

# MINNESOTA DEPARTMENT OF TRANSPORTATION CITY OF RED WING

**CONSTRUCTION PLAN FOR WATERMAIN, WATER SERVICES, SANITARY SEWER, SANITARY SEWER SERVICES, STORM SEWER, AGGREGATE BASE, CONCRETE CURB AND GUTTER, CONCRETE WALKS, CAST IN PLACE CONCRETE RETAINING WALL, BITUMINOUS PAVEMENT, ELECTRICAL LIGHTING SYSTEM AND OTHER APPURTENANT CONSTRUCTION ON WEST AVENUE IN THE CITY OF RED WING, MINNESOTA**

### PLAN SYMBOLS

- ○ EXISTING MANHOLE
- ⊙ EXISTING MANHOLE-CATCH BASIN
- ⊞ EXISTING CATCH BASIN
- ⊞ EXISTING CURB STOP
- ⊞ EXISTING FIRE HYDRANT
- ⊞ EXISTING WATERMAIN VALVE
- 12" 150/125 EXISTING SANITARY SEWER MAIN
- 12" 150/125 EXISTING WATERMAIN
- 12" 150/125 EXISTING STORM SEWER
- PROPOSED SANITARY MANHOLE
- ⊙ PROPOSED MANHOLE-CATCH BASIN
- ⊞ PROPOSED CATCH BASIN
- ⊞ PROPOSED CURB STOP
- ⊞ PROPOSED FIRE HYDRANT
- ⊞ PROPOSED WATERMAIN VALVE
- PROPOSED SANITARY SEWER MAIN
- PROPOSED WATERMAIN
- PROPOSED STORM SEWER
- PROPOSED RETAINING WALL
- EXISTING RETAINING WALL
- FENCE
- P UNDERGROUND ELECTRIC
- OHP OVERHEAD ELECTRIC
- G GAS
- AG ABANDONED GAS
- T-BOX UNDERGROUND TELEPHONE
- CATV UNDERGROUND TV CABLE
- FO UNDERGROUND FIBER OPTIC
- Sp SIGN
- MB MAILBOX
- UPo UTILITY POLE
- LPo LIGHT POLE
- ULPo UTILITY/LIGHT POLE ANCHOR
- SEM SEMAPHORE
- GR GUARD RAIL
- RIGHT OF WAY LINE
- DRAINAGE & UTILITY EASEMENT
- DECIDUOUS TREE
- EVERGREEN TREE OR SHRUB

### LEGEND

- INTERSTATE TRUNK HIGHWAY..... (5) ———
- U.S. TRUNK HIGHWAY..... (15) ———
- STATE TRUNK HIGHWAY..... (35) ———
- COUNTY STATE AID HIGHWAY..... (20) ———
- COUNTY ROAD..... (15) ———
- CORPORATE LIMITS..... ———
- PUBLIC ROAD..... ———
- PRIVATE ROAD..... ———

### GOVERNING SPECIFICATIONS

THE 2005 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION", SUBJECT TO ANY AMENDMENTS.

### UTILITY QUALITY LEVEL

THE SUBRSFACE UTILITY INFORMATION IN THIS PLAN IS QUALITY LEVEL "C". THIS UTILITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF C1/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA."

### BENCH MARKS

- 911.47 TOP NUT HYD. ACROSS FROM 1311 WEST AVENUE
- 865.04 TOP NUT HYD. @ STURTEVANT STREET & WEST AVENUE
- 832.03 TOP NUT HYD. @ PUTNAM AVENUE & WEST AVENUE
- 805.61 TOP NUT HYD. FRONTING 802 WEST AVENUE

### WARNING

BEFORE DIGGING CALL GOPHER STATE ONE CALL FOR LOCATIONS. DIAL - 1-800-252-1166 REQUIRED BY LAW

STATE AID PROJ. NO. 156-127-003

GROSS LENGTH ----- 3135.00 FEET - 0.594 MILES

BRIDGES-LENGTH ----- 0.00 FEET - 0.000 MILES

EXCEPTIONS ----- 0.00 FEET - 0.000 MILES

NET-LENGTH ----- 3135.00 FEET - 0.594 MILES

### GEOGRAPHIC DESCRIPTIONS

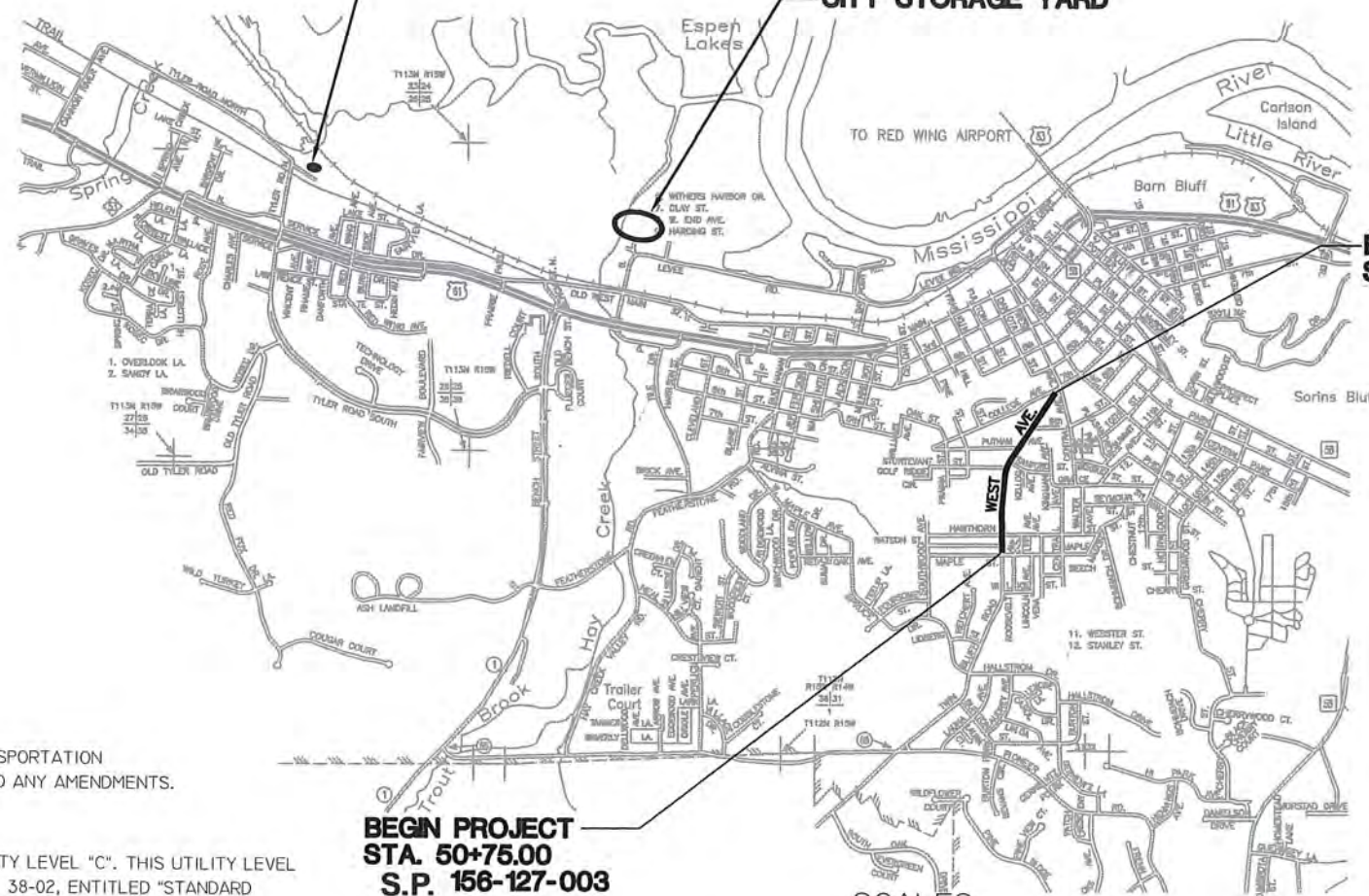
S.P. 156-127-003 (WEST AVENUE) - BETWEEN WEST 7TH STREET/COLLEGE AVENUE AND MAPLE STREET.

### LEGAL DESCRIPTIONS

S.P. 156-127-003 (WEST AVENUE) - FROM A POINT 1360 FEET WEST AND 1885 FEET SOUTH OF NE CORNER SECTION 31, T113N, R14W TO A POINT 400 FEET WEST AND 980 FEET NORTH OF NE CORNER SECTION 31, T113N, R14W

PUBLIC WORKS BUILDING

CITY STORAGE YARD



END PROJECT  
STA. 82+10.00  
S.P. 156-127-003

BEGIN PROJECT  
STA. 50+75.00  
S.P. 156-127-003

### SCALES

- PLAN 0 30 STRIPING
- PROFILE HORIZONTAL 0 30 INDEX MAP
- VERTICAL 0 10 1600
- EROSION CONTROL & ELECTRICAL SYSTEM PLAN 0 30



City of  
**RED WING**  
ENGINEERING DEPARTMENT  
RON L. ROSENTHAL, ENGINEERING DIRECTOR  
JAY A. OWENS, CITY ENGINEER

MINN. PROJ. NO. **STPM 2514(175)**

### INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	ESTIMATED QUANTITIES AND GENERAL NOTES
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4	EXISTING & PROPOSED TYPICAL SECTIONS
5	CROWN PAVING DETAILS
6&7	STANDARD DETAILS
8-12	PEDESTRIAN CURB RAMP DETAILS STANDARD PLAN
13	WEST AVENUE DETOUR PLAN
14	EXISTING CONDITIONS & REMOVALS (MAPLE ST. TO STA. 59+00)
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16	EXISTING CONDITIONS & REMOVALS (SANFORD ST. TO STA. 75+00)
17	EXISTING CONDITIONS & REMOVALS (STA. 75+00 TO CENTRAL AVE.)
18	SANITARY SEWER & WATERMAIN CONSTRUCTION (MAPLE ST. TO STA. 59+00)
19	SANITARY SEWER & WATERMAIN CONSTRUCTION (STA. 59+00 TO SANFORD ST.)
20	SANITARY SEWER & WATERMAIN CONSTRUCTION (SANFORD ST. TO STA. 75+00)
21	SANITARY SEWER & WATERMAIN CONSTRUCTION (STA. 75+00 TO CENTRAL AVE.)
22	STREET & STORM SEWER CONSTRUCTION (MAPLE ST. TO STA. 59+00)
23	STREET & STORM SEWER CONSTRUCTION (STA. 59+00 TO SANFORD ST.)
24	STREET & STORM SEWER CONSTRUCTION (SANFORD ST. TO STA. 75+00)
25	STREET & STORM SEWER CONSTRUCTION (STA. 75+00 TO CENTRAL AVE.)
26	SWPPP-NARRATIVE & EROSION CONTROL DETAILS
27	SWPPP-CONSTRUCTION ACTIVITY REQUIREMENTS
28&29	PERMANENT & TEMPORARY EROSION CONTROL PLAN
30	STRIPING PLAN
31&32	ELECTRICAL SYSTEM PLAN
33-51	CAST IN PLACE CONCRETE RETAINING WALL PLAN SHEETS

**THIS PLAN SET CONTAINS 61 SHEETS**

### DESIGN DESIGNATION

WEST AVENUE MSAP 156-127-003	
ADT (2011):	4350
PROJ. ADT (2031):	6525
PROJ. HCA DT (2031):	33
D (DIRECTIONAL DISTR.):	50%
T (HEAVY COMMERCIAL):	0.5%
NO. OF TRAFFIC LANES	2
NO. OF PARKING LANES	2 (1 FROM STA. 54+80 TO STA. 67+20)
R VALUE:	10
N18:	269,359
DESIGN:	10 TON
FUNCTIONAL CLASS.:	MAJOR COLLECTOR
DESIGN SPEED - 30 MPH	
BASED ON STOPPING SIGHT DISTANCE	
HEIGHT OF EYE - 3.50' HEIGHT OF OBJECT - 2.00'	

Variance to Minnesota Rules 8820.9936 dated February 2013 was granted by the Commissioner of Transportation on January 2, 2014, to allow for the following:  
• A 20 mph horizontal curve on West Avenue between stations 65+16.88 to 65+94.91 in lieu of 30 mph design speed as required.

I hereby certify that sheets 1 through 32 of this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

SIGNATURE: *Jay A. Owens* PRINTED NAME: JAY A. OWENS

DATE: 03/14/2014 LICENSE NUMBER: 42020

I hereby certify that sheets 33 through 51 of this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

SIGNATURE: *Ronald Benson* PRINTED NAME: RONALD BENSON

DATE: 03/14/2014 LICENSE NUMBER: 22737

*Fausto Cabal* DATE: 03/17/2014  
DISTRICT 6 STATE AID ENGINEER: REVIEWED FOR COMPLIANCE WITH STATE-AID RULES/POLICY  
*Ronnette Reshelle* DATE: 4/15/14  
STATE AID ENGINEER: APPROVED FOR STATE AID AND FEDERAL AID FUNDING

S.P. 156-127-003

Sheet No. 1 of 51 Sheets



ESTIMATED QUANTITIES\*

Table with columns: NOTES, ITEM NO., DESCRIPTION, UNIT, PARTICIPATING 155-127-003 WEST AVENUE, NON PARTICIPATING, STORM SEWER, TOTAL ESTIMATED QUANTITIES. Rows include items like MOBILIZATION, CLEARING, GRUBBING, CONCRETE CURB/GUTTER, etc.

\* SEE SHEET 33 FOR CAST IN PLACE CONCRETE RETAINING WALL ESTIMATED QUANTITIES AND NOTES

ITEM NOTES:

- (1) ANY NECESSARY SAW CUTTING (FULL DEPTH) OF EXISTING CONCRETE/BITUMINOUS PAVEMENTS, WALKS, DRIVES, AND CURBS FOR REMOVALS SHALL BE INCIDENTAL TO REMOVAL OPERATIONS AND WITHOUT DIRECT COMPENSATION THEREFORE.
(2) REMOVAL & DISPOSAL OF UNSUITABLE MATERIAL FROM SEWER, WATER, CULVERT AND STRUCTURE REMOVALS INCLUDING PLUGGING OF EXISTING PIPE OR CUT-OUTS WITH MORTAR SHALL BE INCIDENTAL TO REMOVAL OPERATIONS...

GENERAL NOTES:

- \* ALL WATERMAIN AND WATER SERVICE PIPE REMOVAL AND DISPOSAL SHALL BE INCIDENTAL TO CONSTRUCTION OPERATIONS. WHERE EXISTING CONDITIONS PROHIBIT THE REMOVAL OF WATERMAIN, THE ENGINEER MAY ALLOW ABANDONED WATERMAIN TO REMAIN IN PLACE AND THE CONTRACTOR SHALL BE REQUIRED TO MORTAR EXPOSED PIPE ENDS AS AN INCIDENTAL ITEM TO CONSTRUCTION OPERATIONS.
\* THE CONTRACTOR SHALL LOCATE ALL EXISTING UTILITIES IN AREAS OF POSSIBLE CONFLICTS WITH PROPOSED UTILITIES (SEWER AND WATER). ALL LOCATING, GRADE CHANGES TO PROPOSED UTILITIES, CUTTING, INVERT CHANGES, MODIFICATIONS TO STRUCTURES, CONSTRUCTION CREW "DOWN TIME" AND ADDITIONAL ADJUSTMENT RINGS REQUIRED TO CONSTRUCT PROPOSED UTILITIES UNDER/OVER EXISTING UTILITIES SHALL BE CONSTRUCTED AS DIRECTED BY THE ENGINEER AS INCIDENTAL ITEMS TO PROPOSED CONSTRUCTION.

STANDARD PLATES: THE FOLLOWING STANDARD PLATES, APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION, SHALL APPLY ON THIS PROJECT. Columns: PLATE NO., DESCRIPTION. Items include 3000L REINFORCED CONCRETE PIPE, 3006G GASKET JOINT FOR RC PIPE, etc.

STANDARD PLATES: THE FOLLOWING STANDARD PLATES, APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION, SHALL APPLY ON THIS PROJECT. Columns: PLATE NO., DESCRIPTION. Items include 4022A 3'X2' OPENING MANHOLE OR CATCH BASIN COVER, 4180J MANHOLE OR CATCH BASIN STEP, etc.

BASIS FOR ESTIMATED QUANTITIES

CLASS 5 AGGREGATE BASE - 150 LBS./CU. FT.
BITUMINOUS WEAR COURSE- 125 LBS./S.Y./INCH OF DEPTH
BITUMINOUS NON-WEAR COURSE- 110 LBS./S.Y./INCH OF DEPTH
BITUMINOUS TACK COAT- .05 GALLONS/S.Y.
FERTILIZER TYPE I - 300 LBS./ACRE

CERTIFIED BY: [Signature] CITY ENGINEER - JAY A. OWENS LICENSE NUMBER - 42020
TITLE: WEST AVENUE RECONSTRUCTION
ESTIMATED QUANTITIES & GENERAL NOTES
S.P. 156-127-003
Sheet No. 2 of 51 Sheets

## STORM SEWER DRAINAGE TABULATION

STRUCTURE NUMBER	STATION	OFFSET	BUILD HEIGHT	STRUCTURE SIZE	CASTING ASSEMBLY NUMBER	STEPS REQUIRED	INVERT ELEVATION	FLWS FROM STRUCTURE	FLWS TO STRUCTURE	12" SEWER DES. 3006	15" SEWER DES. 3006	18" SEWER DES. 3006	21" SEWER DES. 3006	24" SEWER DES. 3006	30" SEWER DES. 3006	33" SEWER DES. 3006	PIPE CLASS	INVERT ELEVATION UPSTREAM	INVERT ELEVATION DOWNSTREAM	SLOPE
			FEET	FEET						LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.				
CB#200	52+50	19.35' RT.	4.5	2X3	2	NO	868.21	CB#200	EX. CB#21		122						3	868.21	865.94	1.86%
MH-CB#201	54+25	18.68' RT.	4.5	4.0' DIA.	3	NO	876.24	MH-CB#201	CB#200		175						3	876.24	868.31	4.53%
CB#202	54+80	11.35' RT.	4.5	2X3	2	NO	880.31	CB#202	MH-CB#201		56						3	880.31	876.34	7.09%
CB#203	54+80	19.35' LT.	3.5	2X3	2	NO	880.85	CB#203	CB#202	31							3	880.85	880.54	1.00%
CB#231	55+75	11.35' RT.	3.5	2X3	2	NO	887.48	CB#231	CB#202	98							3	887.48	880.54	7.08%
CB#204	10+30 (HAWTHORN)	14.35' RT.	4.0	2X3	2	NO	880.25	CB#204	MH-CB#201	23							3	880.25	876.34	17.00%
CONNECT TO	80+93.43	8' RT.	-	-	-	-	776.92	-	EX. ST. MH#56											
ST. MH#227	79+80	8' RT.	5.7	5.0' DIA.	1	NO	780.87	ST. MH#227	CONNECT TO							113	2	780.87	776.92	3.50%
CB#228	79+80	19.35' RT.	4.0	2X3	2	NO	782.48	CB#228	ST. MH#227	11							3	782.48	782.26	2.00%
ST. MH#224	78+50	12' RT.	6.0	6.0' DIA.	1	NO	785.19	ST. MH#224	ST. MH#227							130	2	785.19	780.97	3.24%
CB#226	78+48.02	19.35' RT.	5.0	2X3	2	NO	786.39	CB#226	ST. MH#224		8						3	786.39	786.24	2.00%
CB#225	78+43.02	19.35' RT.	3.5	2X3	2	NO	788.09	CB#225	CB#226	5							3	788.09	787.99	2.00%
ST. MH#221	76+50	12' RT.	6.0	4.5' DIA.	1	NO	793.50	ST. MH#221	ST. MH#224							200	2	793.50	785.29	4.11%
CB#223	76+50	19.35' RT.	3.5	2X3	2	NO	796.13	CB#223	ST. MH#221	7							3	796.13	795.55	8.29%
CB#222	76+45	19.35' RT.	3.5	2X3	2	NO	796.34	CB#222	CB#223	5							3	796.34	796.23	2.20%
ST. MH#217	74+12.09	12' RT.	6.0	6.0' DIA.	1	NO	803.57	ST. MH#217	ST. MH#221							238	2	803.57	793.60	4.19%
MH-CB#220	74+12.09	19.35' RT.	5.0	4.0' DIA.	2	NO	804.69	MH-CB#220	ST. MH#217			7					2	804.69	804.54	2.00%
CB#230	73+60	19.35' RT.	3.5	2X3	2	NO	808.42	CB#230	MH-CB#220	52							3	808.42	805.30	6.00%
CB#219	74+00	19.35' LT.	5.0	2X3	2	NO	805.81	CB#219	ST. MH#217	34							3	805.81	805.47	1.00%
CB#218	73+95	19.35' LT.	3.5	2X3	2	NO	807.52	CB#218	CB#219	5							3	807.52	807.41	2.20%
ST. MH#215	72+25	12' RT.	6.0	4.5' DIA.	1	NO	811.88	ST. MH#215	ST. MH#217						187		2	811.88	803.67	4.39%
CB#216	72+25	19.35' LT.	5.0	2X3	2	NO	812.97	CB#216	ST. MH#215	31							3	812.97	812.66	1.00%
ST. MH#209	69+90	12' RT.	6.5	5.0' DIA.	1	NO	825.08	ST. MH#209	ST. MH#215						235		2	825.08	811.98	5.58%
CB#213	69+90	19.35' RT.	3.5	2X3	2	NO	828.64	CB#213	ST. MH#209	7							3	828.64	828.29	5.00%
MH-CB#210	69+83.12	19.35' LT.	4.45	5.5' DIA.	3	NO	826.40	MH-CB#210	ST. MH#209					32			2	826.40	826.15	0.78%
ST. MH#229	12+50.1 (PUTNAM)	10.92' RT.	6.19	4.0' DIA.	1	NO	826.77	ST. MH#229	MH-CB#210				27				2	826.77	826.50	1.00%
CB#214	12+70 (PUTNAM)	19.35' LT.	3.5	2X3	2	NO	826.66	CB#214	MH-CB#210	31							3	826.66	826.50	0.52%
CB#212	69+55	19.35' LT.	3.5	2X3	2	NO	829.52	CB#212	MH-CB#210	28							3	829.52	827.35	7.75%
CB#211	69+50	19.35' LT.	3.5	2X3	2	NO	829.81	CB#211	CB#212	5							3	829.81	829.62	3.80%
ST. MH#208	67+42.15	8.69' RT.	6.82	5.0' DIA.	1	NO	841.00	ST. MH#208	ST. MH#209				248				2	841.00	825.18	6.39%
CB#206	10+75.5 (STURTEV.)	12.83' LT.	3.5	2X3	2	NO	856.59	CB#206	EX. CB#26	27							3	856.59	852.69	14.44%
EX. CB#27	10+70.5 (STURTEV.)	12.83' LT.	-	EX. 2X3	2	NO	858.36	EX. CB#27	CB#206	5							3	858.36	856.79	31.40%
CB#205	65+60	11.35' RT.	3.5	2X3	2	NO	863.74	CB#205	EX. CB#25	36							3	863.74	861.24	6.94%
TOTALS										441	361	7	275	32	422	681				

TOTALS:

CONNECT TO EXIST. STORM SEWER=10 EACH  
 STD. 2X3 CB=20 EACH  
 STORM MH. (4' DIA.)=1 EACH  
 STORM MH. (4.5' DIA.)=2 EACH  
 STORM MH. (5' DIA.)=3 EACH  
 STORM MH. (6' DIA.)=2 EACH  
 MH-CB (4.0' DIA.)=2 EACH  
 MH-CB (5.5' DIA.)=1 EACH

### UTILITY INFORMATION:

\*THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS QUALITY LEVEL "C". THIS UTILITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA."

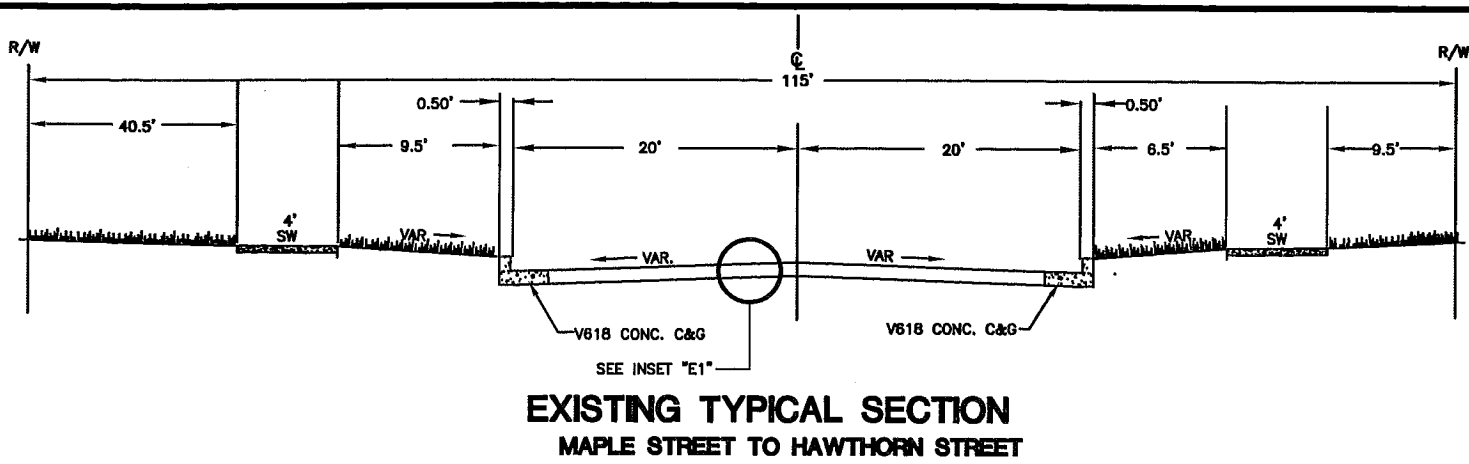
\*THE FOLLOWING UTILITY OWNERS HAVE FACILITIES WITHIN THE LIMITS OF THIS PROJECT AND HAVE BEEN NOTIFIED OF THIS PROJECT:

- \*XCEL ENERGY
- \*CENTURY LINK
- \*CHARTER COMMUNICATIONS
- \*HIAWATHA BROADBAND COMMUNICATIONS

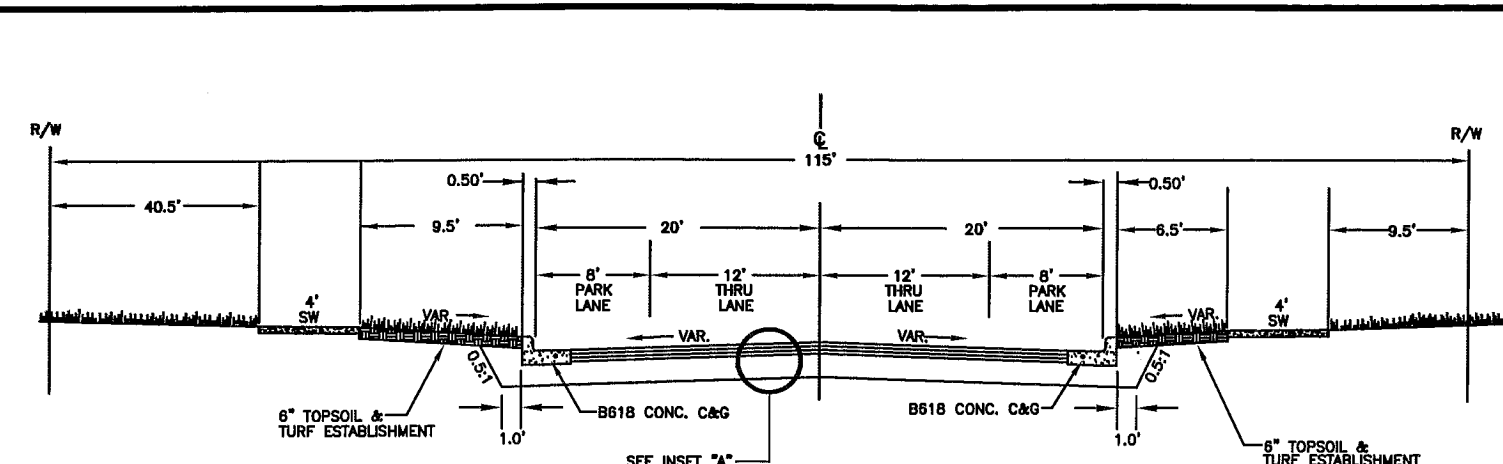
### GENERAL NOTES:

- STATION AND OFFSET ON STRUCTURES ARE TO THE CENTER OF THE STRUCTURE
- CASTING ASSEMBLY 1 IS NEENAH R-1733 OR APPROVED EQUAL
- CASTING ASSEMBLY 2 IS NEENAH R-3067V OR APPROVED EQUAL
- CASTING ASSEMBLY 3 IS NEENAH R-3382 OR APPROVED EQUAL

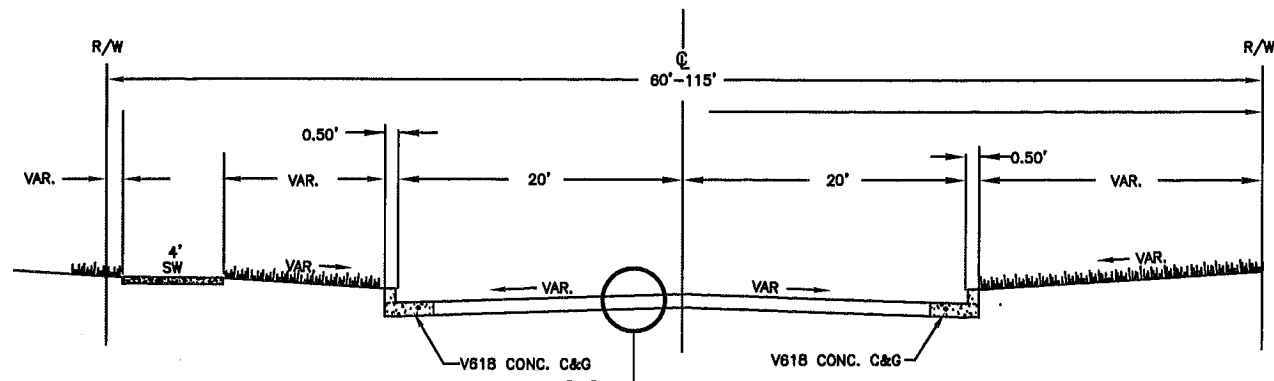
CERTIFIED BY CITY ENGINEER - JAY A. OWENS LICENSE NUMBER - 42020	TITLE: WEST AVENUE RECONSTRUCTION	STORM SEWER DRAINAGE TABULATION & UTILITY INFORMATION
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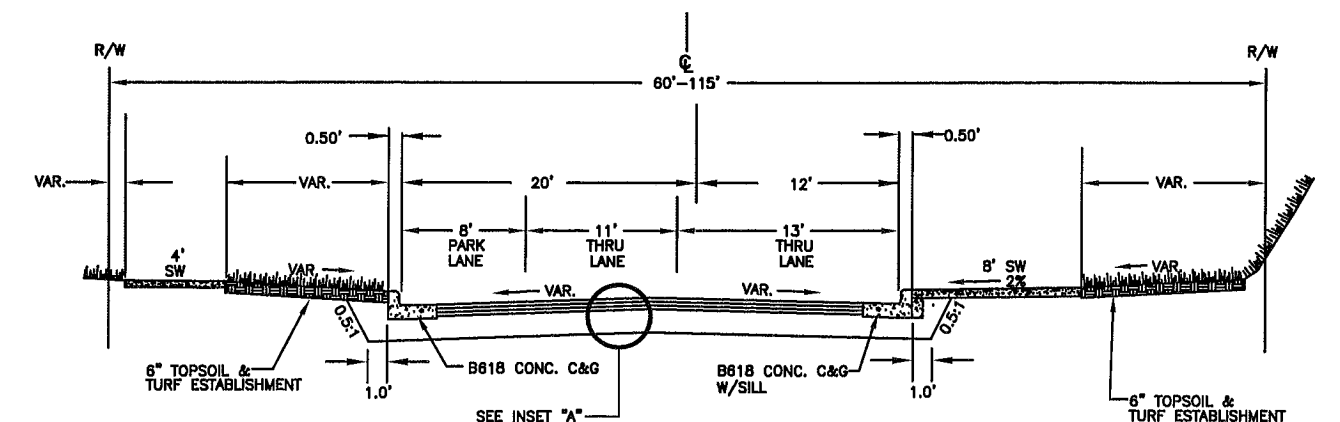
**EXISTING TYPICAL SECTION  
MAPLE STREET TO HAWTHORN STREET**



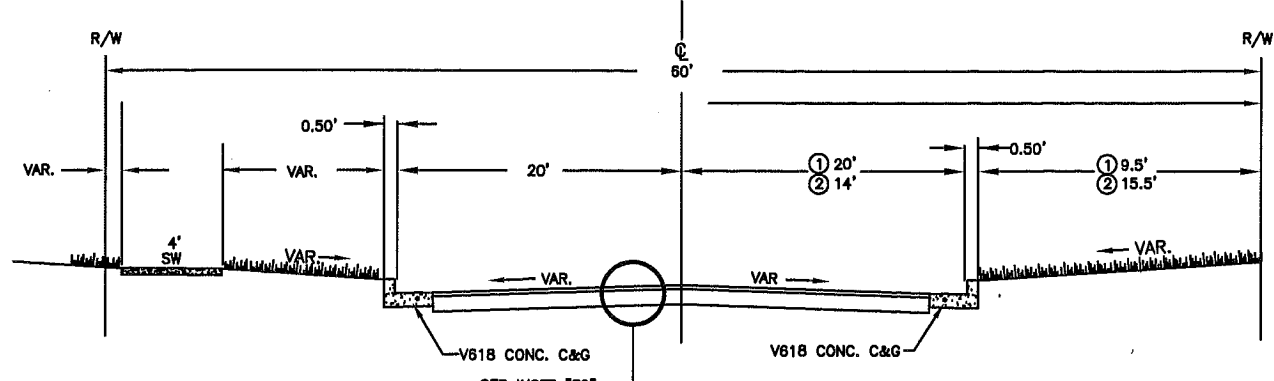
**PROPOSED TYPICAL SECTION  
MAPLE STREET TO HAWTHORN STREET**



**EXISTING TYPICAL SECTION  
HAWTHORN STREET TO STA. 60+00**

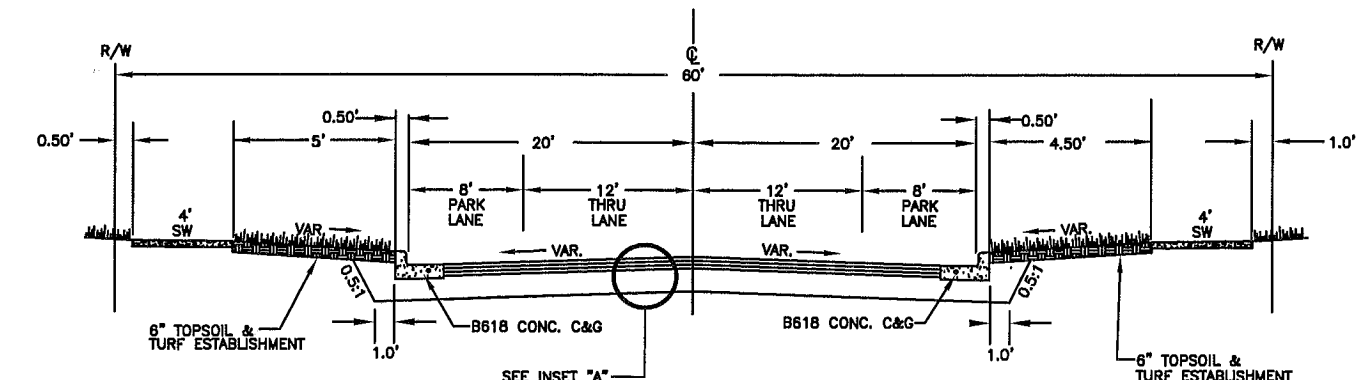


**PROPOSED TYPICAL SECTION  
HAWTHORN STREET TO SANFORD STREET**

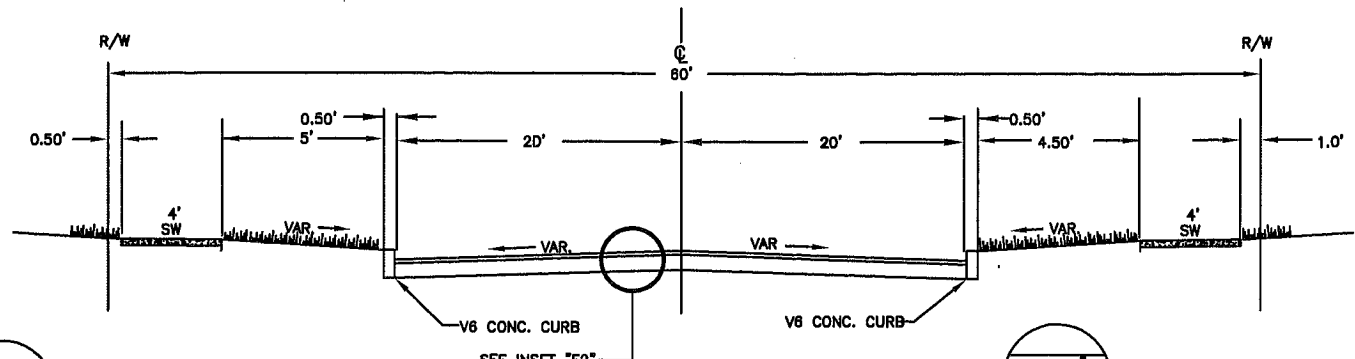


**EXISTING TYPICAL SECTION  
STA. 60+00 TO SANFORD STREET**

- ① STA. 60+00 TO STA. 65+25 - 20' TO CURB FACE
- STA. 65+25 TO STA. 66+00 - CURB FACE TRANSITION
- ② STA. 66+00 TO SANFORD STREET - 14' TO CURB FACE



**PROPOSED TYPICAL SECTION  
SANFORD STREET TO WEST 7TH STREET**



**EXISTING TYPICAL SECTION  
SANFORD STREET TO WEST 7TH STREET**

**ADJOINING SIDE STREETS**

- WATSON STREET
- HAWTHORN STREET
- STURTEVANT STREET
- SANFORD STREET
- PUTNAM AVENUE



**INSET "A"**

- CONST. 2" TYPE SP12.5 WEARING COURSE MIXTURE (3,C)
  - CONST. 2" TYPE SP12.5 WEARING COURSE MIXTURE (3,C)
  - CONST. 2" TYPE SP12.5 NON-WEARING COURSE MIXTURE (3,B)
  - CONST. 12" AGGREGATE BASE, CLASS 5
  - COMPACTED SUBGRADE
- G.E.=25.5



**INSET "E1"**

6"-9" BITUMINOUS PAVEMENT



**INSET "E2"**

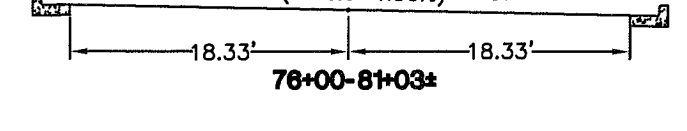
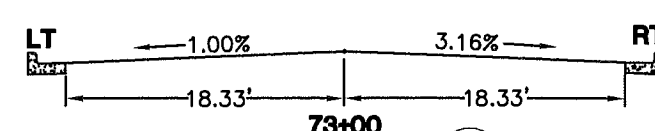
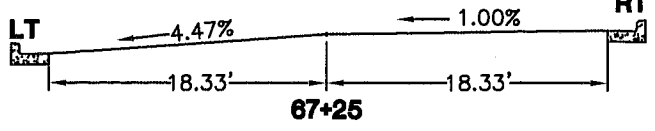
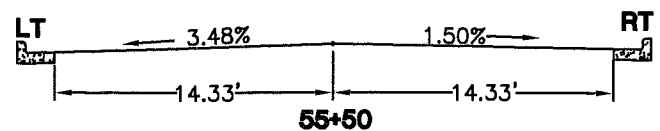
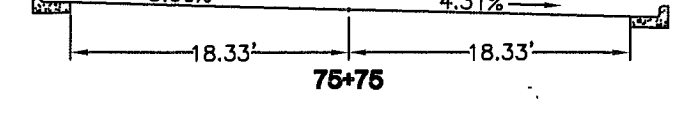
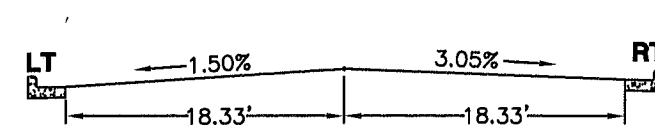
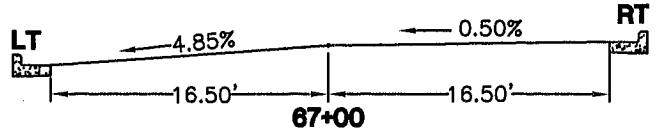
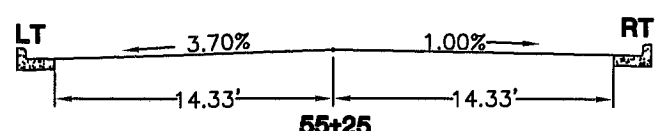
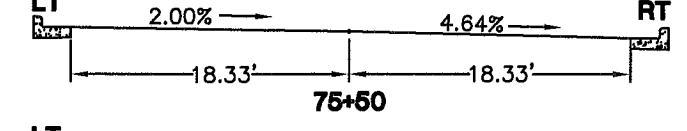
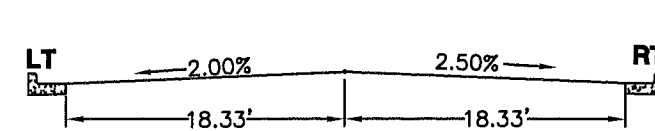
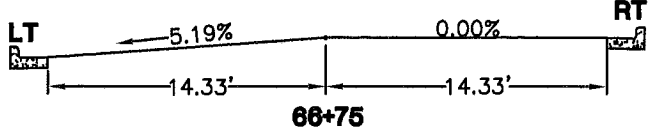
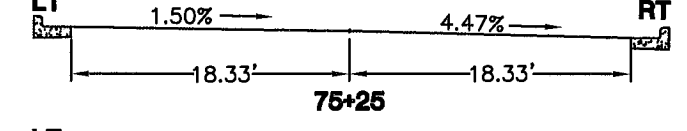
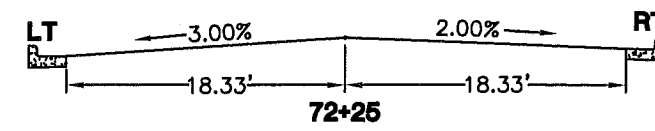
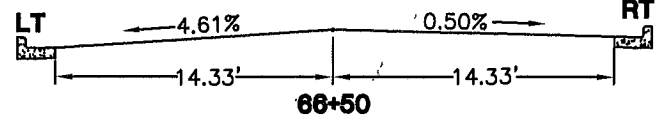
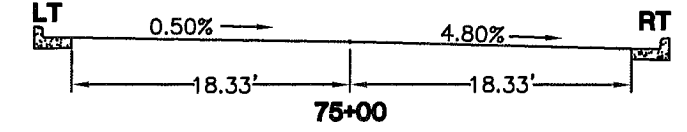
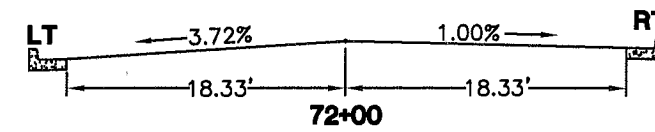
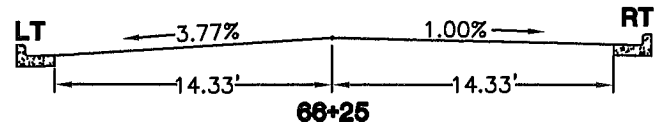
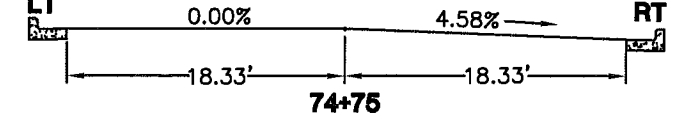
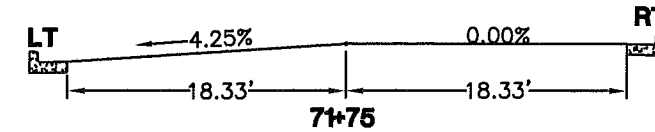
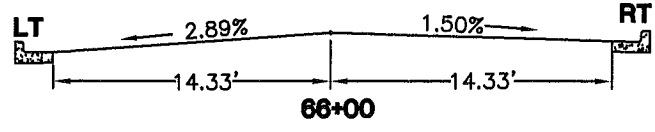
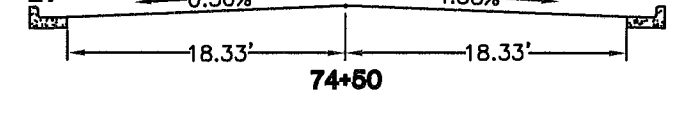
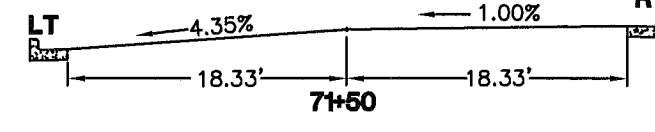
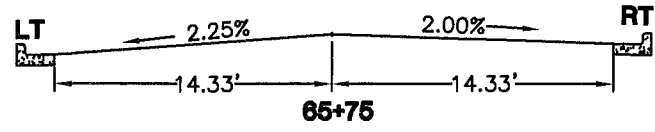
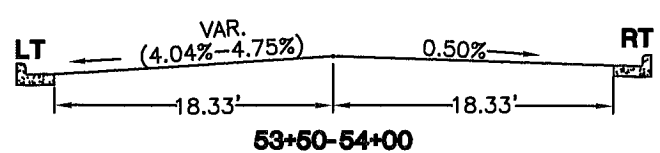
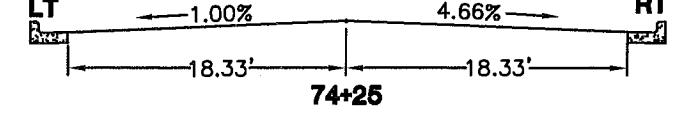
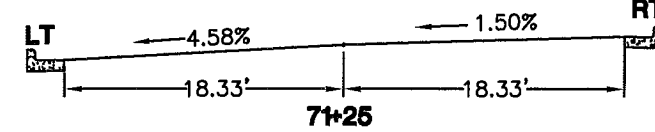
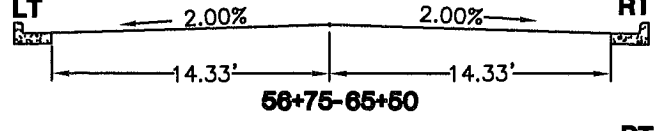
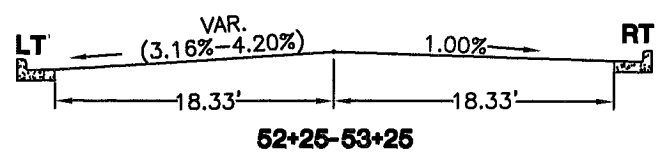
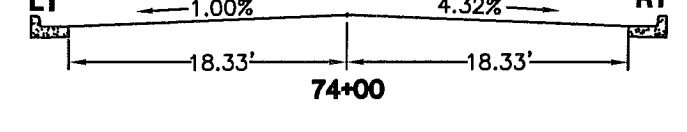
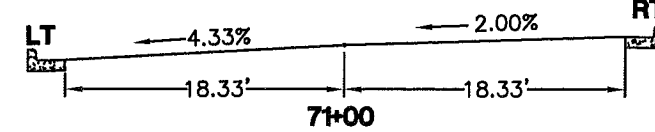
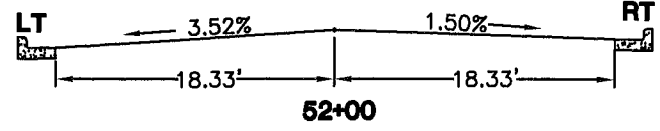
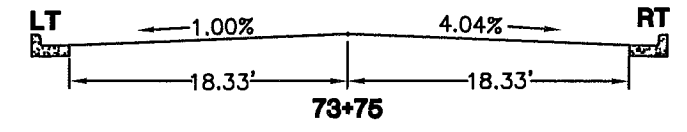
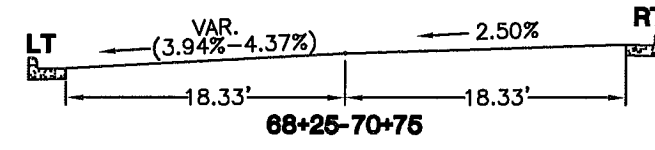
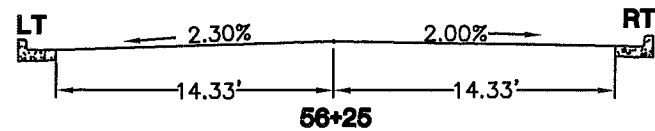
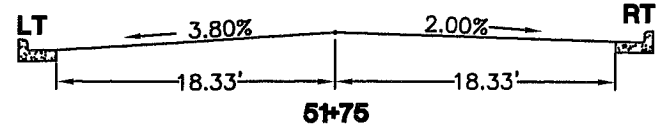
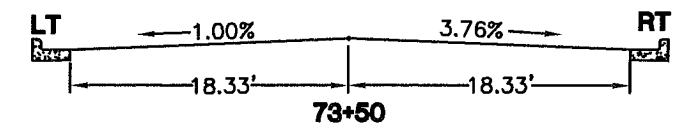
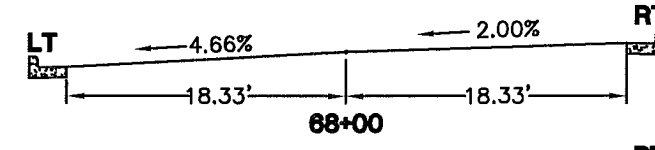
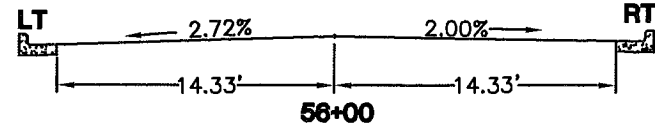
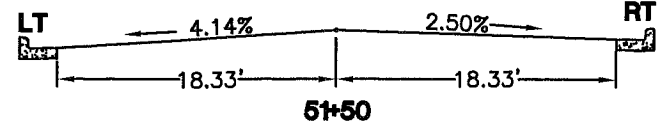
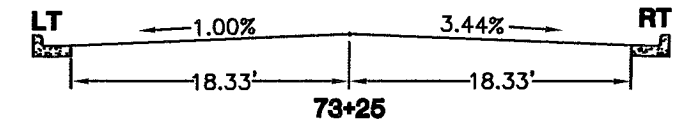
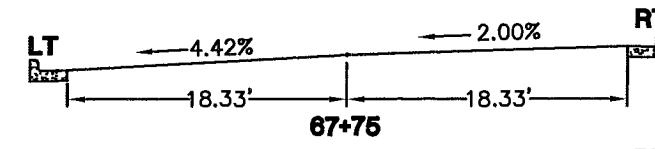
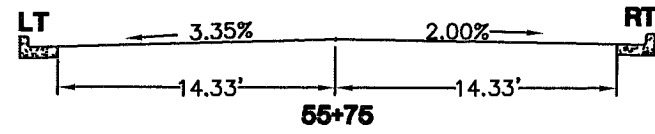
2"± BITUMINOUS PAVEMENT  
8"± CONCRETE PAVEMENT

CERTIFIED BY *Jay A. Owens*  
CITY ENGINEER - JAY A. OWENS  
LICENSE NUMBER - 42020

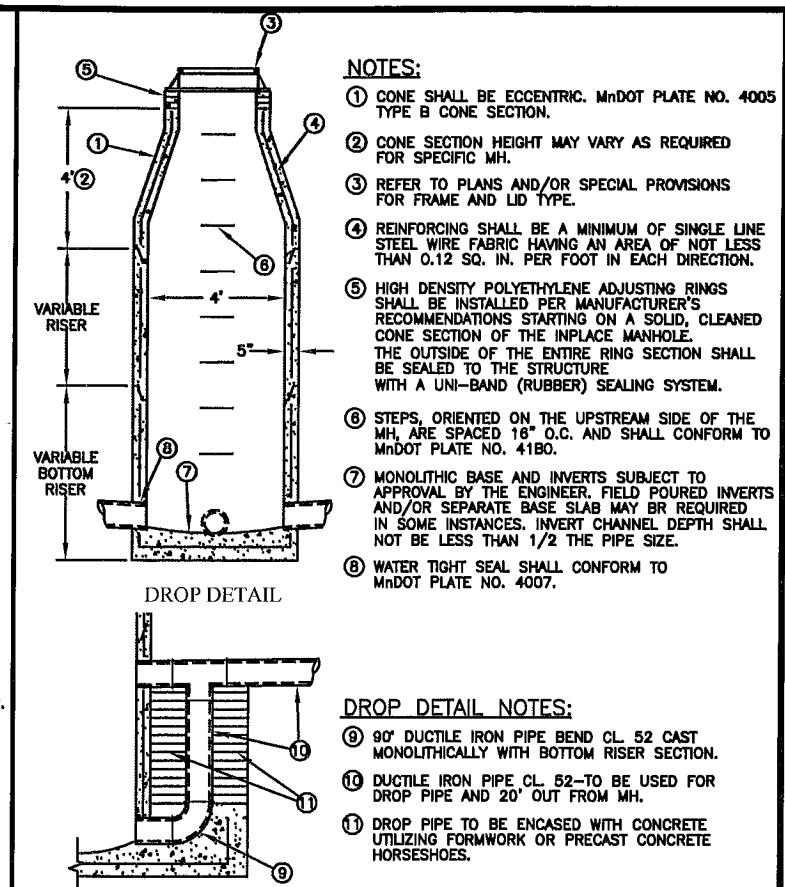
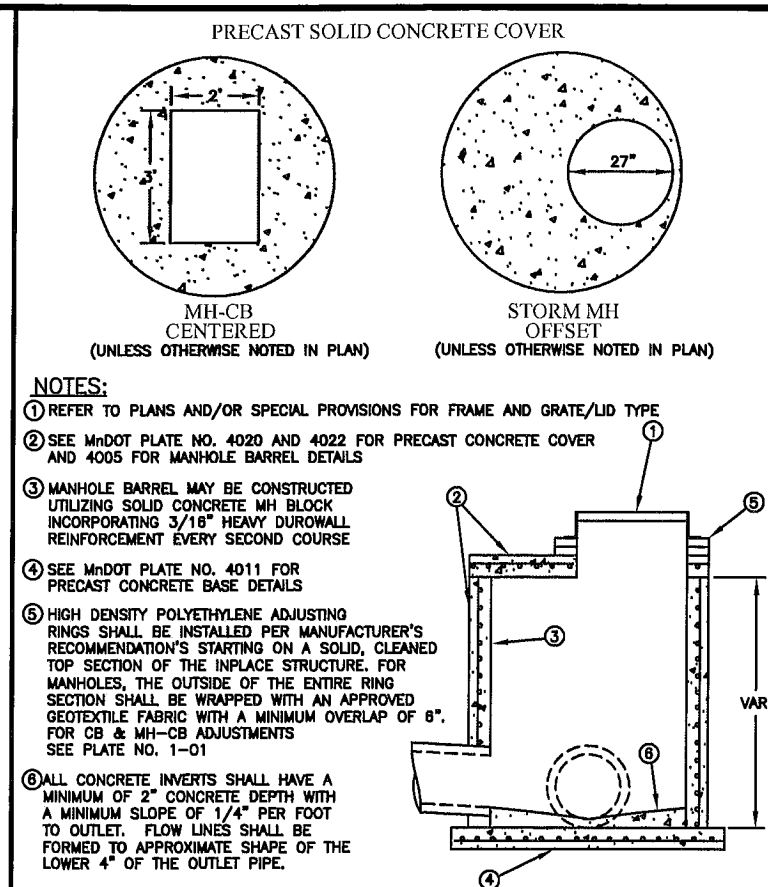
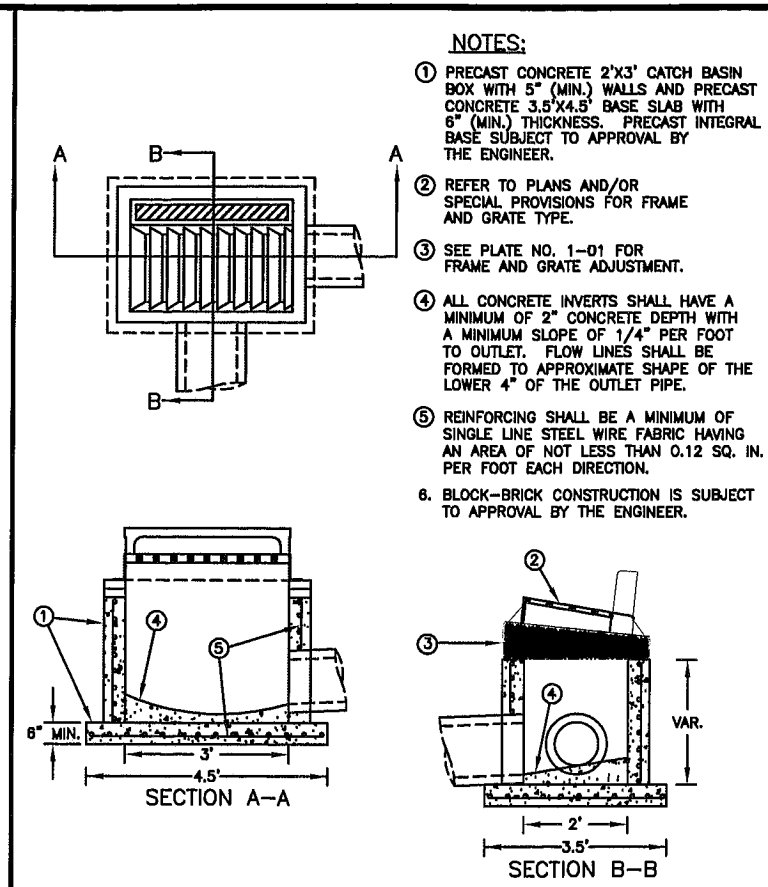
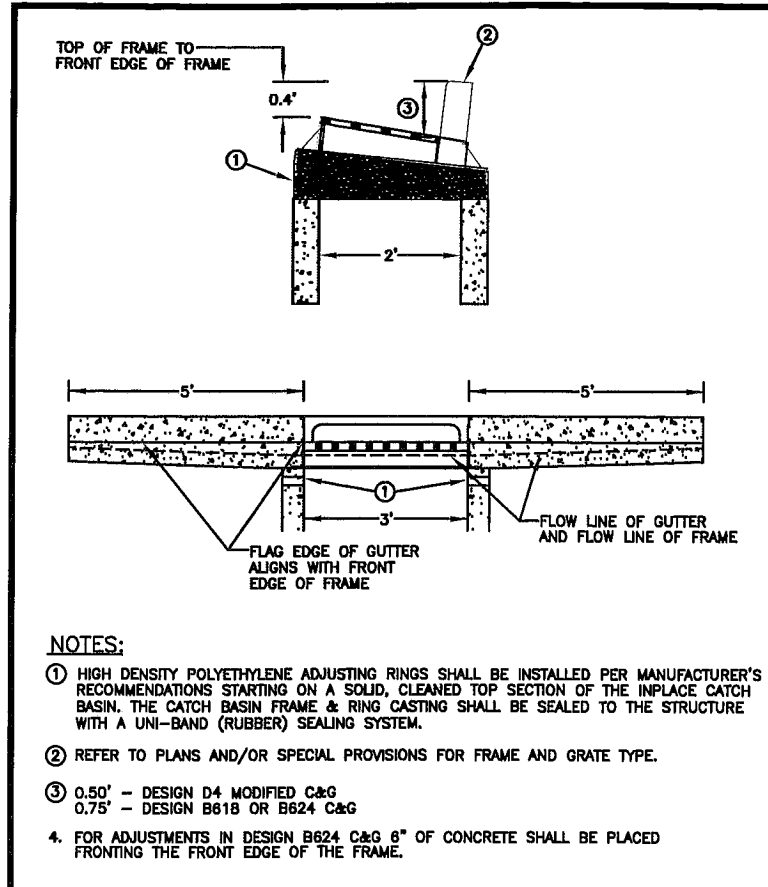
TITLE:  
**WEST AVENUE RECONSTRUCTION**

**EXISTING & PROPOSED  
TYPICAL SECTIONS**

# CROWN DETAILS FOR WEST AVENUE



CERTIFIED BY CITY ENGINEER - JAY A. OWENS LICENSE NUMBER - 42020	TITLE: WEST AVENUE RECONSTRUCTION	<b>WEST AVENUE CROWN PAVING DETAILS</b>
S.P. 156-127-003	Sheet No. 5 of 51 Sheets	

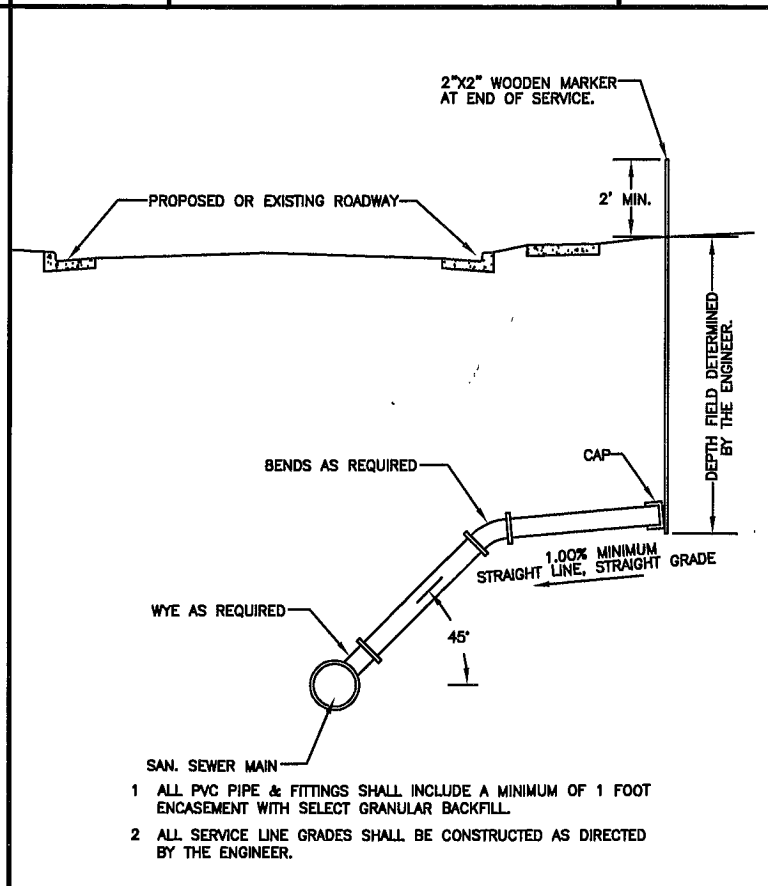
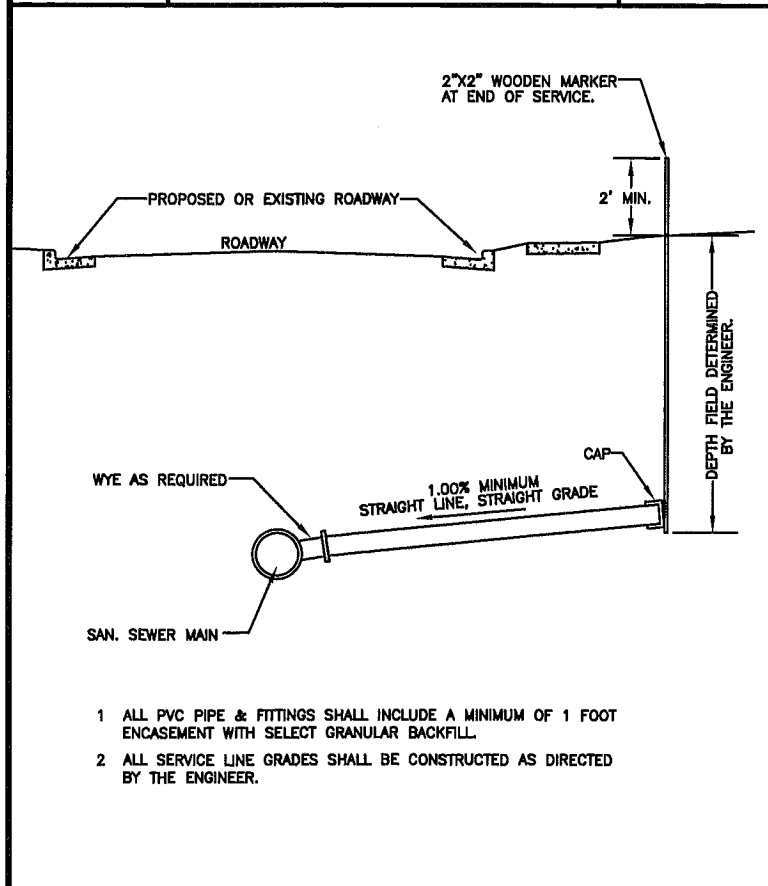


DATE REVISED	2'x3' CB FRAME ADJUSTMENT	PLATE NO.
07/22/11		1-01

DATE REVISED	2'X3' STANDARD CB	PLATE NO.
03/01/08		1-02

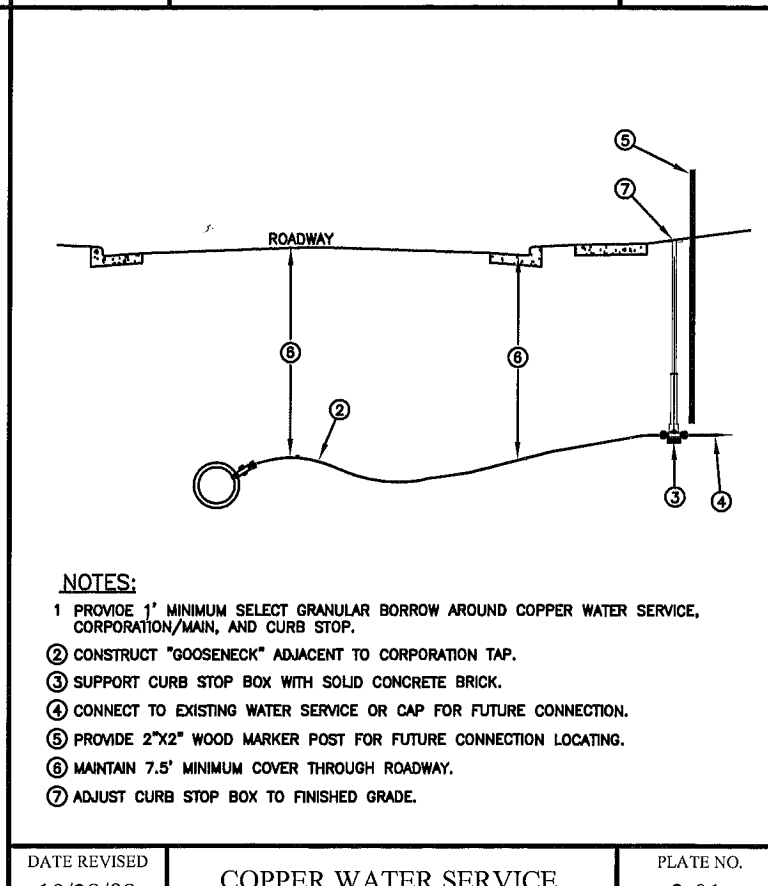
DATE REVISED	STORM MH/MH-CB	PLATE NO.
05/10/13		1-03

DATE REVISED	PRECAST CONCRETE SANITARY MANHOLE	PLATE NO.
10/23/13		1-04

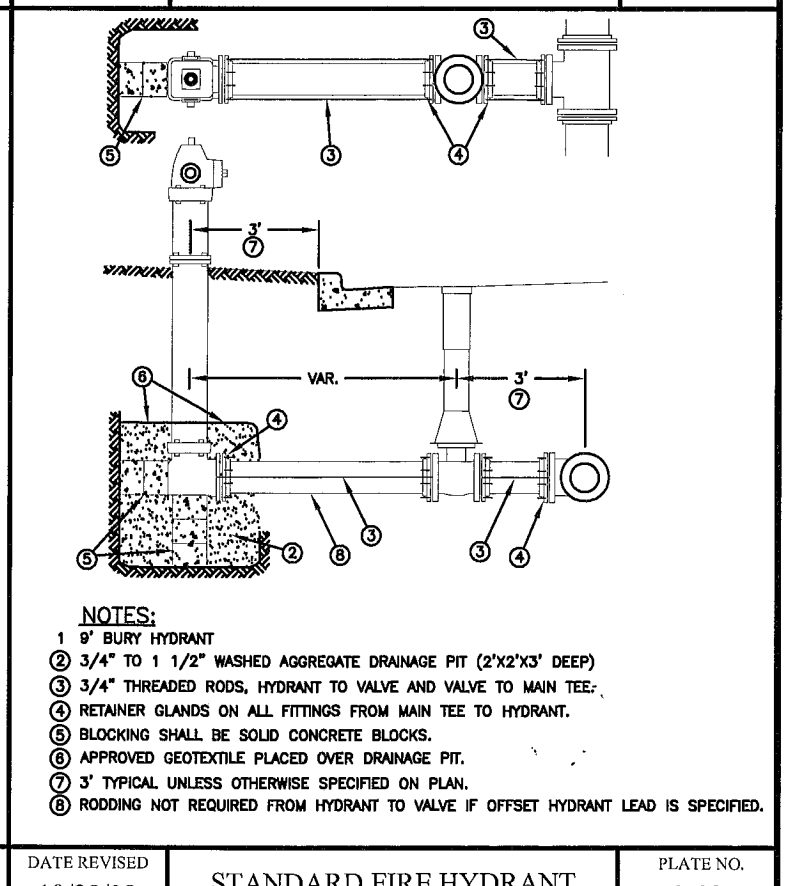


DATE REVISED	TYPICAL SANITARY SERVICE	PLATE NO.
03/01/08		1-06

DATE REVISED	RISER SANITARY SERVICE	PLATE NO.
03/01/08		1-07



DATE REVISED	COPPER WATER SERVICE	PLATE NO.
10/28/08		2-01



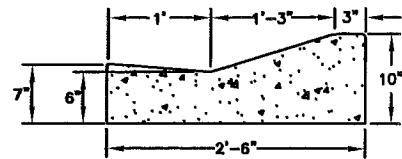
DATE REVISED	STANDARD FIRE HYDRANT	PLATE NO.
10/28/08		2-02

CERTIFIED BY: *Jay A. Owens*  
CITY ENGINEER - JAY A. OWENS  
LICENSE NUMBER - 42020

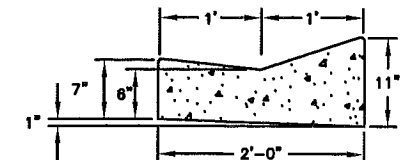
TITLE: WEST AVENUE RECONSTRUCTION STANDARD DETAILS



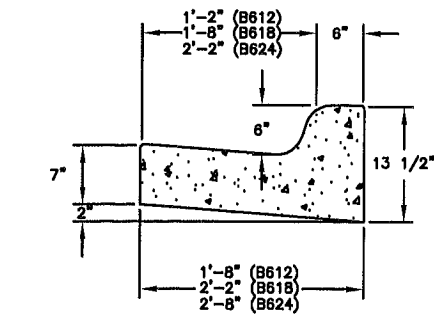
DESIGN D4 MODIFIED



DESIGN D412



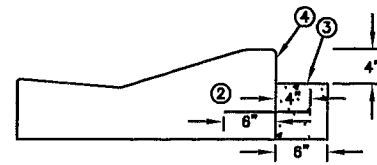
DESIGN B6



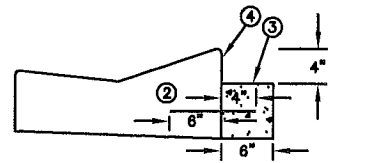
**NOTES:**

1. CONCRETE MIX: MANUAL PLACEMENT-MNDOT SPEC. 3A32, SLIP FORM PLACEMENT-MNDOT SPEC. 3A22.
2. PROVIDE 1/2" EXP. JT. AT 300' MAX. SPACING IN ADDITION TO EXP. JTS. SHOWN ON OTHER DETAIL PLATES.
3. PROVIDE 1/2" EXP. JT. ALONG BACK OF CURB AT LOCATIONS WHERE CURB ABUTS BUILD WALLS AND RETAINING WALLS.
4. PROVIDE CONTRACTION JOINTS AT 10' MAX. SPACING.
5. CONCRETE TO BE CONSTRUCTED ON A PROPERLY COMPACTED BASE.

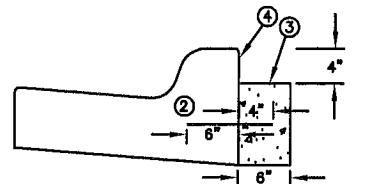
DESIGN D4 MODIFIED



DESIGN D412

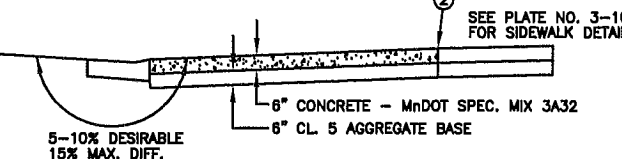
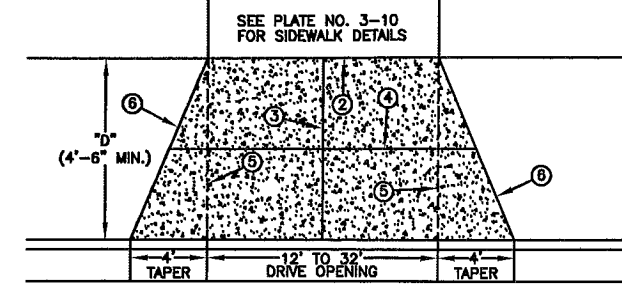


DESIGN B6



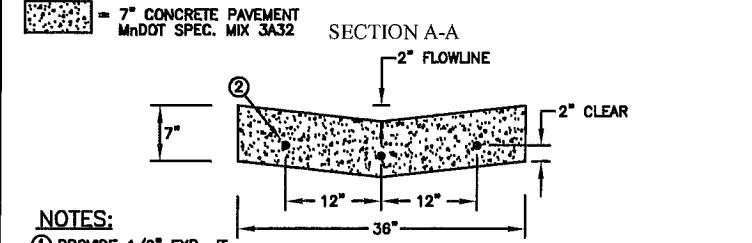
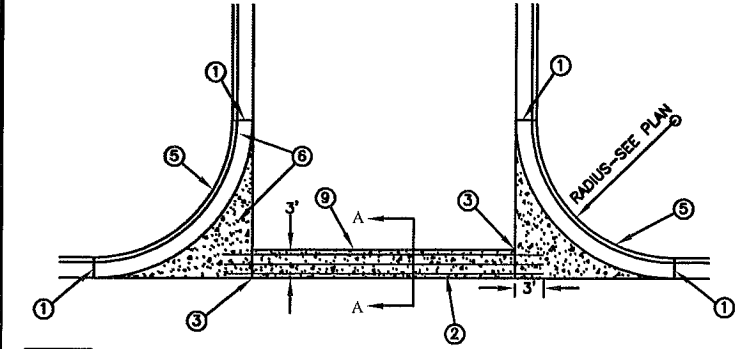
**NOTES:**

1. CONCRETE SILL TO BE USED WHERE 4" CONCRETE (SIDEWALKS, CARRIAGE WALKS, PEDESTRIAN RAMPS AND MEDIAN INFILL) ABUTS BACK OF CURB.
2. TIE SILL AT 3' CENTERS WITH 10" #4 REINFORCING BARS (GR. 60). IN PLACE CURB WILL REQUIRE DRILLING FOR REINFORCING BAR PLACEMENT. NO REINFORCING BARS REQUIRED IF SILL IS POURED MONOLITHICALLY WITH CURB. (SEE PLATE NO. 3-01 FOR MNDOT SPEC. MIXES)
3. PROVIDE BOND BREAK AT TOP OF SILL.
4. PROVIDE 1/2" EXP. JT. AT MEDIAN INFILLS. 1/2" EXP. JT. NOT REQUIRED AT PEDESTRIAN RAMP, SIDEWALK AND CARRIAGE WALK ABUTMENTS.
5. AT PEDESTRIAN RAMPS ABUTTING B6 CURB, SILL SHALL BE TRANSITIONED ACCORDINGLY TO CONFORM WITH RAMP TAPERING.
6. CONCRETE TO BE CONSTRUCTED ON A PROPERLY COMPACTED BASE.



**NOTES:**

1. TYPE A APPROACH ALLOWED IN ALL AREAS. (RESIDENTIAL, COMMERCIAL AND INDUSTRIAL)
2. PROVIDE 1/2" EXP. JT. UPON APPROVAL BY THE ENGINEER, SIDEWALK MAY BE POURED MONOLITHICALLY WITH THE APPROACH AND 1/2" EXP. JT. WOULD NOT BE REQUIRED. IF NO SIDEWALK IS PRESENT, PROVIDE 1/2" EXP. JT. AT CONNECTION TO IN PLACE CONCRETE DRIVEWAY.
3. CONTRACTION JOINTS SPACED SO THAT THE MAX. SPACING BETWEEN THE JOINTS DOES NOT EXCEED 1.5 "D" OR 12' WHICHEVER IS LESS, AS MEASURED ALONG THE BACK OF CURB.
4. TRANSVERSE CONTRACTION JOINT REQUIRED WHEN "D"=8' OR GREATER, PLACED AT THE CENTER OF THE APPROACH.
5. STRIKE OFF LINE FOR DRIVE APPROACHES CONNECTING TO "B6" CURB, SEE NOTE 3 FOR JOINTING IN THIS DIRECTION.
6. TAPER WING TO SIDEWALK WHEN "D" IS 10' OR LESS, OTHERWISE TAPER TO 1/2 "D".
7. CONCRETE TO BE CONSTRUCTED ON PROPERLY COMPACTED BASE.



**NOTES:**

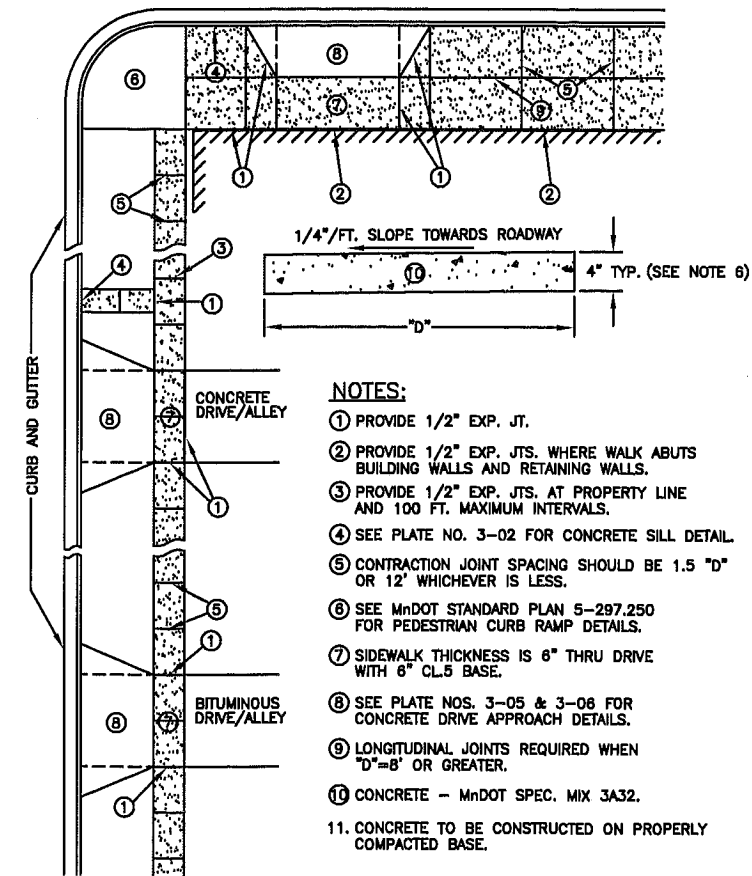
1. PROVIDE 1/2" EXP. JT.
2. CONSTRUCT 3-#5 EPOXY COATED REINFORCING BARS (GR. 60). OVERLAP 24" AT SPLICES.
3. PROVIDE CONTRACTION JOINTS ACROSS VALLEY GUTTER AT 10' MAX. SPACING.
4. ADDITIONAL CONTRACTION JOINTING IN THE WING SECTIONS OF VALLEY GUTTER SHALL BE FIELD DETERMINED BY THE ENGINEER.
5. CURB AND GUTTER RADII SHALL BE CONSTRUCTED INTEGRALLY WITH VALLEY GUTTER.
6. FLOWLINE TRANSITIONS FROM CURB AND GUTTER THROUGH VALLEY GUTTER SHALL BE FIELD DETERMINED BY THE ENGINEER.
7. CURB CUTS SHALL BE PLACED IN RADII AS DIRECTED BY THE ENGINEER TO FACILITATE PEDESTRIAN RAMP CONSTRUCTION. (SEE PLATE NO. 3-08 AND PLATE NO. 3-02)
8. CONCRETE TO BE CONSTRUCTED ON A PROPERLY COMPACTED BASE.
9. CONCRETE MAY BE EXPANDED BEHIND 36" GUTTER. SEE PLAN FOR SPECIFIC DIMENSIONING.

DATE REVISED 02/12/14	CONCRETE CURB & GUTTER	PLATE NO. 3-01
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DATE REVISED 09/05/13	CONCRETE SILL	PLATE NO. 3-02
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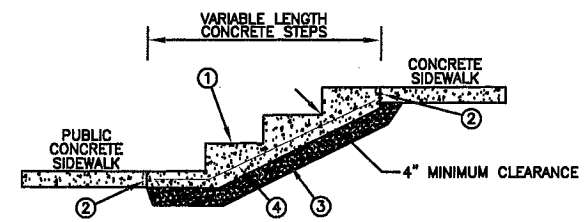
DATE REVISED 12/01/08	CONCRETE DRIVE APPROACH TYPE A	PLATE NO. 3-05
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DATE REVISED 07/05/11	CONCRETE VALLEY GUTTER	PLATE NO. 3-07
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**NOTES:**

1. PROVIDE 1/2" EXP. JT.
2. PROVIDE 1/2" EXP. JTS. WHERE WALK ABUTS BUILDING WALLS AND RETAINING WALLS.
3. PROVIDE 1/2" EXP. JTS. AT PROPERTY LINE AND 100 FT. MAXIMUM INTERVALS.
4. SEE PLATE NO. 3-02 FOR CONCRETE SILL DETAIL.
5. CONTRACTION JOINT SPACING SHOULD BE 1.5 "D" OR 12' WHICHEVER IS LESS.
6. SEE MNDOT STANDARD PLAN 5-297.250 FOR PEDESTRIAN CURB RAMP DETAILS.
7. SIDEWALK THICKNESS IS 6" THRU DRIVE WITH 6" CL.5 BASE.
8. SEE PLATE NOS. 3-05 & 3-06 FOR CONCRETE DRIVE APPROACH DETAILS.
9. LONGITUDINAL JOINTS REQUIRED WHEN "D"=8' OR GREATER.
10. CONCRETE - MNDOT SPEC. MIX 3A32.
11. CONCRETE TO BE CONSTRUCTED ON PROPERLY COMPACTED BASE.

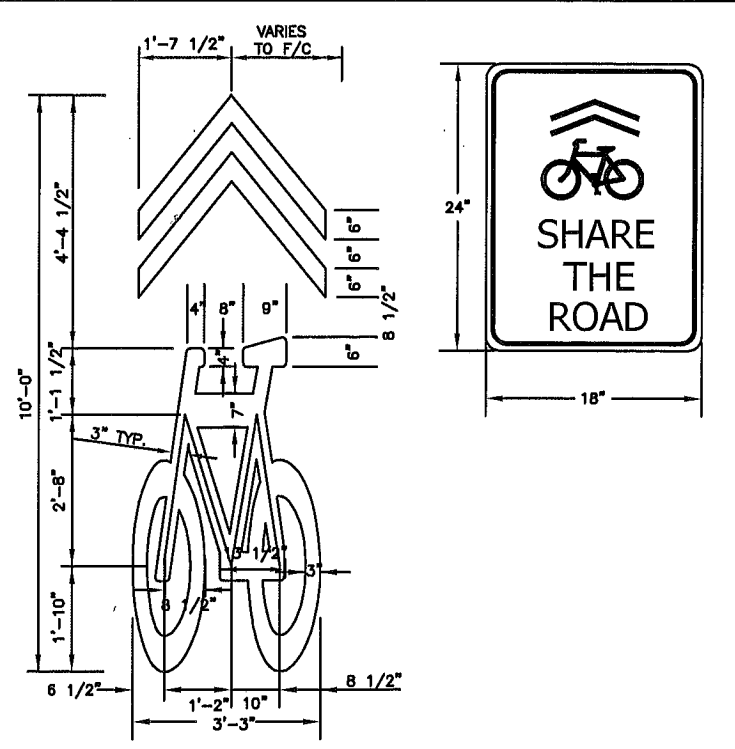


**NOTES:**

1. RISE AND RUN TO BE FIELD DETERMINED BY THE ENGINEER AND ALSO PROVIDE FOR ADEQUATE DRAINAGE ON STAIR TREADS.
2. PROVIDE 1/2" EXP. JT.
3. CONSTRUCT 6" MINIMUM GRANULAR BORROW BASE.
4. CONSTRUCT #4 REINFORCING BARS (GR. 60) - 12" O.C. IN BOTH DIRECTIONS. MAINTAIN 2" CLEAR SPACE FROM FORMS AND BASE.
5. CONCRETE - MNDOT SPEC. MIX 3A32.
6. CONCRETE TO BE CONSTRUCTED ON PROPERLY COMPACTED BASE.

DATE REVISED 02/12/14	SIDEWALK DETAILS	PLATE NO. 3-10
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DATE REVISED 03/01/08	CONCRETE STEPS	PLATE NO. 3-11
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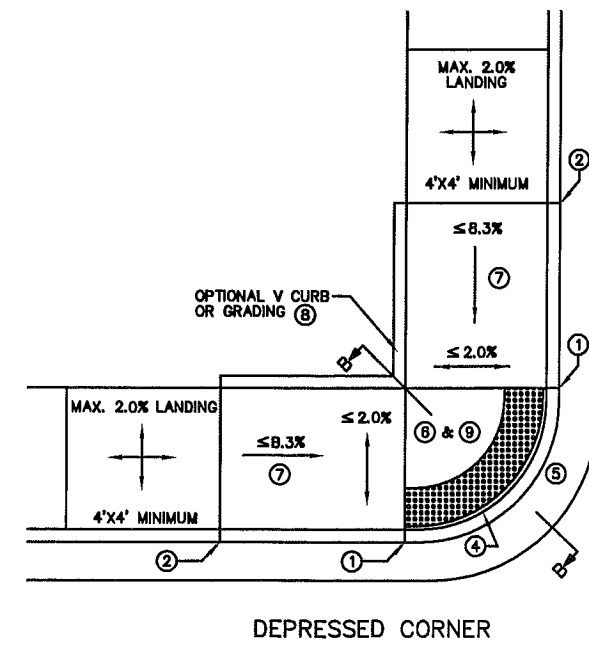
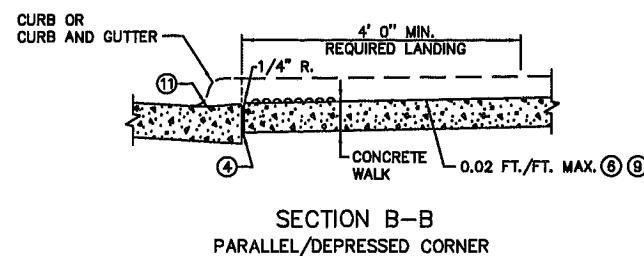
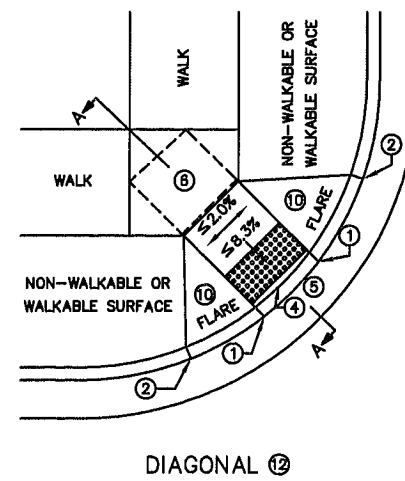
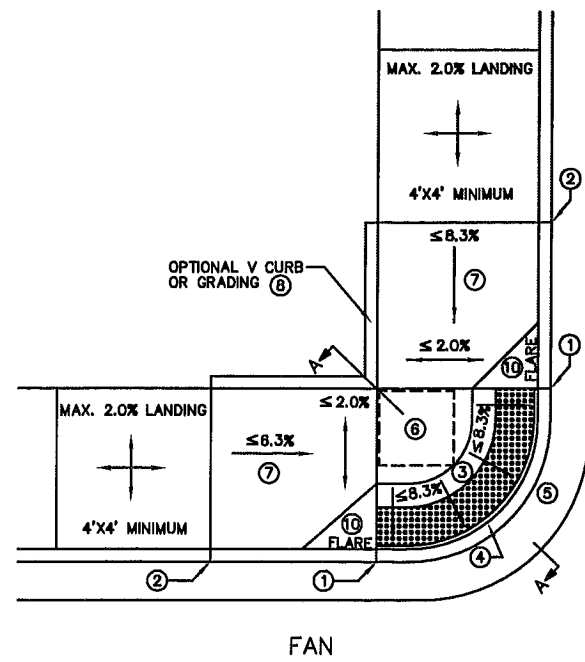
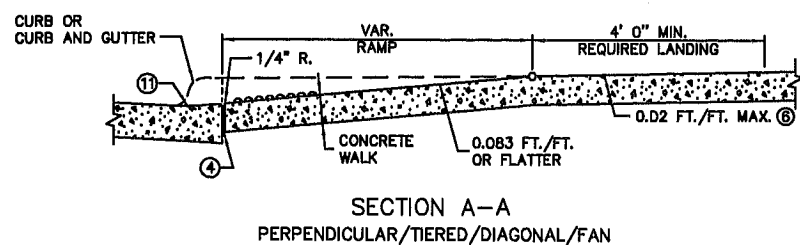
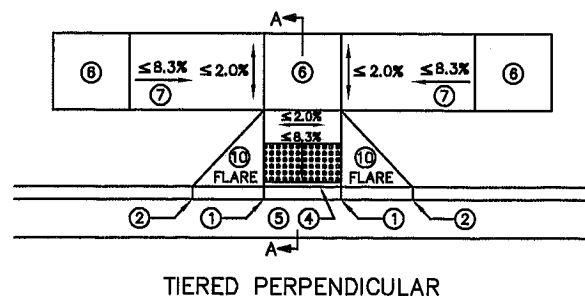
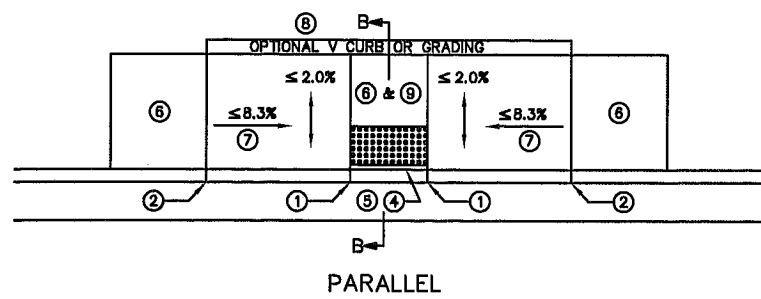
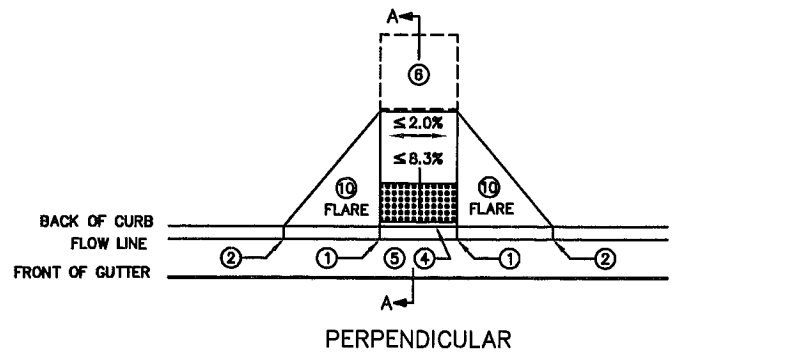
**NOTES:**

1. PAVEMENT MARKING SHALL BE EPOXY-WHITE.
2. PAVEMENT MARKING SHALL BE OFFSET TOWARD RIGHT EDGE OF DRIVE LANE.
3. SIGN PANEL SHALL BE BLACK LETTERING ON YELLOW BACKING.
4. SIGN PANEL LETTERING SIZE SHALL BE PER MNDOT SIGN MANUAL.

DATE REVISED 02/13/14	SHARROW PAVEMENT MARKING & SHARE THE ROAD SIGN PANEL	PLATE NO. 5-03
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CERTIFIED BY  
CITY ENGINEER - JAY A. OWENS  
LICENSE NUMBER - 42020

TITLE: WEST AVENUE RECONSTRUCTION	STANDARD DETAILS
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NOTES:

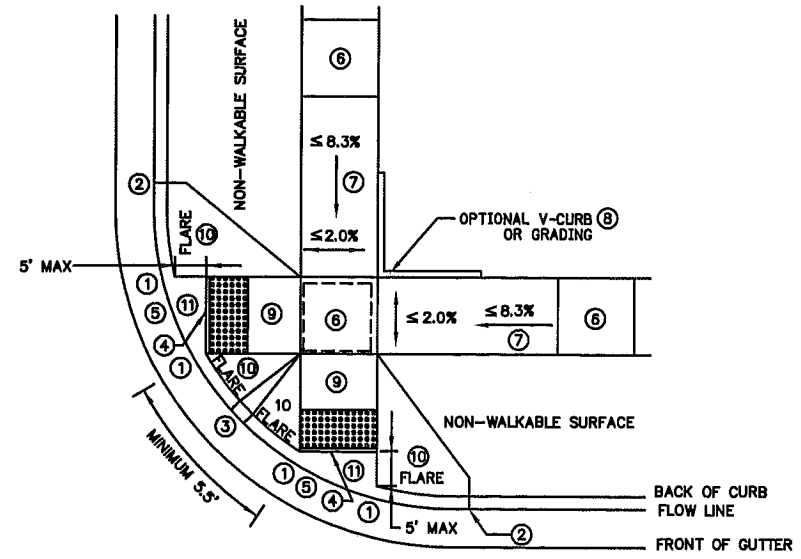
- SEE STANDARD PLATE 7038 AND SHEET 4 OF 5 FOR DETAILS ON DETECTABLE WARNING.
- SLOPES ARE DEFINED AS ABSOLUTE ELEVATION DIFFERENCE PER LENGTH OF RUN. (AS OPPOSED TO A RELATIVE SLOPE WITH RESPECT TO A CURB LINE OR CURB HEIGHT.)
- LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE CHANGES DIRECTION, AND AT THE TOP OF RAMPS THAT HAVE RUNNING SLOPES GREATER THAN 5%.
- INITIAL CURB RAMP LANDINGS SHALL BE CONSTRUCTED WITHIN 15' FROM THE BACK OF CURB, WITH 6' FROM THE BACK OF CURB BEING THE PREFERRED DISTANCE.
- SECONDARY CURB RAMP LANDINGS ARE REQUIRED FOR EVERY 30° OF VERTICAL RISE WHEN THE LONGITUDINAL SLOPE IS 5% OR GREATER.
- CONTRACTION JOINTS SHALL BE CONSTRUCTED AT ALL GRADE BREAKS.
- TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.
- USE 4" CONCRETE FOR ALL INITIAL RAMP AND LANDING AREAS.
- CONTRACTOR SHALL EMPLOY APPROPRIATE METHODS FOR INTERMEDIATE GRADE CONTROL TO ENSURE ALL GRADE BREAKS ARE CONSTRUCTED PROPERLY.
- ALL GRADE BREAKS SHALL BE PERPENDICULAR TO THE DIRECTION OF TRAVEL/PEDESTRIAN ACCESS ROUTE.
- 4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. SHARED USE PATHS SHALL HAVE DETECTABLE WARNING ACROSS THE ENTIRE WIDTH OF PATH WHEN THE PATH CROSSES A ROAD.
- ① 0" CURB HEIGHT.
- ② FULL CURB HEIGHT.
- ③ LESS THAN 5% PREFERRED. 5-8.3% SHOULD ONLY BE USED AFTER ALL OTHER SLOPES HAVE BEEN CONSIDERED AND DEEMED IMPRACTICAL.
- ④ 1/2" PREFORMED JOINT FILLER MATERIAL AASHTO M 213. JOINT FILLER SHALL BE PLACED FLUSH WITH THE BACK OF CURB AND ADJACENT SIDEWALK. JOINT SHALL BE FREE OF DEBRIS. RECTANGULAR DETECTABLE WARNINGS SHALL BE SET BACK 3" FROM THE BACK OF CURB. RADIAL DETECTABLE WARNINGS SHALL BE SET BACK 3"-6" FROM THE BACK OF CURB.
- ⑤ SEE PEDESTRIAN ACCESS ROUTE CURB AND GUTTER DETAIL FOR INFORMATION ON CONSTRUCTING CURB AND GUTTER AT CURB OPENINGS. SEE SHEET NO. 3 OF 5.
- ⑥ 4' BY 4' MIN. LANDING WITH MAX. 2% SLOPE IN ALL DIRECTIONS.
- ⑦ IF RUNNING SLOPE IS LESS THAN 5.0% NO SECONDARY LANDING IS REQUIRED.
- ⑧ V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS. SEE SHEET 5 OF 5.
- ⑨ DETECTABLE WARNINGS MAY BE PART OF 4' X 4' LANDING AREA IF IT IS NOT FEASIBLE TO CONSTRUCT THE LANDING OUTSIDE THE DETECTABLE WARNING AREA.
- ⑩ SEE SHEET 4 OF 5, TYPICAL SIDE TREATMENT OPTIONS, FOR DETAILS ON FLARES AND RETURNED CURBS.
- ⑪ SEE SHEET 3 OF 5 FOR FURTHER DETAIL.
- ⑫ DIAGONAL RAMPS SHOULD ONLY BE USED AFTER ALL OTHER CURB RAMP TYPES HAVE BEEN CONSIDERED AND DEEMED IMPRACTICAL.

CERTIFIED BY   
CITY ENGINEER - JAY A. OWENS  
LICENSE NUMBER - 42020

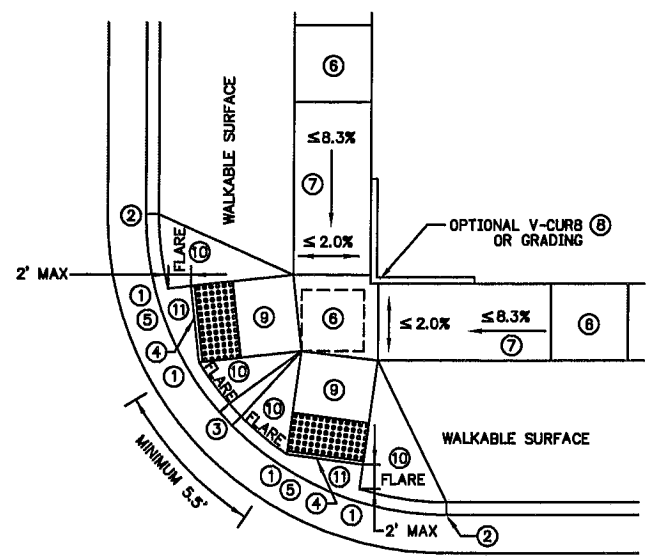
TITLE:  
WEST AVENUE RECONSTRUCTION

PEDESTRIAN CURB RAMP DETAILS  
STANDARD PLAN SHEET NO.  
6-297.260 (1 OF 5)



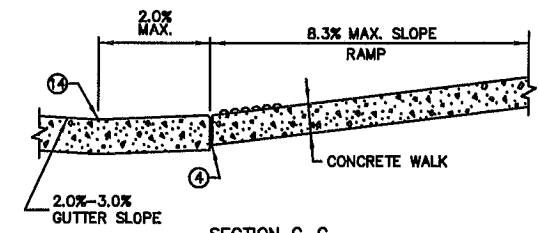
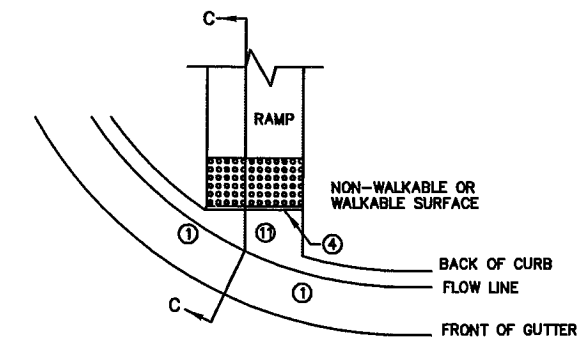


ADJACENT TO NON-WALKABLE SURFACE

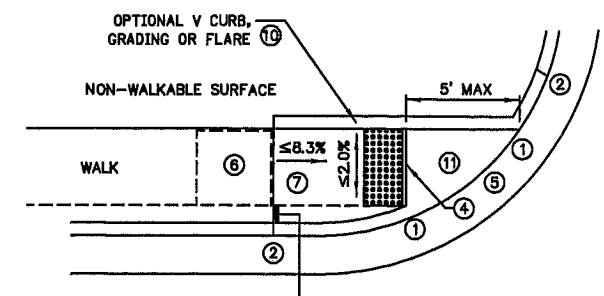


ADJACENT TO WALKABLE SURFACE

COMBINED DIRECTIONAL

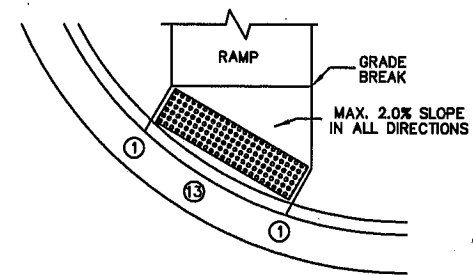


SECTION C-C  
CURB FOR DIRECTIONAL RAMPS 12



IF NON-CONCRETE BLVD. IS CONSTRUCTED AND IS LESS THAN 2' IN WIDTH AT TOP OF CURB TRANSITION, PAVE CONCRETE RAMP WIDTH TO ADJACENT BACK OF CURB.

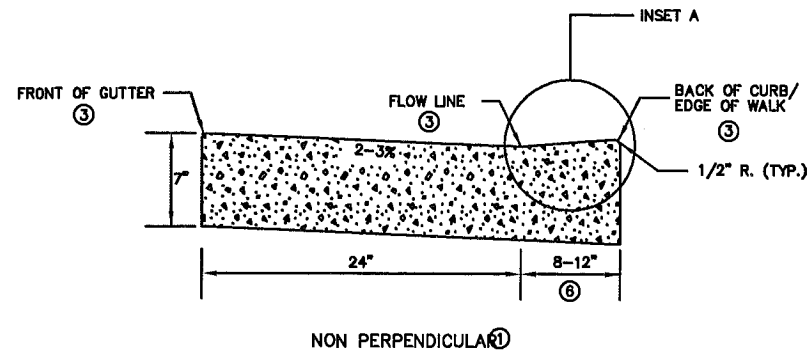
ONE-WAY DIRECTIONAL



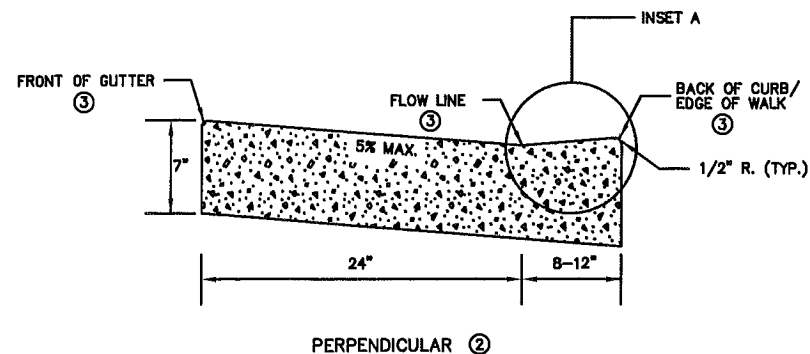
NOTES:

- SEE STANDARD PLATE 7038 AND SHEET 4 OF 5 FOR DETAILS ON DETECTABLE WARNING.
- SLOPES ARE DEFINED AS ABSOLUTE ELEVATION DIFFERENCE PER LENGTH OF RUN. (AS OPPOSED TO A RELATIVE SLOPE WITH RESPECT TO A CURB LINE OR CURB HEIGHT.)
- LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE CHANGES DIRECTION, AND AT THE TOP OF RAMPS THAT HAVE RUNNING SLOPES GREATER THAN 5%.
- INITIAL CURB RAMP LANDINGS SHALL BE CONSTRUCTED WITHIN 15' FROM THE BACK OF CURB, WITH 6' FROM THE BACK OF CURB BEING THE PREFERRED DISTANCE.
- SECONDARY CURB RAMP LANDINGS ARE REQUIRED FOR EVERY 30° OF VERTICAL RISE WHEN THE LONGITUDINAL SLOPE IS 5% OR GREATER.
- CONTRACTION JOINTS SHALL BE CONSTRUCTED AT ALL GRADE BREAKS.
- TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.
- USE 4" CONCRETE WALK FOR ALL INITIAL RAMP AND LANDING AREAS.
- CONTRACTOR SHALL EMPLOY APPROPRIATE METHODS FOR INTERMEDIATE GRADE CONTROL TO ENSURE ALL GRADE BREAKS ARE CONSTRUCTED PROPERLY.
- ALL GRADE BREAKS SHALL BE PERPENDICULAR TO THE DIRECTION OF TRAVEL/PEDESTRIAN ACCESS ROUTE.
- 4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. SHARED USE PATHS SHALL HAVE DETECTABLE WARNING ACROSS THE ENTIRE WIDTH OF PATH WHEN THE PATH CROSSES A ROAD.
- 1 0" CURB HEIGHT.
- 2 FULL CURB HEIGHT.
- 3 3" MINIMUM CURB HEIGHT.
- 4 1/2" PREFORMED JOINT FILLER MATERIAL AASHTO M 213. JOINT FILLER SHALL BE PLACED FLUSH WITH THE BACK OF CURB AND ADJACENT SIDEWALK. JOINT SHALL BE FREE OF DEBRIS. RECTANGULAR DETECTABLE WARNINGS SHALL BE SET BACK 3" FROM THE BACK OF CURB. RADIAL DETECTABLE WARNINGS SHALL BE SET BACK 3'-8" FROM THE BACK OF CURB.
- 5 SEE PEDESTRIAN ACCESS ROUTE CURB AND GUTTER DETAIL FOR INFORMATION ON CONSTRUCTING CURB AND GUTTER AT CURB OPENINGS. SEE SHEET NO. 3 OF 5.
- 6 4' BY 4' MIN. LANDING WITH MAX. 2% SLOPE IN ALL DIRECTIONS.
- 7 IF RAMP SLOPE IS LESS THAN 5% NO SECONDARY LANDING IS REQUIRED.
- 8 V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS.
- 9 RUNNING SLOPE LESS THAN OR EQUAL TO 8.3% & CROSS SLOPE LESS THAN OR EQUAL TO 2%.
- 10 SEE SHEET 4 OF 5, TYPICAL SIDE TREATMENT OPTIONS, FOR DETAILS ON FLARES AND RETURNED CURBS.
- 11 MAX. 2% SLOPE IN ALL DIRECTIONS IN FRONT OF GRADE BREAK AND DRAIN TO FLOW LINE. SHALL BE CONSTRUCTED INTEGRAL WITH CURB AND GUTTER.
- 12 TO BE USED FOR ALL DIRECTIONAL RAMPS.
- 13 DOMES PLACED AT THE BACK OF CURB WHEN ALLOWABLE SETBACK CRITERIA IS EXCEEDED.
- 14 ANY VERTICAL LIP THAT OCCURS AT THE FLOW LINE MAY NOT BE GREATER THAN 1/4 INCH.

CERTIFIED BY CITY ENGINEER - JAY A. OWENS LICENSE NUMBER - 42020	TITLE: WEST AVENUE RECONSTRUCTION	PEDESTRIAN CURB RAMP DETAILS STANDARD PLAN SHEET NO. 5-297.250 (2 OF 5)
S.P. 156-127-003		Sheet No. 9 of 51 Sheets

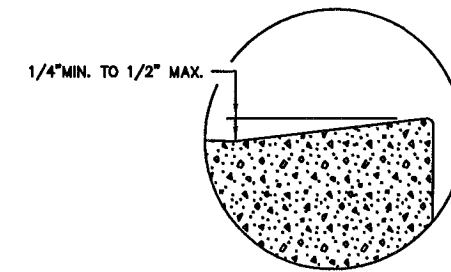


NON PERPENDICULAR ①

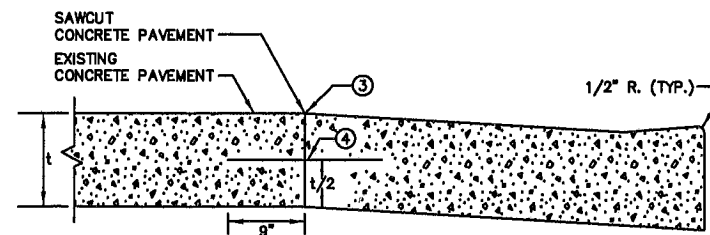
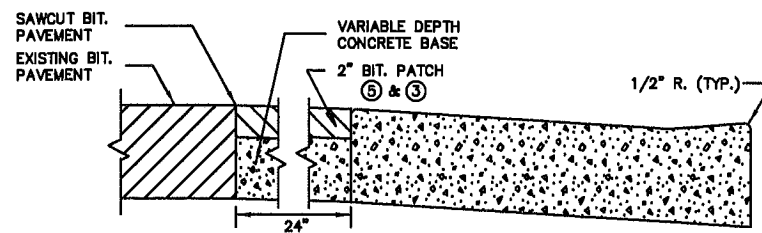
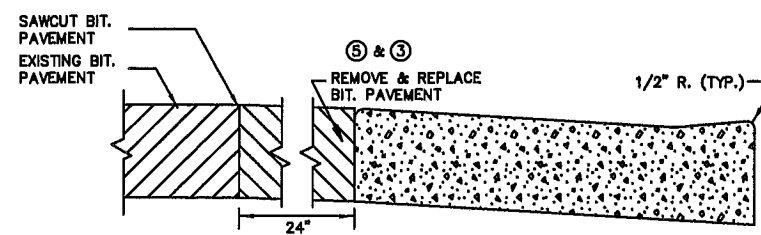
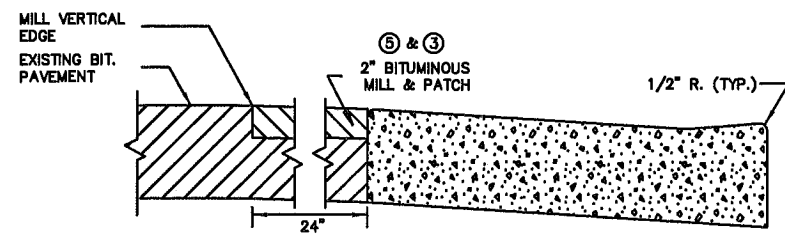


PERPENDICULAR ②

PEDESTRIAN ACCESS ROUTE CURB & GUTTER DETAIL




INSET A



PAVEMENT TREATMENT OPTIONS IN FRONT OF CURB & GUTTER FOR USE ON CURB RAMP RETROFITS

- NOTES:
- ADEQUATE DRAINAGE SHALL BE MAINTAINED THROUGHOUT THE PEDESTRIAN ACCESS ROUTE (PAR) AT A 2% ABSOLUTE MAXIMUM.
  - NO PONDING SHALL BE PRESENT IN THE PAR.
  - ANY VERTICAL LIP THAT OCCURS AT THE FLOW LINE MAY NOT BE GREATER THAN 1/4 INCH.
  - ① FOR USE AT CURB CUTS WHERE THE PEDESTRIAN'S PATH OF TRAVEL IS ASSUMED NON PERPENDICULAR TO THE GUTTER FLOW LINE. RAMP TYPES INCLUDE: FANS, DEPRESSED CORNERS, & ONE WAY AND COMBINED DIRECTIONALS.
  - ② FOR USE AT CURB CUTS WHERE THE PEDESTRIAN'S PATH OF TRAVEL IS ASSUMED PERPENDICULAR TO THE GUTTER FLOW LINE. RAMP TYPES INCLUDE: PERPENDICULAR, TIERED PERPENDICULAR, PARALLEL, AND DIAGONAL RAMP.
  - ③ THERE SHALL BE NO VERTICAL DISCONTINUITIES GREATER THAN 1/4".
  - ④ DRILL AND GROUT NO. 13 EPOXY-COATED 18" LONG BARS AT 2' CENTER TO CENTER INTO EXISTING CONCRETE PAVEMENT.
  - ⑤ ELEVATION CHANGE TAKES PLACE FROM THE EXISTING TO NEW FRONT OF GUTTER. PATCH IS USED TO MATCH THE NEW GUTTER FACE INTO THE EXISTING ROADWAY.
  - ⑥ VARIABLE WIDTH FOR DIRECTIONAL CURB APPLICATIONS.

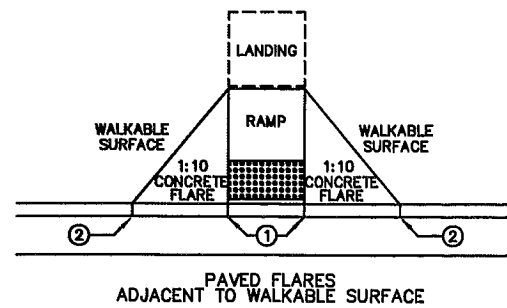
CERTIFIED BY   
CITY ENGINEER - JAY A. OWENS  
LICENSE NUMBER - 42020

TITLE:  
WEST AVENUE RECONSTRUCTION

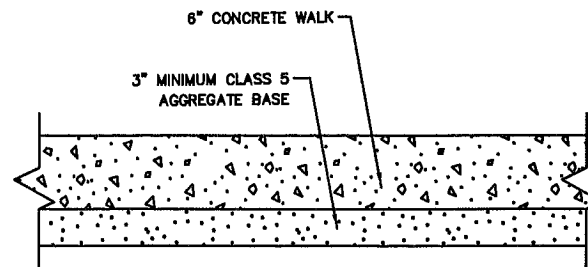
PEDESTRIAN CURB RAMP DETAILS  
STANDARD PLAN SHEET NO.  
5-287.250 (3 OF 5)

S.P. 156-127-003

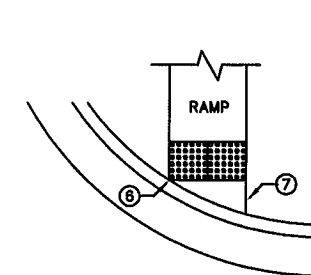
Sheet No. 10 of 51 Sheets



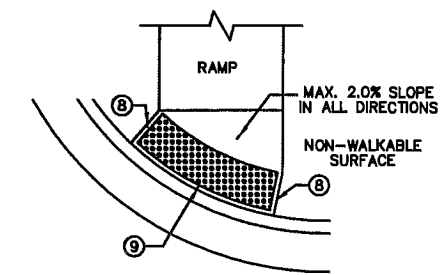
PAVED FLARES ADJACENT TO WALKABLE SURFACE



TYPICAL CONCRETE WALK SECTION FOR PEDESTRIAN RAMP RETROFIT LOCATIONS AND PEDESTRIAN RAMP LANDINGS

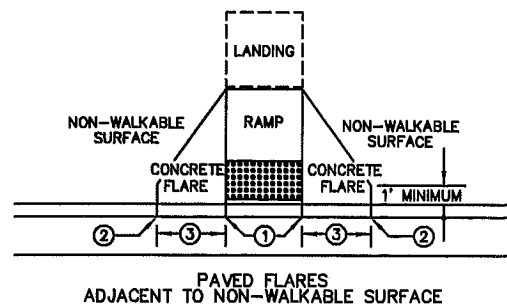


DETECTABLE WARNING SETBACK CRITERIA

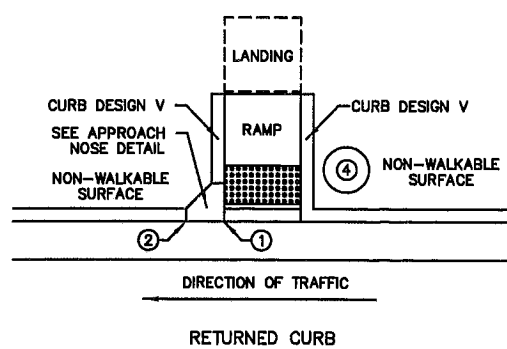


RADIAL DETECTABLE WARNING AT RADIUS

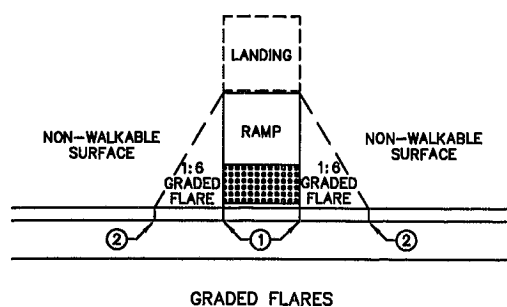
DETECTABLE WARNING PLACEMENT



PAVED FLARES ADJACENT TO NON-WALKABLE SURFACE

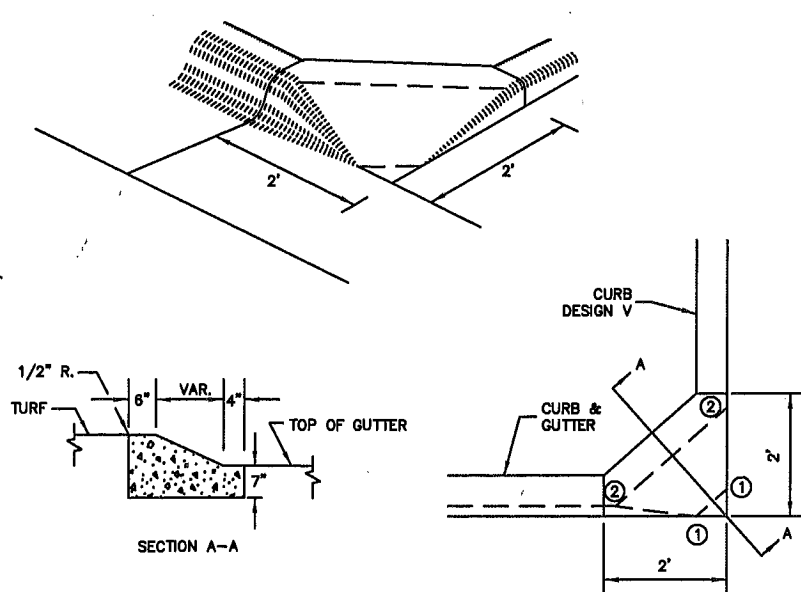


RETURNED CURB



GRADED FLARES

TYPICAL SIDE TREATMENT OPTIONS ⑥

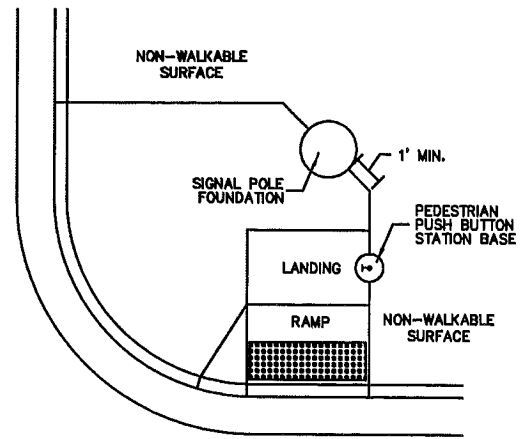


APPROACH NOSE DETAIL FOR DOWNSTREAM SIDE OF TRAFFIC

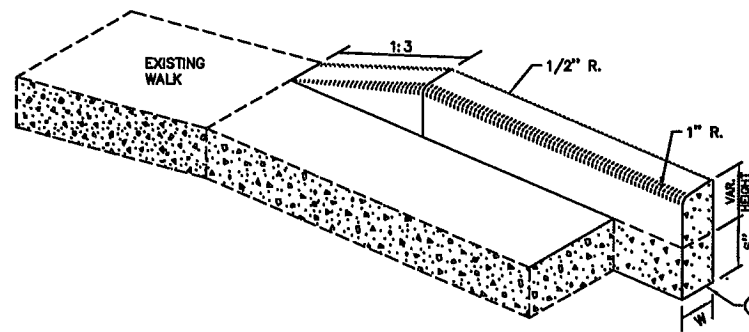
- NOTES:
- SEE STANDARD PLATE 7038 AND THIS SHEET FOR DETAILS ON DETECTABLE WARNING.
  - USE 6" CONCRETE WALK UP TO EXISTING SIDEWALK GRADES FOR ALL RAMP AND LANDING AREAS.
  - WHETHER A SURFACE IS WALKABLE OR NOT SHALL BE DETERMINED BY THE ENGINEER.
  - FLARE LENGTHS SHOULD BE LESS THAN 8' LONG MEASURED ALONG THE RAMPS FROM THE BACK OF CURB.
  - 4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. SHARED USE PATHS SHALL HAVE DETECTABLE WARNING ACROSS THE ENTIRE WIDTH OF PATH WHEN THE PATH CROSSES A ROAD.
  - ① 0" CURB HEIGHT.
  - ② FULL CURB HEIGHT.
  - ③ 2' - 3' CONCRETE FLARE.
  - ④ IMMOVABLE OBJECT OR OBSTRUCTION.
  - ⑤ SIDE TREATMENTS ARE APPLICABLE TO ALL RAMP TYPES AND SHOULD BE IMPLEMENTED AS NEEDED ON ALL RAMPS AS FIELD CONDITIONS DICTATE. THE ENGINEER SHALL DETERMINE THE RAMP SIDE TREATMENTS BASED ON MAINTENANCE OF BOTH ROADWAY AND SIDEWALK, ADJACENT PROPERTY CONSIDERATIONS, AND MITIGATING CONSTRUCTION IMPACTS.
  - ⑥ DETECTABLE WARNING SHALL HAVE ONE CORNER 3" FROM THE BACK OF CURB.
  - ⑦ SHALL BE 2' MAXIMUM OFFSET WHEN ADJACENT TO WALKABLE SURFACE AND 5' MAXIMUM OFFSET WHEN ADJACENT TO NON-WALKABLE SURFACE.
  - ⑧ WHEN NO FLARES ARE PROPOSED, THE CONCRETE WALK SHALL BE FORMED AND CONSTRUCTED PERPENDICULAR TO THE BACK OF CURB. MAINTAIN 3" BETWEEN EDGE OF DOMES AND EDGE OF CONCRETE.
  - ⑨ DETECTABLE WARNING TO BE PLACED AT A UNIFORM OFFSET DISTANCE FROM 3" TO 6" FROM THE BACK OF CURB. IF NO CURB AND GUTTER IS PLACED IN RURAL SECTIONS, DETECTABLE WARNING SHALL BE PLACED 1' FROM THE EDGE OF ROADWAY TO PROVIDE CONCRETE BORDER.

CERTIFIED BY CITY ENGINEER - JAY A. OWENS LICENSE NUMBER - 42020	TITLE: WEST AVENUE RECONSTRUCTION	PEDESTRIAN CURB RAMP DETAILS STANDARD PLAN SHEET NO. 6-297.260 (4 OF 5)
S.P. 156-127-003		Sheet No. 11 of 51 Sheets

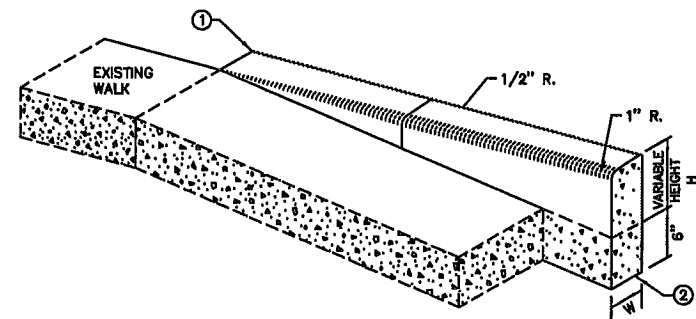




CONCRETE WALK EDGES ADJACENT TO CONCRETE STRUCTURES

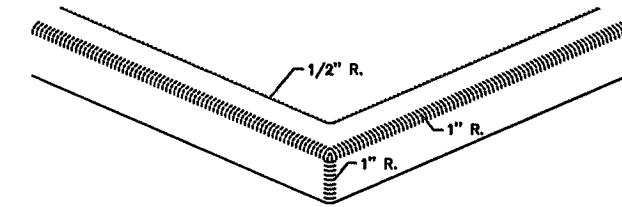


V CURB ADJACENT TO LANDSCAPE  
CURB WITHIN SIDEWALK LIMITS

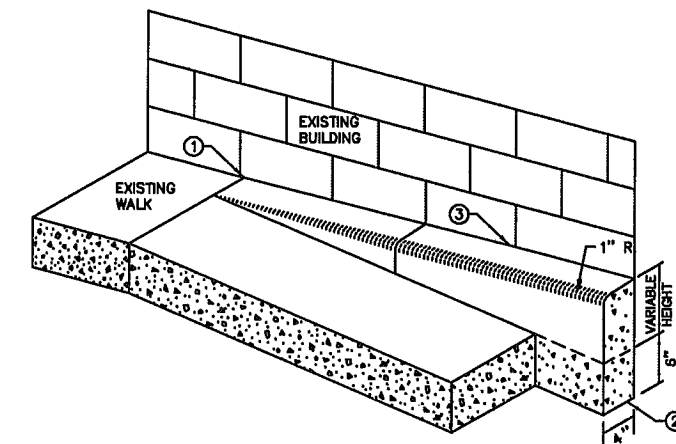


V CURB ADJACENT TO LANDSCAPE  
CURB OUTSIDE SIDEWALK LIMITS

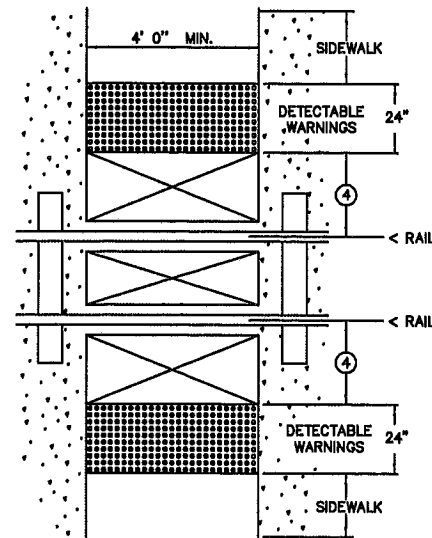
CONCRETE CURB DESIGN V	
CURB HEIGHT H	CURB WIDTH W
< 6"	4"
≥ 6"	6"



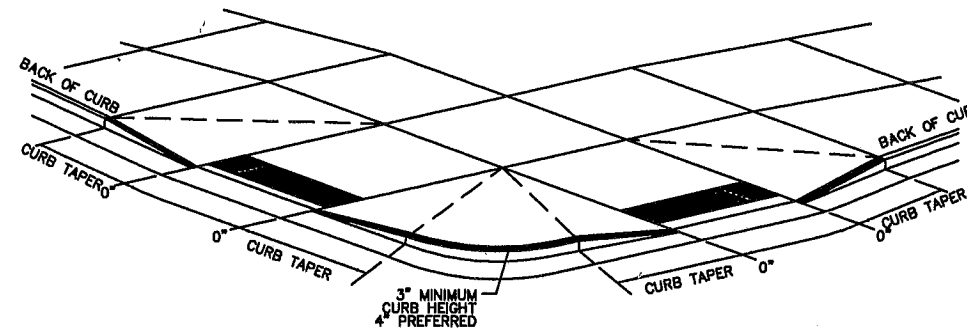
V CURB INTERSECTION



V CURB ADJACENT TO BUILDING



RAILROAD CROSSING  
PLAN VIEW

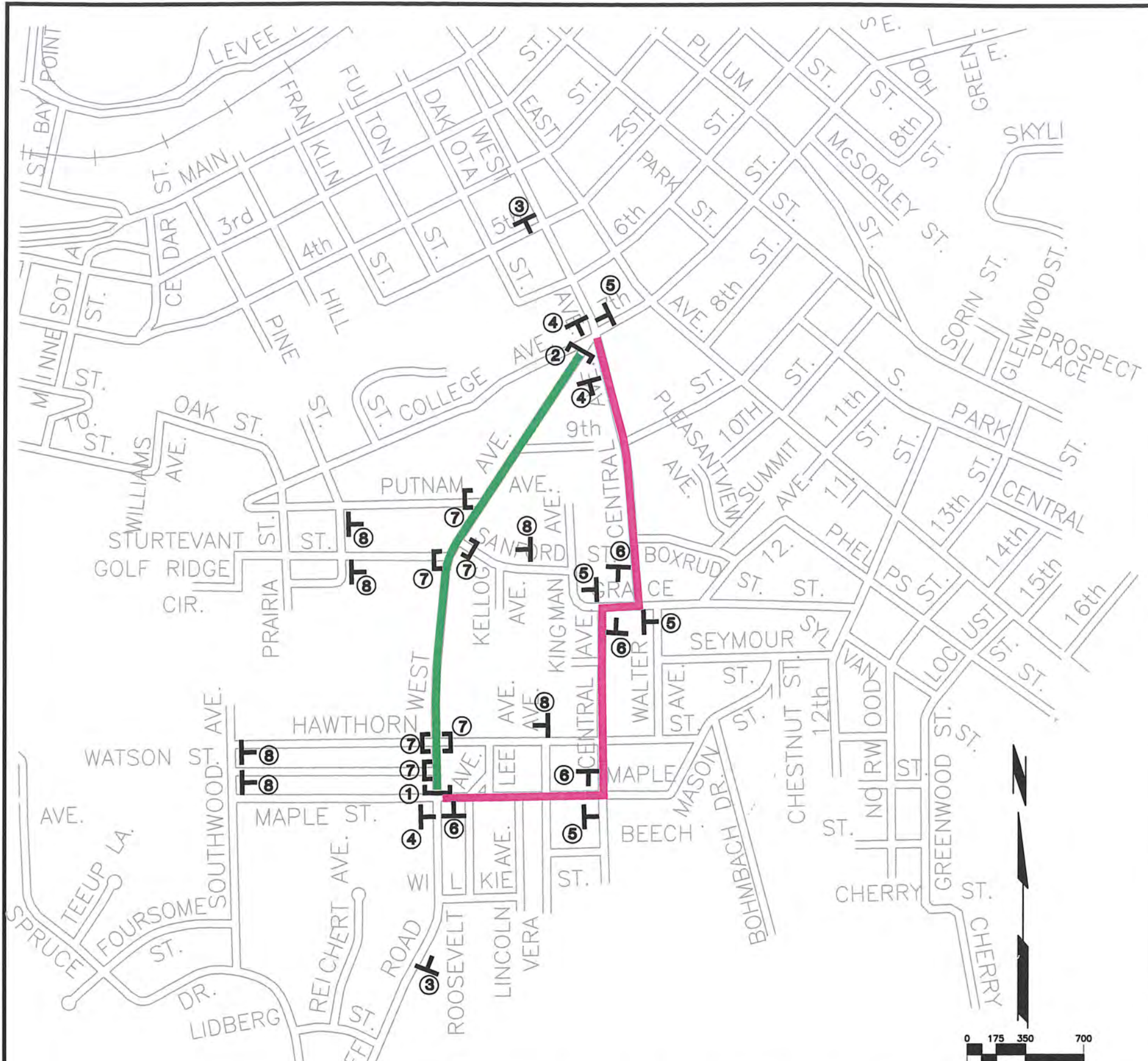


DETECTABLE EDGE AT QUADRANT ⑤

NOTES:









- ALL V-CURB CONTRACTION JOINTS SHALL MATCH CONCRETE WALK JOINTS.
- V CURB SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS.
- V CURB NEXT TO BUILDING SHALL BE A 4" WIDTH AND SHALL MATCH PREVIOUS TOP OF SIDEWALK ELEVATIONS.
- ① END TAPERS AT TRANSITION SECTION SHALL MATCH INPLACE SIDEWALK GRADES.
- ② ALL V CURB SHALL MATCH BOTTOM OF ADJACENT WALK.
- ③ EDGE BETWEEN NEW V CURB AND INPLACE STRUCTURE SHALL BE SEALED AND BOND BREAKER SHALL BE USED BETWEEN EXISTING STRUCTURE AND PLACED V-CURB.
- ④ EDGE OF DETECTABLE WARNING SURFACES SHALL BE PLACED 6' MINIMUM TO 15' MAXIMUM FROM THE CENTERLINE OF THE NEAREST RAIL. WHEN PEDESTRIAN GATES ARE PROVIDED, DETECTABLE WARNING SURFACES SHALL BE PLACED ON THE SIDE OF THE GATES OPPOSITE THE RAIL.
- ⑤ ALL CONSTRUCTED CURBS MUST HAVE A CONTINUOUS DETECTABLE EDGE FOR THE FULLY IMPACTED. THE DETECTABLE EDGE FINISHES TO BE PLACED EDGE AND TO BE FULLY IMPACTED IMMEDIATELY AT THE END OF THE DETECTABLE EDGE. THE DETECTABLE EDGE SHALL BE A 3" MINIMUM CURB HEIGHT AND A 4" MINIMUM CURB WIDTH. A CURB TRANSITION AND LESS THAN 3" HEIGHT IS NOT CONSIDERED A DETECTABLE EDGE AND THEREFORE IS NOT COMPLIANT WITH ACCESSIBILITY GUIDELINES.



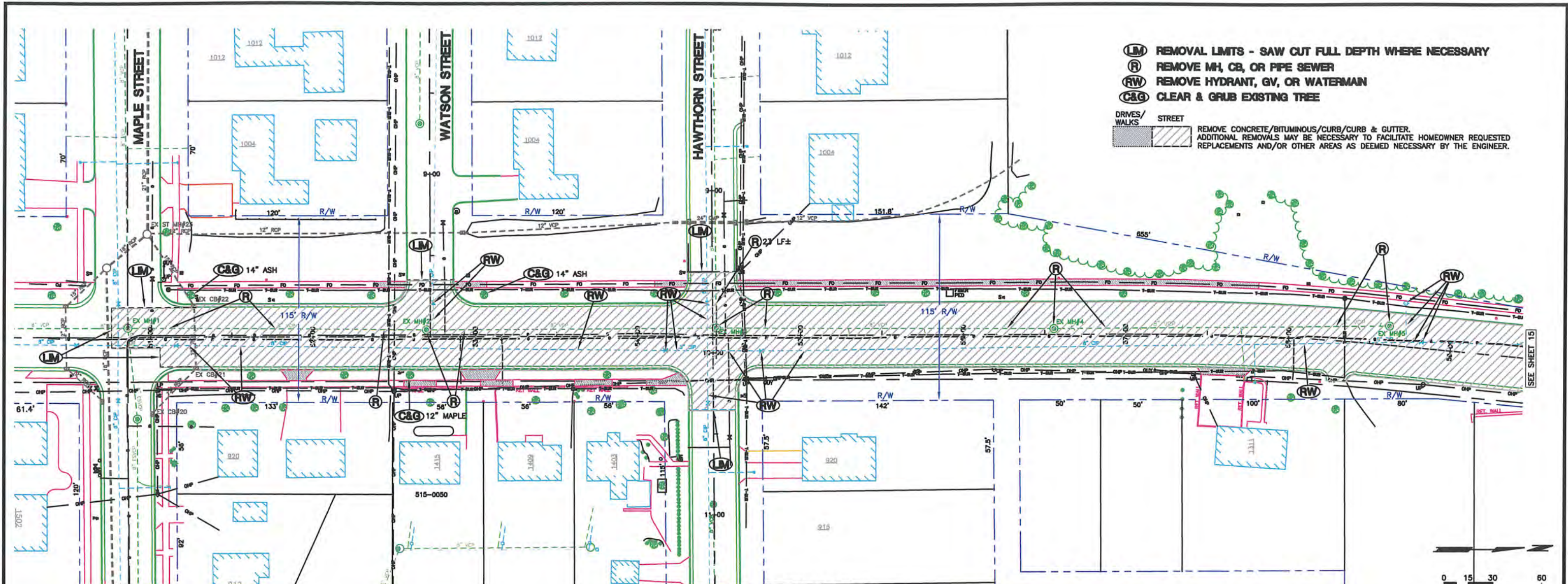


█ PROJECT AREA  
█ DETOUR ROUTE

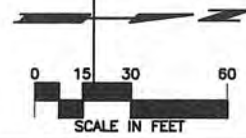
- NOTES:**
- 1.) ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MOST RECENT EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS."
  - 2.) IN ADDITION TO THE TRAFFIC CONTROL SIGNAGE SPECIFIED ON THIS DETOUR PLAN, THE CONTRACTOR SHALL HAVE ON SITE A MINIMUM OF 10 TYPE III BARRICADES, 15 TYPE II BARRICADES AND 20 REFLECTORIZED PLASTIC SAFETY DRUMS WITH THE APPROPRIATE LAMPS. THESE SHALL BE INSTALLED BY THE CONTRACTOR AS WARRANTED OR AS DIRECTED BY THE ENGINEER AS CONSTRUCTION OPERATIONS DICTATE.

SIGN #	SIGN TYPE	QUANTITY
①	 TYPE 3 BARRICADE WITH R11-4 & M4-10R	1
②	 TYPE 3 BARRICADE WITH R11-4 & M4-10L	1
③	 TYPE: W20-2 SIZE: 36X36	2
④	 SIZE: 30X24	3
⑤	 SIZE: 30X24	4
⑥	 SIZE: 30X24	4
⑦	 TYPE 3 BARRICADE WITH R11-4	6
⑧	 TYPE: W20-3 SIZE: 36X36	6

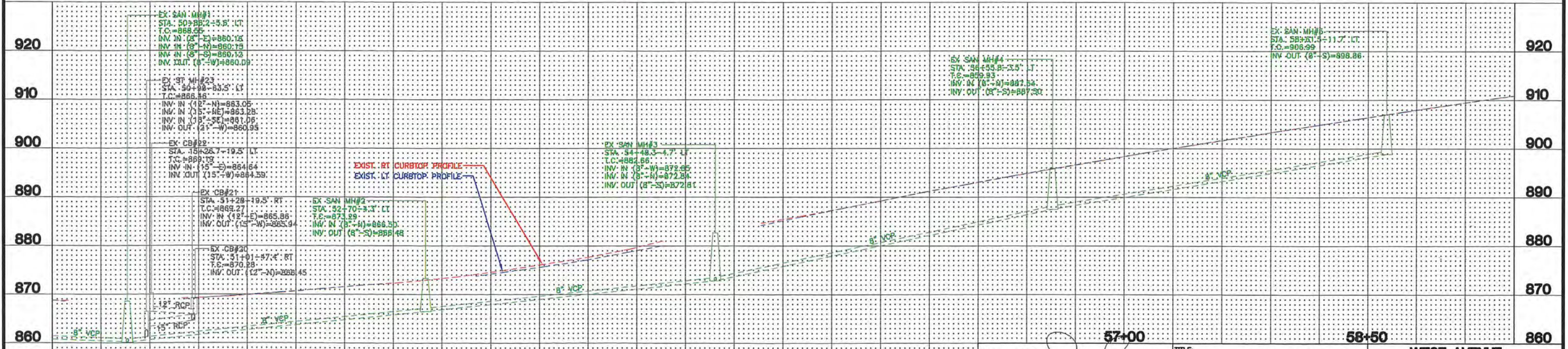




- (LM) REMOVAL LIMITS - SAW CUT FULL DEPTH WHERE NECESSARY
  - (R) REMOVE MH, CB, OR PIPE SEWER
  - (RW) REMOVE HYDRANT, GV, OR WATERMAIN
  - (C&G) CLEAR & GRUB EXISTING TREE
- DRIVES/WALKS: [Hatched Box] STREET: [Hatched Box]
- REMOVE CONCRETE/BITUMINOUS/CURB/CURB & GUTTER. ADDITIONAL REMOVALS MAY BE NECESSARY TO FACILITATE HOMEOWNER REQUESTED REPLACEMENTS AND/OR OTHER AREAS AS DEEMED NECESSARY BY THE ENGINEER.



**WEST AVENUE**

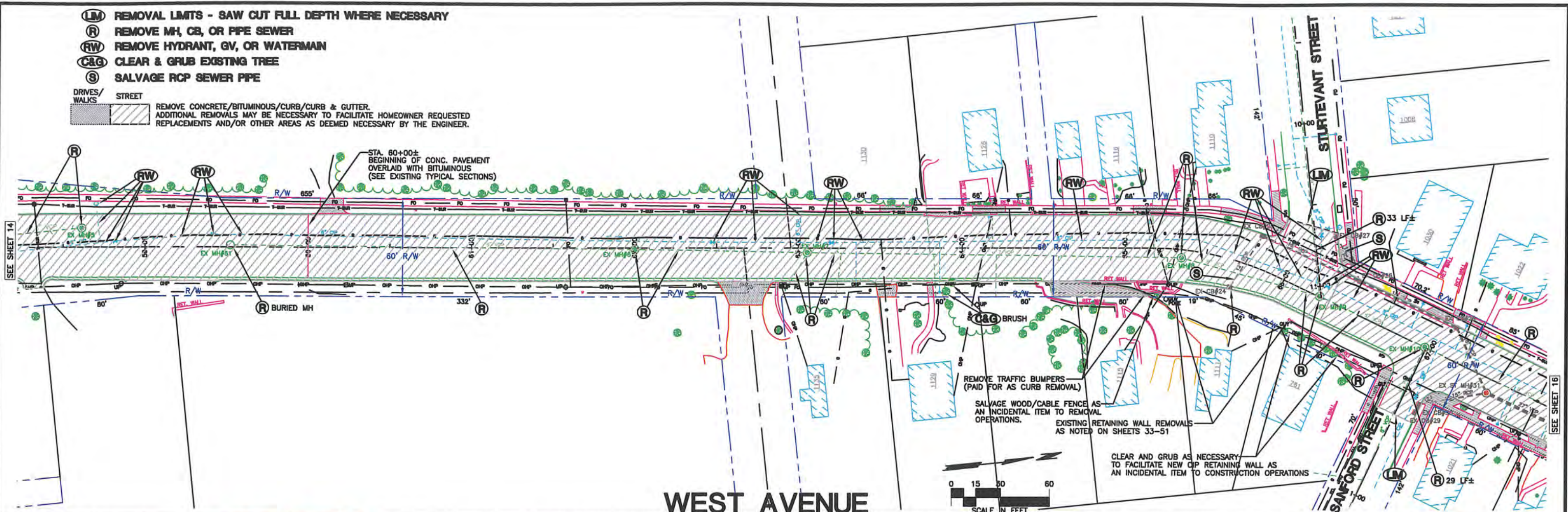


	EX SAN MH#1 STA: 50+88.2-53.1 LT T.C.=888.56 INV. IN (8'-E)=860.15 INV. IN (8'-N)=860.73 INV. IN (8'-S)=860.12 INV. OUT (8'-W)=860.09  EX ST MH#23 STA: 50+88-53.5 LT T.C.=865.45 INV. IN (12'-N)=863.05 INV. IN (15'-NE)=863.28 INV. IN (18'-SE)=861.06 INV. OUT (21'-W)=860.95  EX CB#22 STA: 50+88.7-19.5 LT T.C.=861.73 INV. IN (15'-E)=864.64 INV. OUT (15'-W)=864.59  EX CB#21 STA: 51+28-18.5 RT T.C.=869.27 INV. IN (12'-E)=865.86 INV. OUT (15'-W)=865.94  EX CB#20 STA: 51+01-47.4 RT T.C.=870.88 INV. OUT (12'-N)=868.45  EX SAN MH#2 STA: 52+70-4.3 LT T.C.=873.99 INV. IN (8'-N)=866.50 INV. OUT (8'-S)=868.48  EX SAN MH#3 STA: 54-48.3-4.7 LT T.C.=884.56 INV. IN (8'-N)=875.35 INV. IN (8'-E)=872.84 INV. OUT (8'-S)=872.81		EX SAN MH#4 STA: 56+55.8-23.3 LT T.C.=859.93 INV. IN (8'-N)=867.54 INV. OUT (8'-S)=867.50  EX SAN MH#5 STA: 58+51.4-11.7 LT T.C.=906.99 INV. OUT (8'-S)=898.86			
51+00	52+50	54+00	55+50	57+00	58+50	
				CERTIFIED BY: [Signature] CITY ENGINEER - JAY A. OWENS LICENSE NUMBER - 42020	TITLE: WEST AVENUE RECONSTRUCTION WEST AVENUE EXISTING CONDITIONS & REMOVALS MAPLE STREET TO STA. 59+00	
S.P. 156-127-003				Sheet No. 14 of 51 Sheets		

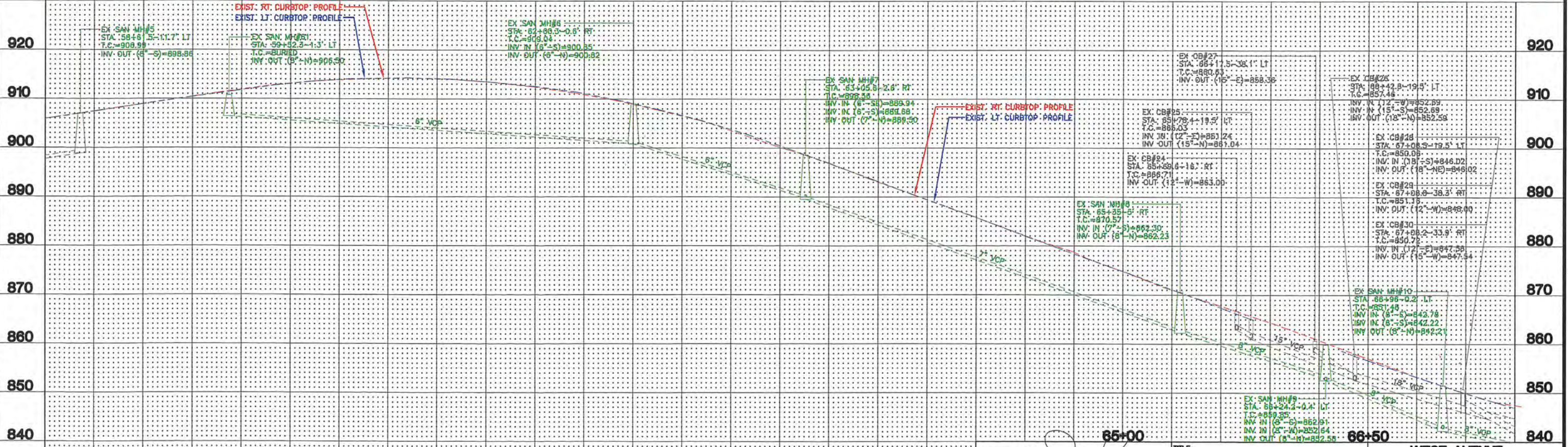
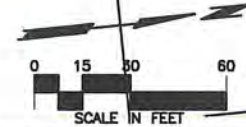


- (LM) REMOVAL LIMITS - SAW CUT FULL DEPTH WHERE NECESSARY
- (R) REMOVE MH, CB, OR PIPE SEWER
- (RW) REMOVE HYDRANT, GV, OR WATERMAIN
- (C&G) CLEAR & GRUB EXISTING TREE
- (S) SALVAGE RCP SEWER PIPE

DRIVES/WALKS STREET REMOVE CONCRETE/BITUMINOUS/CURB/CURB & GUTTER. ADDITIONAL REMOVALS MAY BE NECESSARY TO FACILITATE HOMEOWNER REQUESTED REPLACEMENTS AND/OR OTHER AREAS AS DEEMED NECESSARY BY THE ENGINEER.



# WEST AVENUE

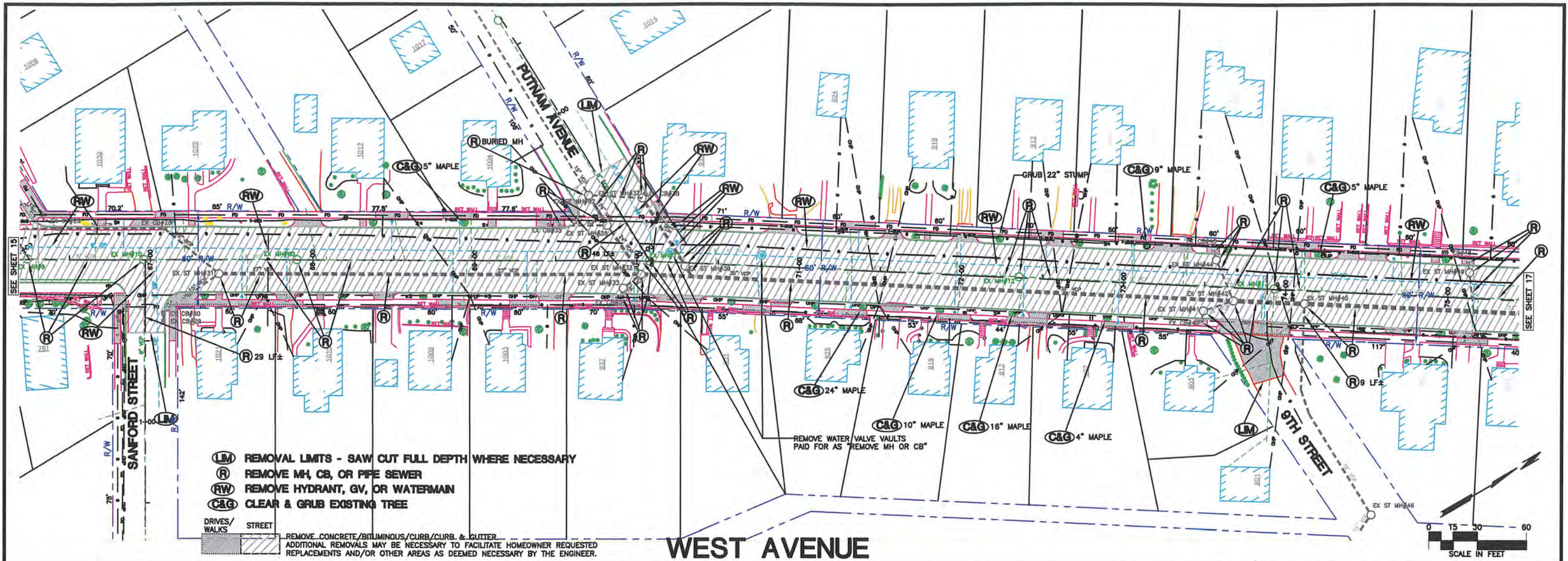


CERTIFIED BY *Jay A. Owens*  
 CITY ENGINEER - JAY A. OWENS  
 LICENSE NUMBER - 42020

TITLE: WEST AVENUE RECONSTRUCTION

WEST AVENUE  
 EXISTING CONDITIONS & REMOVALS  
 STA. 59+00 TO SANFORD STREET





- (LM)** REMOVAL LIMITS - SAW CUT FULL DEPTH WHERE NECESSARY
- (R)** REMOVE MH, CB, OR PIPE SEWER
- (RW)** REMOVE HYDRANT, GV, OR WATERMAIN
- (C&G)** CLEAR & GRUB EXISTING TREE

**DRIVES/WALKS** REMOVE CONCRETE/BITUMINOUS/CURB/CURB & GUTTER  
**STREET** ADDITIONAL REMOVALS MAY BE NECESSARY TO FACILITATE HOMEOWNER REQUESTED REPLACEMENTS AND/OR OTHER AREAS AS DEEMED NECESSARY BY THE ENGINEER.

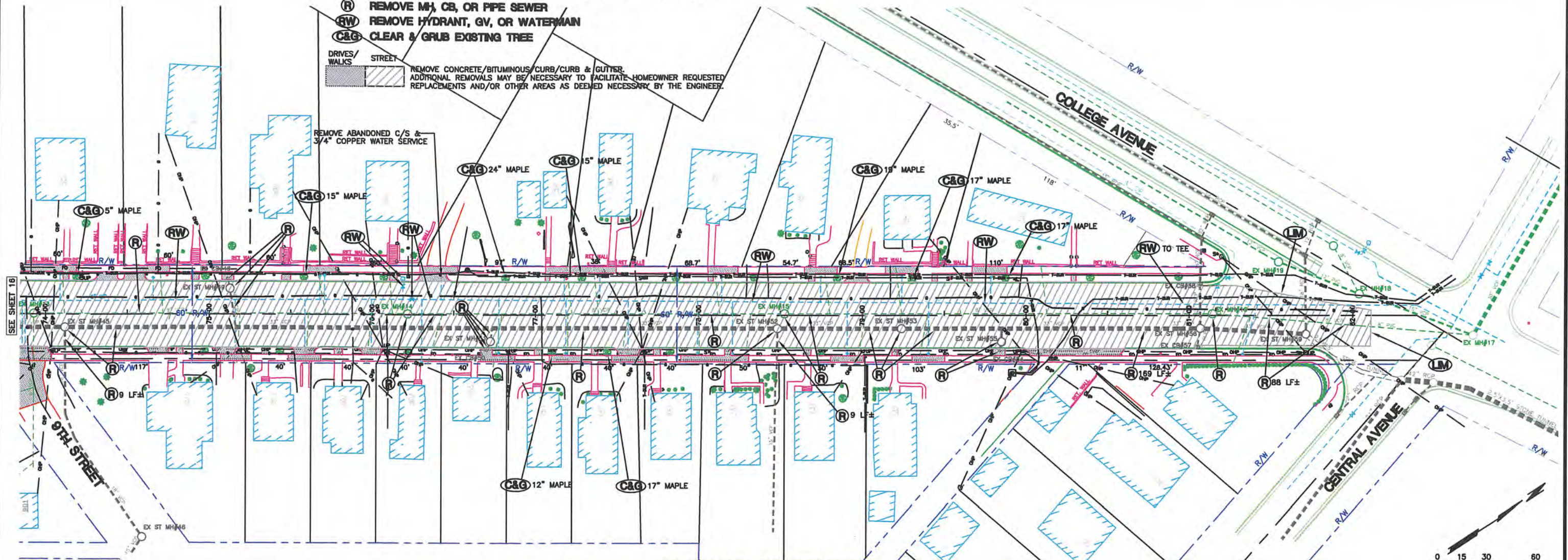
# WEST AVENUE



860	EX: CB#28 STA: 87+08.5-19.8' LT T.C.=850.08 INV. IN (18"-S)=846.02 INV. OUT (18"-NE)=846.02	EX: ST. MH#51 STA: 87+42.1-8.7' RT T.C.=847.03 INV. IN (15"-SE)=841.20 INV. IN (18"-SW)=842.94 INV. OUT (27"-N)=841.18	EXIST. RT CURBTOP PROFILE EXIST. LT CURBTOP PROFILE	EX: CB#34 STA: 69+90.5-22.3' RT T.C.=831.83 INV. OUT (15"-W)=828.88	EX: ST. MH#37 STA: 70+02-38.8' LT T.C.=829.28 INV. IN (15"-S)=828.39 INV. IN (12"-W)=826.85 INV. OUT (24"-E)=826.39	EX: CB#43 STA: 75+54.3-21.8' LT T.C.=812.35 INV. OUT (12"-E)=808.56	EX: ST. MH#46 STA: 74+59.3-135.4' RT T.C.=817.84 INV. IN (18"-E)=815.04 INV. OUT (18"-W)=813.44	860
850	EX: SAN. MH#90 STA: 86+96-0.2' LT T.C.=851.48 INV. IN (8"-E)=843.78 INV. IN (8"-S)=842.22 INV. OUT (8"-N)=842.21	EX: ST. MH#36 STA: 69+87.7-21.7' LT T.C.=831.47 INV. IN (15"-S)=827.77 INV. IN (18"-W)=827.27 INV. OUT (15"-E)=826.97 FLOOR EL.=824.37		EX: ST. MH#33 STA: 69+81.97-17' RT T.C.=831.83 INV. IN (15"-E)=828.24 INV. OUT (18"-W)=826.15 FLOOR EL.=823.20	EX: CB#38 STA: 70+035.9-11.2' LT T.C.=850.14 INV. OUT (8"-W)=826.76	EX: ST. MH#44 STA: 75+66.5-16.5' LT T.C.=812.03 INV. IN (12"-W)=808.30 INV. OUT (15"-E)=807.15 FLOOR EL.=803.91	EX: SAN. MH#13 STA: 73+92.8-0.4' LT T.C.=810.73 INV. IN (6"-E)=802.98 INV. IN (8"-S)=802.40 INV. OUT (8"-N)=802.38	850
840		EX: CB#35 STA: 69+52.3-21.6' LT T.C.=835.40 INV. OUT (15"-N)=829.80		EX: ST. MH#32 STA: 70+02.8-8.2' RT T.C.=830.76 INV. IN (18"-SE)=824.78 INV. IN (15"-SW)=825.77 INV. IN (27"-S)=824.66 INV. OUT (30"-N)=824.55	EX: ST. MH#39 STA: 70+29.9-2' RT T.C.=829.08 INV. IN (24"-W)=825.85 INV. OUT (24"-E)=821.25	EX: CB#40 STA: 75+49-21.5' RT T.C.=812.35 INV. OUT (15"-W)=808.79	EX: SAN. MH#11 STA: 73+92.8-0.4' LT T.C.=810.73 INV. IN (6"-E)=802.98 INV. IN (8"-S)=802.40 INV. OUT (8"-N)=802.38	840
830	EX: SAN. MH#10 STA: 86+96-0.2' LT T.C.=851.48 INV. IN (8"-E)=843.78 INV. IN (8"-S)=842.22 INV. OUT (8"-N)=842.21			EX: ST. MH#31 STA: 70+07.7-C/L T.C.=830.41 INV. IN (8"-W)=821.08 INV. IN (8"-S)=820.83 INV. OUT (8"-N)=820.80	EX: SAN. MH#12 STA: 72+35.3-0.6' LT T.C.=817.83 INV. IN (8"-S)=809.19 INV. OUT (8"-N)=809.09	EX: ST. MH#42 STA: 73+68.1-R.2' RT T.C.=811.64 INV. IN (15"-SE)=805.58 INV. IN (15"-W)=805.57 INV. IN (30"-S)=805.56 INV. OUT (30"-N)=805.56	EX: ST. MH#45 STA: 74+2-2-R' RT T.C.=809.79 INV. IN (18"-E)=804.67 INV. IN (30"-S)=803.94 INV. OUT (30"-N)=803.80	830
820		EX: ST. MH#32 STA: 70+02.8-8.2' RT T.C.=830.76 INV. IN (18"-SE)=824.78 INV. IN (15"-SW)=825.77 INV. IN (27"-S)=824.66 INV. OUT (30"-N)=824.55			EX: ST. MH#39 STA: 70+29.9-2' RT T.C.=829.08 INV. IN (24"-W)=825.85 INV. OUT (24"-E)=821.25	EX: ST. MH#41 STA: 73+50-13.2' RT T.C.=812.13 INV. IN (15"-E)=808.35 INV. OUT (15"-W)=807.49 FLOOR EL.=804.37		820
810		EX: ST. MH#32 STA: 70+02.8-8.2' RT T.C.=830.76 INV. IN (18"-SE)=824.78 INV. IN (15"-SW)=825.77 INV. IN (27"-S)=824.66 INV. OUT (30"-N)=824.55						810
800								800
790								790
780								780



- (LM)** REMOVAL LIMITS - SAW CUT FULL DEPTH WHERE NECESSARY
  - (R)** REMOVE MH, CB, OR PIPE SEWER
  - (RW)** REMOVE HYDRANT, GV, OR WATERMAIN
  - (C&G)** CLEAR & GRUB EXISTING TREE
- DRIVES/WALKS STREET REMOVE CONCRETE/BITUMINOUS CURB/CURB & GUTTER. ADDITIONAL REMOVALS MAY BE NECESSARY TO FACILITATE HOMEOWNER REQUESTED REPLACEMENTS AND/OR OTHER AREAS AS DEEMED NECESSARY BY THE ENGINEER.
- REMOVE ABANDONED C/S & 3/4" COPPER WATER SERVICE



# WEST AVENUE

820	EX ST MH#45 STA. 74+12.8-8' T.C.=809.79 INV. IN. (18"-E)=804.77 INV. IN. (30"-S)=803.94 INV. OUT. (30"-N)=803.90	EX ST MH#49 STA. 75+12.9-15.7' T.C.=805.81 INV. IN. (12"-W)=802.23 INV. OUT. (15"-E)=801.58 FLOOR. EL.=797.48	EX CB#48 STA. 75+11.4-21.6' T.C.=806.31 INV. OUT. (12"-E)=802.78	EX CB#50 STA. 76+20.2-24.5' T.C.=798.26 INV. OUT. (15"-W)=795.46	EX SAN. MH#15 STA. 78+32.5-D'8' T.C.=791.90 INV. IN. (8"-S)=783.07 INV. OUT. (8"-N)=782.39	EX CB#54 STA. 79+33.8-2' T.C.=786.44 INV. OUT. (15"-W)=783.28	EX SAN. MH#19 STA. 81+54.5-32.9' T.C.=783.98 INV. IN. (12"-W)=777.06 INV. OUT. (12"-E)=777.01	EX CB#57 STA. 81+08.1-19' T.C.=782.97 INV. OUT. (12"-W)=79.32 INV. IN. (18"-W)=772.73 INV. OUT. (18"-E)=775.87	820
810	EX SAN. MH#18 STA. 76+21.8-9.4' T.C.=804.42 INV. IN. (8"-S)=792.83 INV. OUT. (8"-N)=792.80	EX ST. MH#51 STA. 76+22.5-16.2' T.C.=798.32 INV. IN. (15"-E)=785.04 INV. OUT. (15"-W)=794.12 FLOOR. EL.=791.18	EX ST. MH#52 STA. 78+49.2-8.1' T.C.=794.83 INV. IN. (15"-E)=786.88 INV. IN. (30"-S)=786.05 INV. OUT. (33"-N)=786.03	EX ST. MH#53 STA. 79+24-8.1' T.C.=788.26 INV. IN. (33"-S)=782.99 INV. OUT. (33"-N)=782.82	EX ST. MH#55 STA. 79+25.1-16.2' T.C.=786.24 INV. IN. (15"-E)=783.23 INV. OUT. (18"-W)=780.85 FLOOR. EL.=778.49	EX SAN. MH#19 STA. 81+14.4-1.1' T.C.=783.00 INV. IN. (8"-S)=775.09 INV. OUT. (8"-N)=771.88	EX ST. MH#59 STA. 81+14.4-11.4' T.C.=780.14 INV. IN. (18"-W)=772.73 INV. IN. (33"-S)=772.36 INV. OUT. TUNNEL=772.33	EX SAN. MH#18 STA. 82+04-13.2' T.C.=780.78 INV. IN. (8"-N)=774.53 INV. IN. (15"-W)=774.50 INV. OUT. (15"-E)=774.46	810
800	EX ST. MH#58 STA. 81+08.8-2.8' T.C.=782.58 INV. IN. (12"-E)=778.42 INV. IN. (18"-W)=775.23 INV. IN. (33"-S)=776.20 INV. OUT. (33"-N)=776.20	EX SAN. MH#18 STA. 82+04-13.2' T.C.=780.78 INV. IN. (8"-N)=774.53 INV. IN. (15"-W)=774.50 INV. OUT. (15"-E)=774.46	EX SAN. MH#17 STA. 82+7.9-12' T.C.=775.89 INV. IN. (15"-W)=770.49 INV. IN. (8"-S)=767.56 INV. OUT. (30"-N)=768.78	800					
790	EX SAN. MH#17 STA. 82+7.9-12' T.C.=775.89 INV. IN. (15"-W)=770.49 INV. IN. (8"-S)=767.56 INV. OUT. (30"-N)=768.78	790							
780	EX SAN. MH#17 STA. 82+7.9-12' T.C.=775.89 INV. IN. (15"-W)=770.49 INV. IN. (8"-S)=767.56 INV. OUT. (30"-N)=768.78	780							
770	EX SAN. MH#17 STA. 82+7.9-12' T.C.=775.89 INV. IN. (15"-W)=770.49 INV. IN. (8"-S)=767.56 INV. OUT. (30"-N)=768.78	770							
760	EX SAN. MH#17 STA. 82+7.9-12' T.C.=775.89 INV. IN. (15"-W)=770.49 INV. IN. (8"-S)=767.56 INV. OUT. (30"-N)=768.78	760							
750	EX SAN. MH#17 STA. 82+7.9-12' T.C.=775.89 INV. IN. (15"-W)=770.49 INV. IN. (8"-S)=767.56 INV. OUT. (30"-N)=768.78	750							

**CERTIFIED BY**   
**CITY ENGINEER - JAY A. OWENS**  
**LICENSE NUMBER - 42020**

**TITLE:** WEST AVENUE RECONSTRUCTION  
**WEST AVENUE**  
**EXISTING CONDITIONS & REMOVALS**  
**STA. 76+00 TO CENTRAL AVENUE**