIAL	7	EA
DRIVEWAY MAINTENANCE, RESIDENTIAL	4	EA
INTERSECTION MAINTENANCE	2	EA