

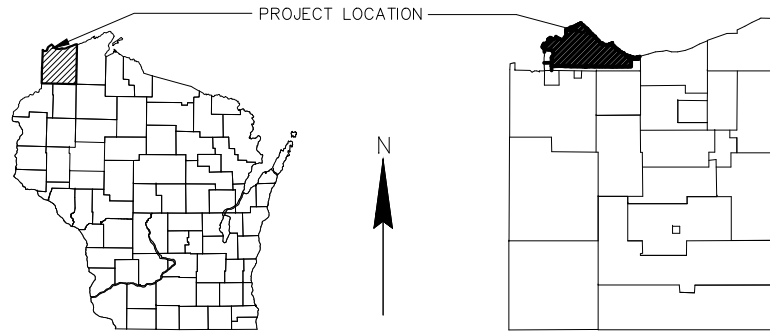
# CITY OF SUPERIOR, WISCONSIN

## ENVIRONMENTAL SERVICES DIVISION

### PUBLIC WORKS

## NORTH 21ST & OGDEN STORM SEWER PROJECT

CONSTRUCTION PLAN FOR: SEPARATION OF STORM SEWER FROM SANITARY & INSTALLATION OF STORM SEWERS



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### LEGEND

- W — EXISTING WATER LINE
- G — EXISTING GAS LINE
- E — BURIED ELECTRIC
- C — BURIED COMMUNICATION
- - - - ROAD CENTERLINE
- - - - CONSTRUCTION LIMITS
- · - · - · EXISTING RIGHT OF WAY
- · - · - · TEMPORARY EASEMENT
- X — X — X — X — PROPOSED SAW CUT
- SAN — EXISTING SANITARY
- SS — EXISTING STORM
- - - > - - - UNDERDRAIN
- UTILITY MANHOLE
- W WATER VALVE
- LIGHT POLE
- UTILITY POLE
- EXISTING HYDRANT
- MONUMENT
- SIGN
- TREE
- PROPOSED ASPHALT
- PROPOSED CONCRETE PAVEMENT 9-INCH
- PROPOSED CONCRETE SIDEWALK 4-INCH

### UTILITIES

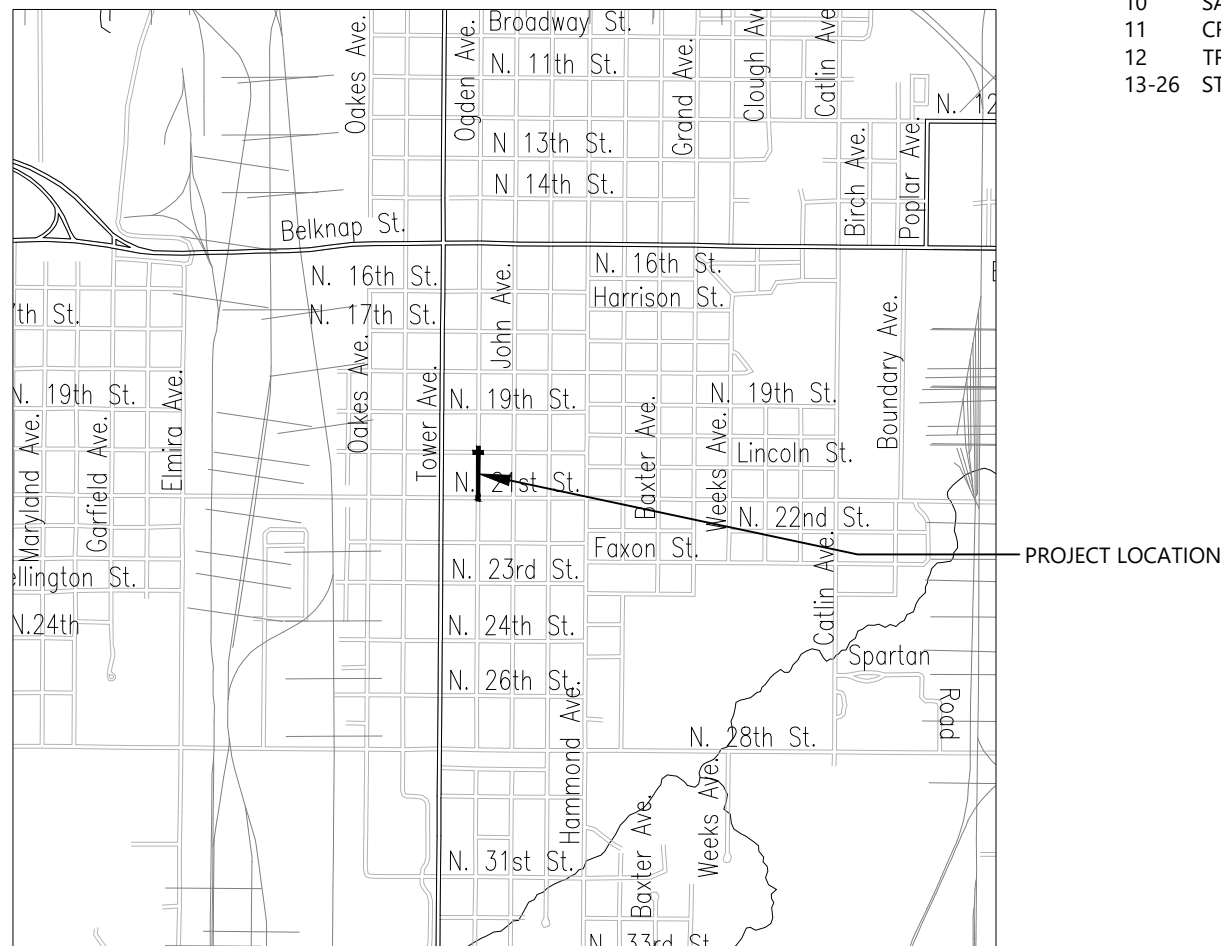
**SUPERIOR WATER, LIGHT & POWER CO.**  
 GAS & WATER  
 JAMIE MEHLE  
 2915 HILL AVENUE  
 P.O. BOX 519  
 SUPERIOR, WI 54880  
 715-395-6288  
[JMEHLE@SWLP.COM](mailto:JMEHLE@SWLP.COM)

**SUPERIOR WATER, LIGHT & POWER CO.**  
 ELECTRIC  
 AARON ANDERSON  
 2915 HILL AVENUE  
 P.O. BOX 519  
 SUPERIOR, WI 54880  
 715-395-6227  
[ASANDERSON@SWLP.COM](mailto:ASANDERSON@SWLP.COM)

**CENTURYLINK**  
 RUSSELL VANCE  
 135 N. 21ST STREET  
 SUPERIOR, WI 54880  
 715-392-0045  
[RUSSELL.VANCE@CENTURYLINK.COM](mailto:RUSSELL.VANCE@CENTURYLINK.COM)

**CITY OF SUPERIOR PUBLIC WORKS**  
 TODD JANIGO  
 1316 NORTH 14TH STREET  
 SUPERIOR, WI 54880  
 715-395-7373  
[JANIGOT@CI.SUPERIOR.WI.US](mailto:JANIGOT@CI.SUPERIOR.WI.US)

**CITY OF SUPERIOR PUBLIC WORKS**  
 ENVIRONMENTAL SERVICES DIVISION  
 51 E 1ST STREET  
 SUPERIOR, WI 54880  
 715-394-0392  
[ABRAMSONE@CI.SUPERIOR.WI.US](mailto:ABRAMSONE@CI.SUPERIOR.WI.US)



### LOCATION MAP

CITY OF SUPERIOR  
 NO SCALE

GOVERNING SPECIFICATIONS:  
 THE STANDARD SPECIFICATIONS FOR SEWER & WATER CONSTRUCTION IN WISCONSIN, SIXTH EDITION WITH ADDENDUM NO. 1 AND NO. 2 AND THE STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION (WI DOT) STANDARD SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION, CURRENT EDITION SHALL GOVERN THIS PROJECT

DESIGN TEAM: BRETT GUNDERSON



NOTE:  
 THE LOCATION OF EXISTING UNDERGROUND UTILITIES SHOWN ON PLANS ARE APPROXIMATE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

	CITY OF SUPERIOR, WI - ENVIRONMENTAL SERVICES DIVISION OF PUBLIC WORKS	TITLE & PROJECT LOCATION	DRAWN: BG	PLOT: 1/17/2020	SHEET 1 OF 26
	NORTH 21ST & OGDEN STORM SEWER PROJECT		APPROVED: EA		ADDENDUM: (N/A)

NOTES	Item	Item Description	Unit	Estimated Quantity
	204.0100	Removing Pavement	SY	610
	204.0110	Removing Asphaltic Surface	SY	586
	204.0130	Removing Curb	LF	113
	204.0150	Removing Curb & Gutter	LF	117
6	204.0155	Removing Concrete Sidewalk	SY	15
	204.0215	Removing Catch Basins	EA	2
	204.0220	Removing Inlets	EA	2
	204.0245	Removing Storm Sewer 12-Inch	LF	64
	204.0280	Sealing Pipes	EA	1
1	205.0100	Excavation Common (P)	CY	337
1	208.1100	Select Borrow (P)	CY	23
1	305.0125	Base Aggregate Dense 1 1/4 Inch (P)	CY	166
1	310.0115	Base Aggregate Open Graded (P)	CY	15
1	312.0115	Select Crushed Material (P)	CY	219
	415.0060	Concrete Pavement (9-Inch)	SY	125
2,3,4	465.0105	Asphaltic Surface	Ton	117
	601.0411	Concrete Curb & Gutter 30-Inch Type D	LF	388
7	602.0405	Concrete Sidewalk 4-inch	SF	172
	602.0500	Curb Ramp Detectable Warning Field	SF	10
	608.3012	Storm Sewer Pipe Class IV-A 12 Inch	LF	311
	611.0300	Inlets 2x3 FT	EA	4
	611.0624	Inlet Covers Type H	EA	4
	611.2004	Storm Manholes, 48-Inch	EA	3
5	612.0106	Pipe Underdrain 6-inch	LF	275
	619.1000	Mobilization	EA	1
	625.0100	Topsoil	SY	118
	628.7015	Inlet Protection Type D	EA	8
	643.0100	Traffic Control	EA	1
	645.0140	Geotextile Fabric Type SAS (P)	SY	571
	690.0150	Sawing Asphalt	LF	157
6	690.0250	Sawing Concrete	LF	256
	SPV.0060.01	Connect to Existing Sanitary Sewer (Collar)	EA	2
	SPV.0060.02	Sanitary Sewer Casting	EA	2
	SPV.0060.03	Sanitary Manhole 48-Inch	EA	2
	SPV.0090.01	Removing Sanitary Sewer Pipes 10-Inch	LF	30
	SPV.0090.02	Sanitary Sewer Pipe, 10-inch	LF	12
	SPV.0090.03	Sewer Field Quality Control Televising	LF	323
	SPV.0105.01	Construction Staking	LS	1
	SPV.0180.01	Hydroseeding	SY	118
	SPV.0180.02	Insulation Board Polystyrene 4-Inch	SY	18

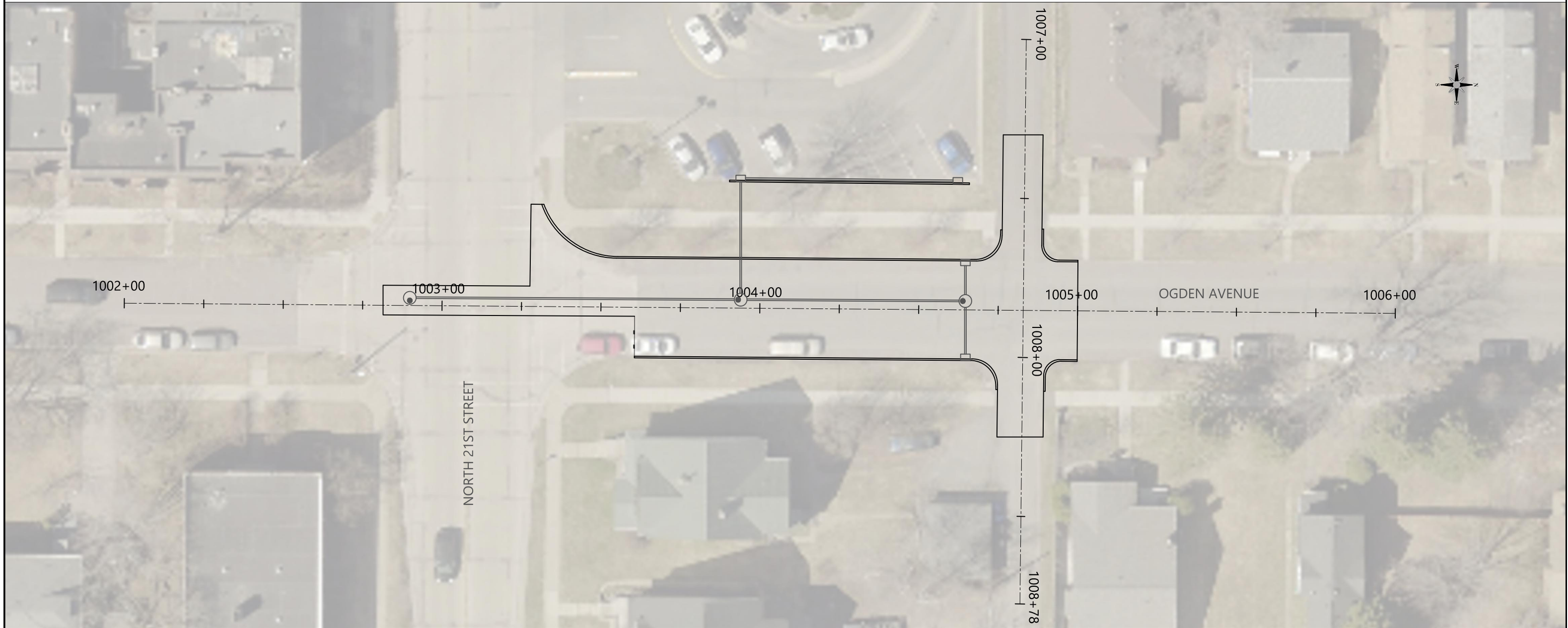
NOTES:	
1	TO BE PAID AS COMPACTED IN PLACE VOLUME
2	CALCULATED AT A RATE OF 120 LB PER SQUARE YARD-INCH
3	SHALL CONFORM TO REQUIREMENTS OF HMA PAVEMENT TYPE 3 LT 58-34 S & 4 LT 58-34 S
4	TACK COAT INCIDENTAL
5	BASE AGGREGATE OPEN GRADED INCIDENTAL
6	CONCRETE SIDEWALK SAWCUTS INCIDENTAL
7	AGGREGATE BASE INCIDENTAL

STORM STRUCTURES			
ST1	RIM=650.11	MH	STA=1004+72.74 OFF=2.79L
	INV IN (W)=646.89		
	INV IN (E)=646.89		
	INV OUT (S)=646.79		
IN1	RIM=649.75	INL	STA=1004+72.63 OFF=16.75L
	INV OUT (E)=646.92		
IN2	RIM=649.74	INL	STA=1004+72.90 OFF=16.98R
	INV OUT (W)=646.93		
IN3	RIM=649.87	INL	STA=1004+61.77 OFF=41.52L
	INV OUT (S)=646.89		
IN4	RIM=649.16	INL	STA=1003+93.66 OFF=41.73L
	INV IN (N)=646.72		
	INV OUT (E)=646.72		
ST2	RIM=650.54	MH	STA=1003+93.98 OFF=2.58L
	INV IN (N)=646.62		
	INV IN (W)=646.62		
	INV OUT (S)=646.62		
ST3	RIM=650.30	MH	STA=1002+89.85 OFF=2.32L
	INV IN (N)=646.36		
	INV IN EX.(W)=646.26		
	INV OUT EX.(E)=646.26		

SANITARY STRUCTURES			
MH1	RIM=650.02	MH	STA=1007+48.08 OFF=1.57 R
	INV OUT (W)=639.33 FIELD VERIFY		
MH2	RIM=650.04	MH	STA=1008+17.56 OFF=2.65 R
	INV OUT (E)=640.65 FIELD VERIFY		

STRUCTURE REMOVALS		
STRUCTURE	STATION	LOCATION
IN020724	1004+73.03	22.56' L
IN020709	1004+73.05	22.44' R
McD's 1	1004+62.13	41.52 L
McD's 2	1004+00.31	41.75 L

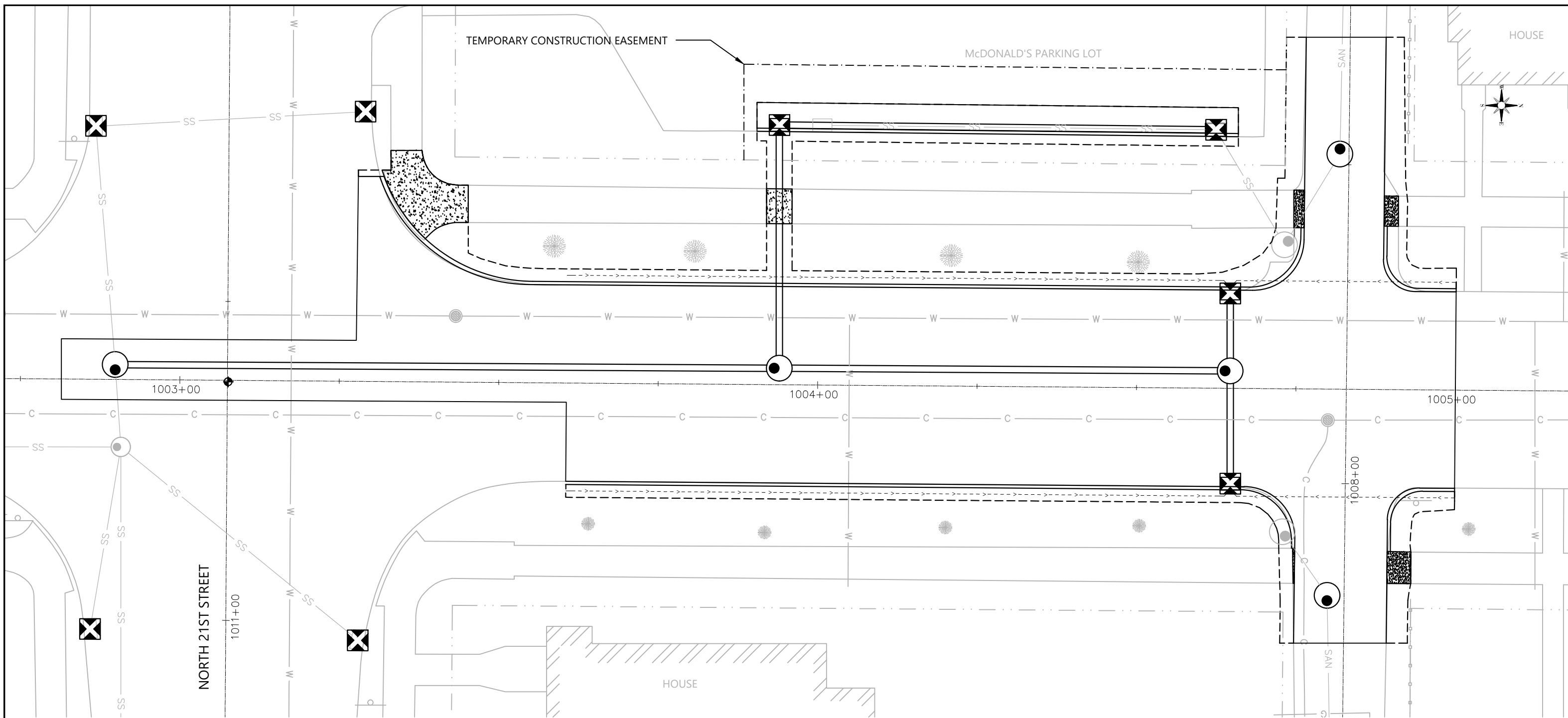




**GENERAL NOTES:**

1. INSTALLATION AND MATERIALS FOR ALL SANITARY AND STORM SEWER PIPES AND STRUCTURES SHALL CONFORM TO THE REQUIREMENTS OF THE CITY OF SUPERIOR MINIMUM STANDARDS FOR GRAVITY SEWER CONSTRUCTION.
2. THE LOCATIONS OF EXISTING UTILITY INSTALLATIONS AS SHOWN ON THE PLANS ARE APPROXIMATE THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN.
3. CONTRACTOR TO VERIFY ALL UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION. ANY REQUIRED UTILITY RELOCATION WORK SHALL BE COORDINATED BY THE CONTRACTOR.
4. ALL AREAS OUTSIDE OF THE PROJECT LIMITS SHALL BE RESTORED TO PRE-CONSTRUCTION CONDITION AT NO ADDITIONAL COST TO THE CITY. THIS SHALL INCLUDE CONTRACTOR STAGING AREAS FOR EQUIPMENT AND MATERIALS.
5. ALL ASPHALT SURFACES SHALL BE SAWCUT FULL DEPTH BEFORE REMOVAL WHERE ABUTTING LIKE SURFACE MATERIAL.





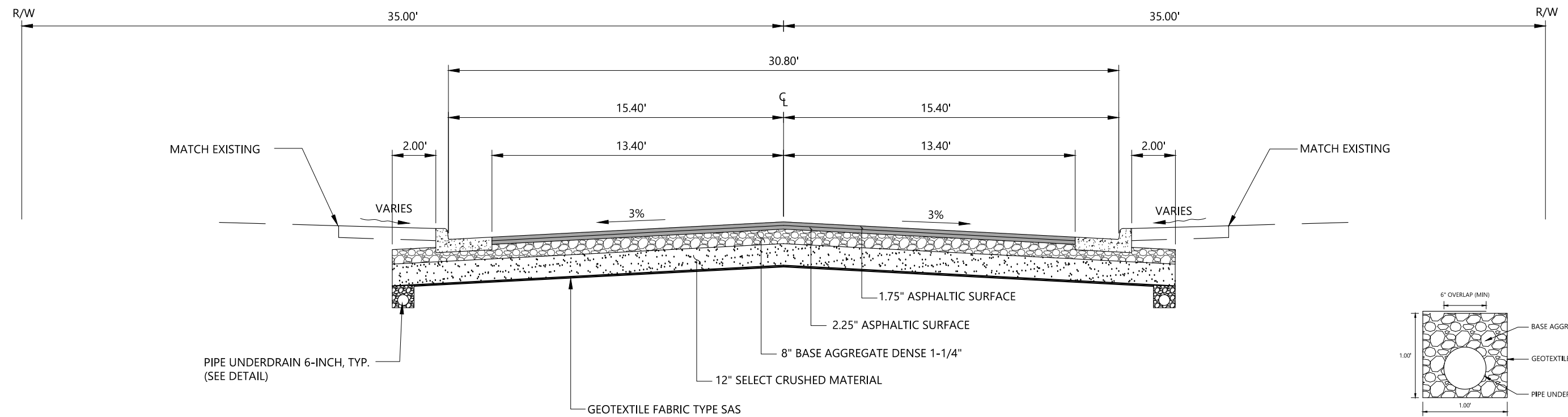
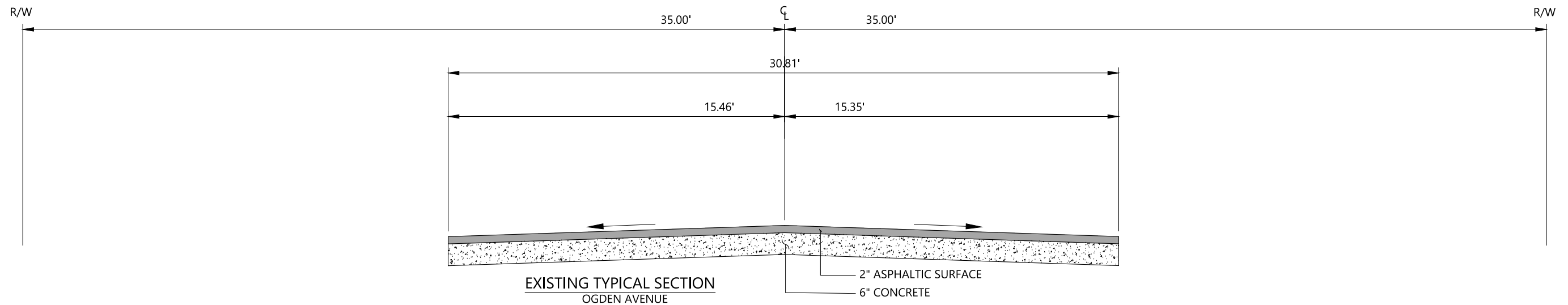
**EROSION CONTROL LEGEND:**

 TYPE D INLET PROTECTION - REFER TO WDNR TECH STD. 1060

**EROSION CONTROL NOTES:**

1. AFTER INSTALLATION OF EROSION CONTROL MEASURES (BMP'S) AND PRIOR TO EARTH DISTURBING ACTIVITIES, THE CONTRACTOR SHALL CONTACT THE CITY OF SUPERIOR ESD STAFF TO SCHEDULE A SITE VISIT. CONTRACTOR MUST RECEIVE APPROVAL FROM CITY PRIOR TO EARTH MOVING ACTIVITIES.
2. EROSION CONTROL PRACTICES SHOWN ARE MINIMUM REQUIREMENTS. CONTRACTOR MAY NEED TO SUPPLEMENT PRACTICES AS REQUIRED BY CONTRACTORS OPERATIONS, CONSTRUCTION SEQUENCE, OR WEATHER.
3. INSTALL INLET PROTECTION PRIOR TO LAND-DISTURBING ACTIVITIES IN THE CONTRIBUTING DRAINAGE AREA AND/OR IMMEDIATELY UPON INLET INSTALLATION.
4. SWEEP UP ANY SEDIMENT TRACKED ONTO CITY ROADWAYS BY THE END OF EACH WORKING DAY.
5. INSPECT EROSION CONTROL MEASURES WITHIN 24 HOURS AFTER EACH RAIN EVENT OF .5 INCHES AND AT LEAST ONCE EACH WEEK. MAKE NEEDED REPAIRS AND DOCUMENT FINDINGS OF INSPECTIONS IN A SITE EROSION CONTROL LOG. KEEP INSPECTION REPORTS ON SITE AND AVAILABLE UPON REQUEST.
6. STOCKPILES SHALL BE STABILIZED BY TEMPORARY SEEDING AND MULCHING, IF THEY REMAIN FOR MORE THAN 7 DAYS. SURROUND STOCKPILE WITH BIO-LOGS.
7. INSTALL ALL BMP'S IN ACCORDANCE WITH APPLICABLE WDNR TECHNICAL STANDARDS.

**INLET PROTECTION (D-M OR H-HR) NO.1060**

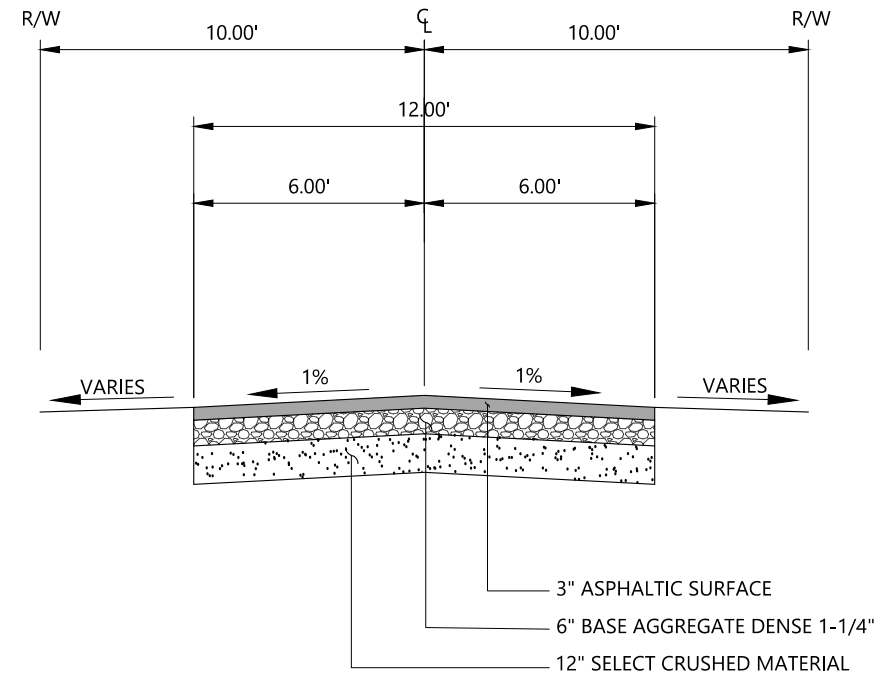


TYPICAL FINISHED SECTION  
OGDEN  
STA 1003+60 - 1005+00

PIPE UNDERDRAIN DETAIL  
NO SCALE

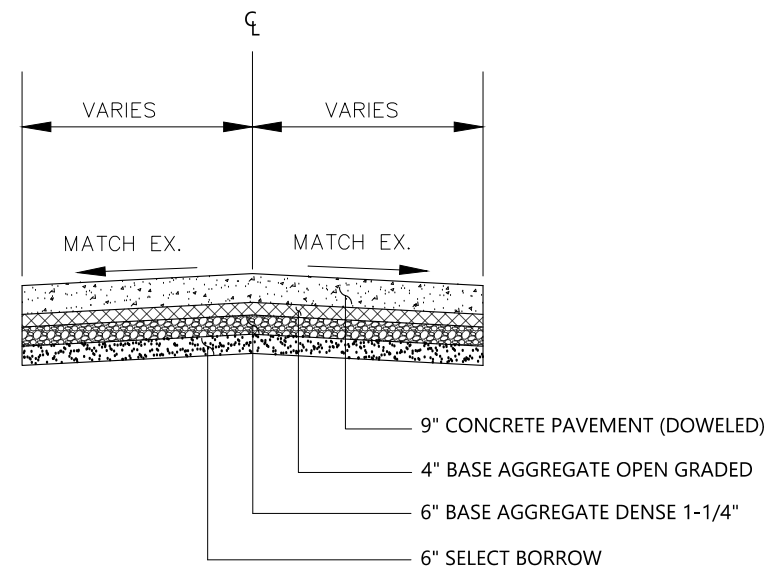
CONNECT PIPE UNDERDRAIN INTO STORM SEWER INLETS. CONNECTION IS INCIDENTAL TO THE STORM SEWER STRUCTURE ITEM, AND SHALL BE IN ACCORDANCE TO SECTION 611 OF THE STANDARD SPEC.





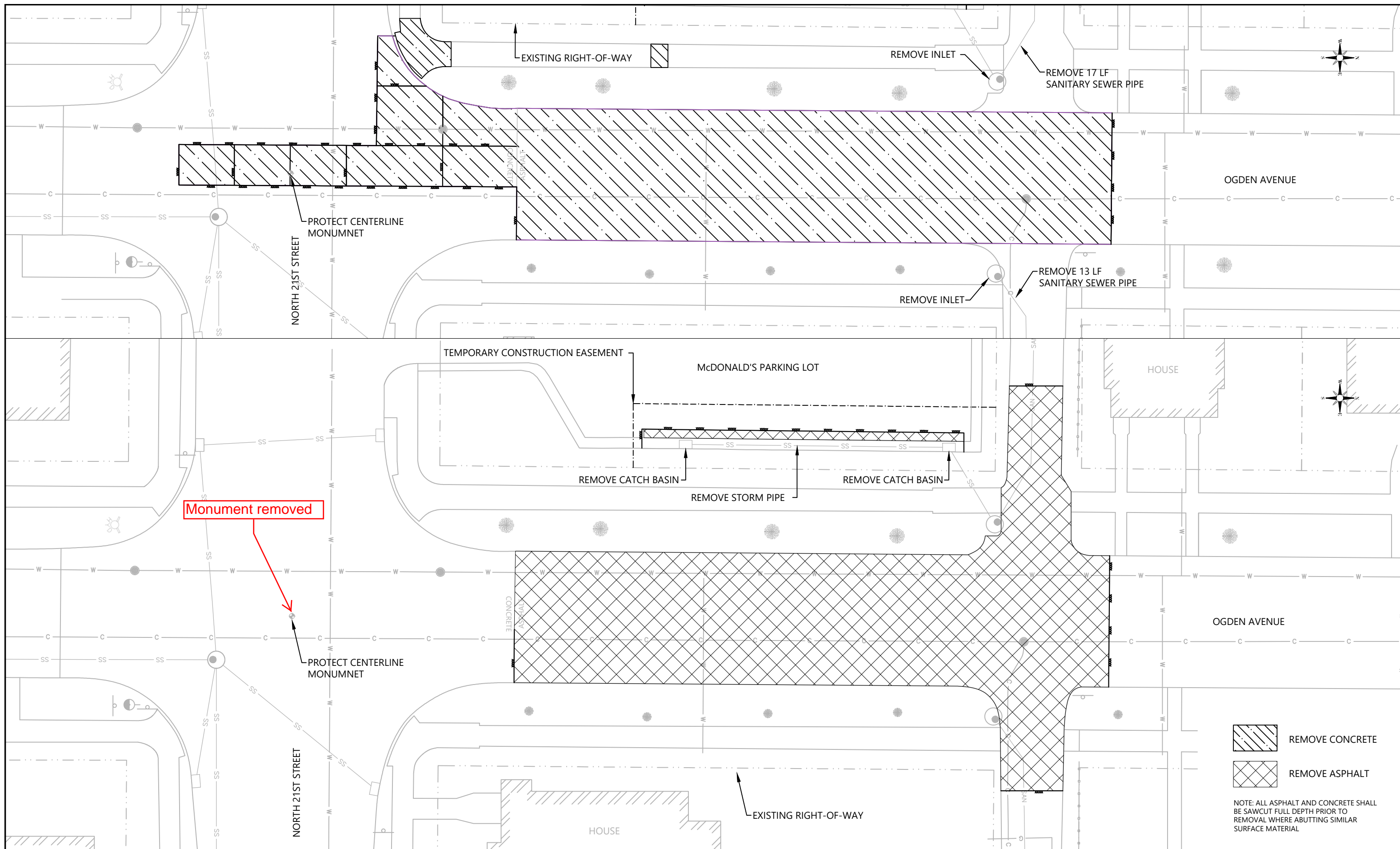
**TYPICAL FINISHED SECTION**

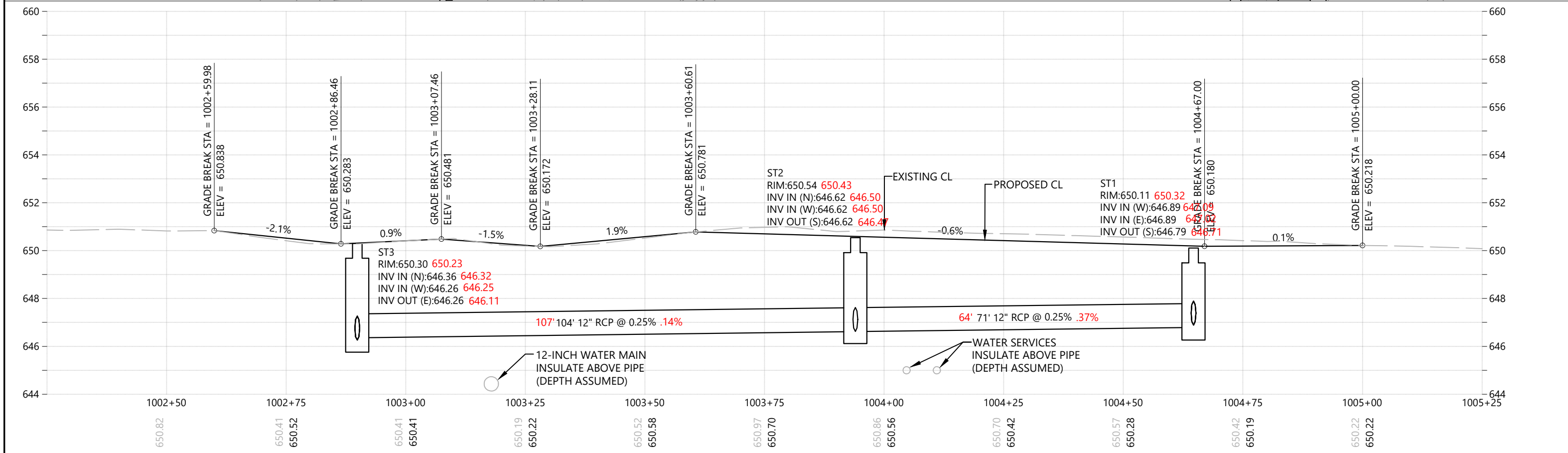
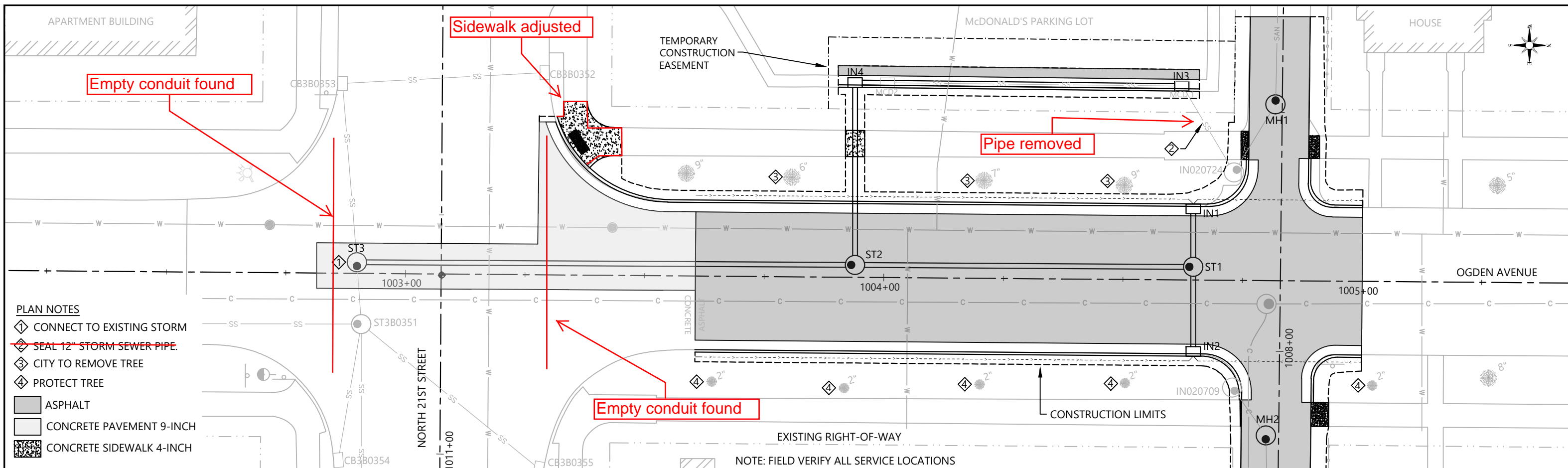
ALLEY



**TYPICAL CONCRETE SECTION**

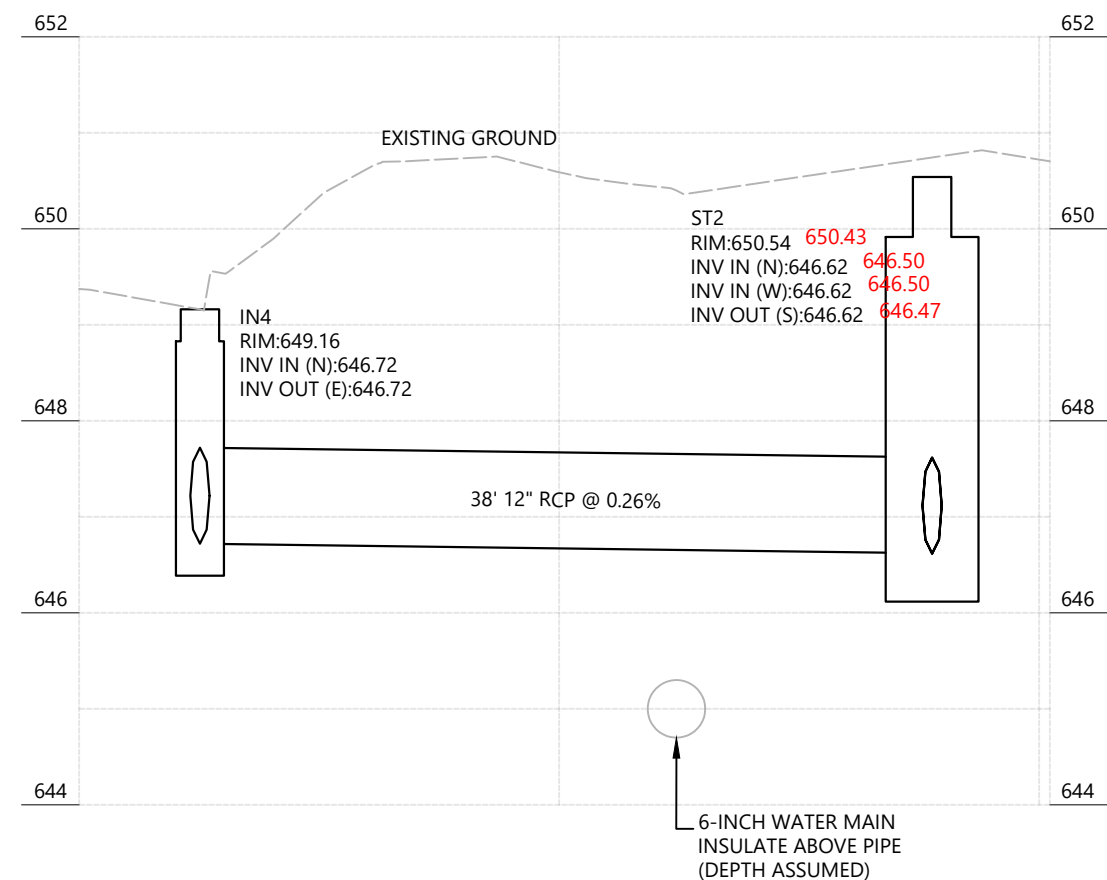
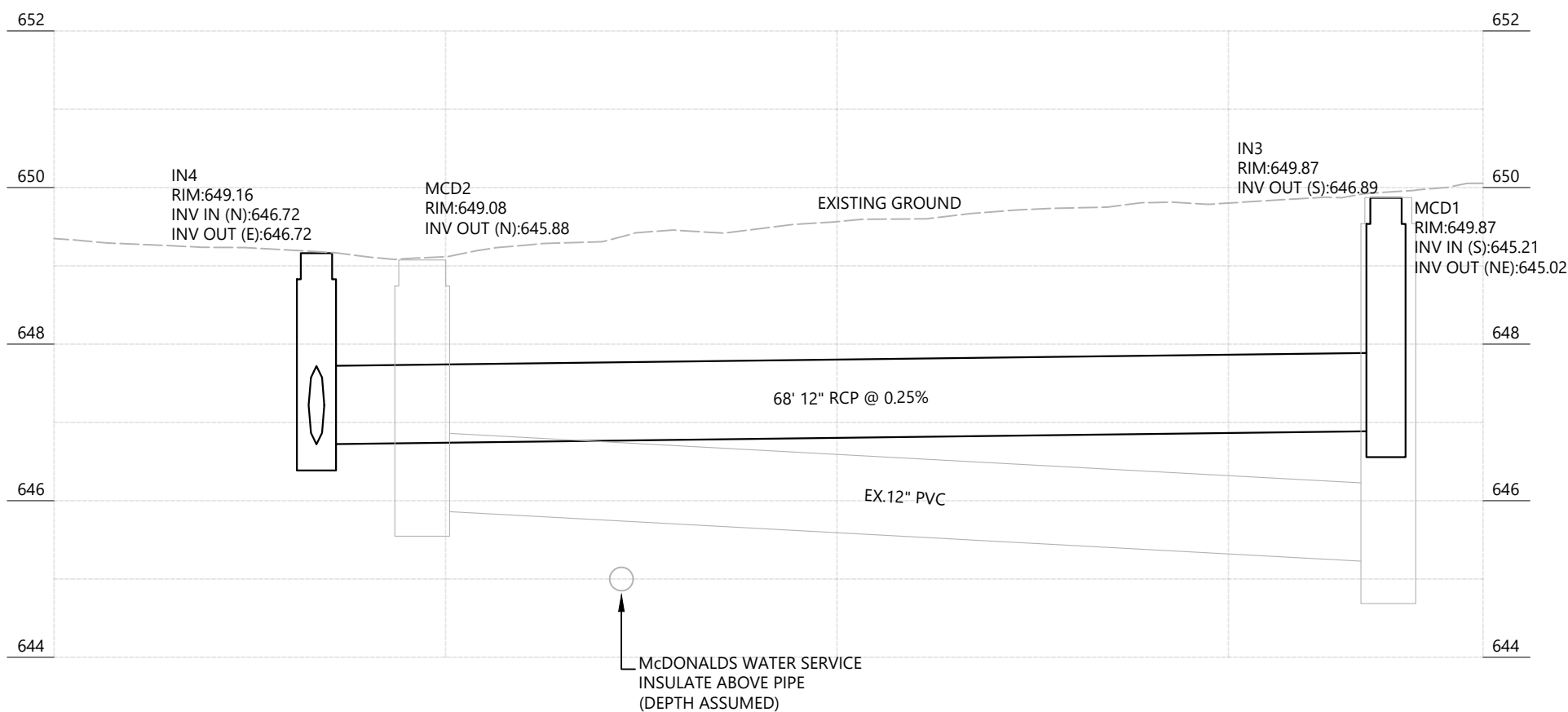
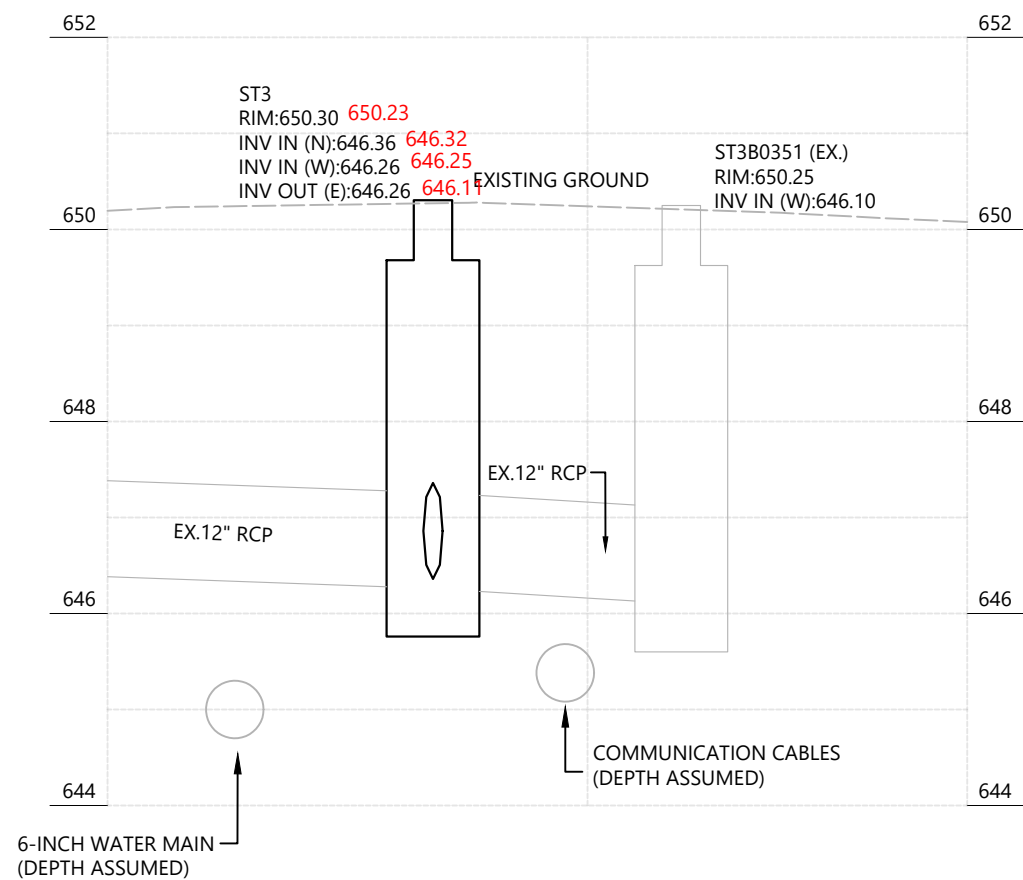
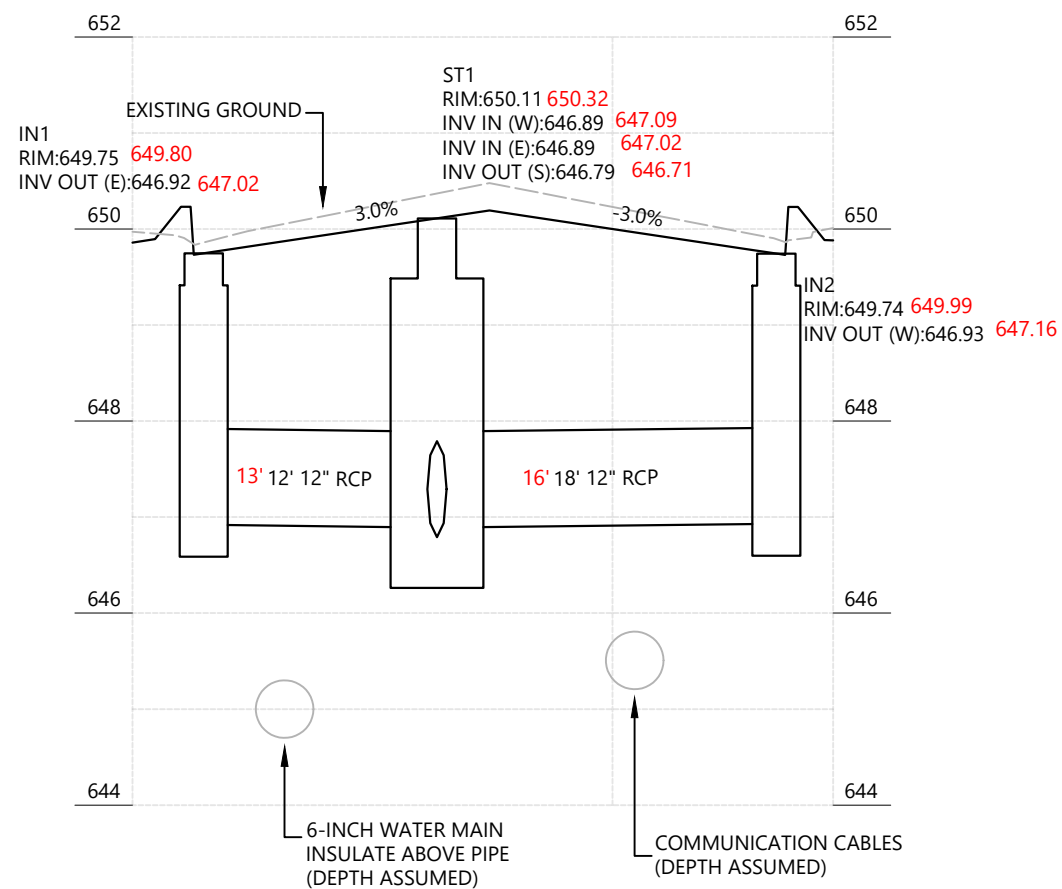
INTERSECTION 21ST & OGDEN  
WIDTH VARIES

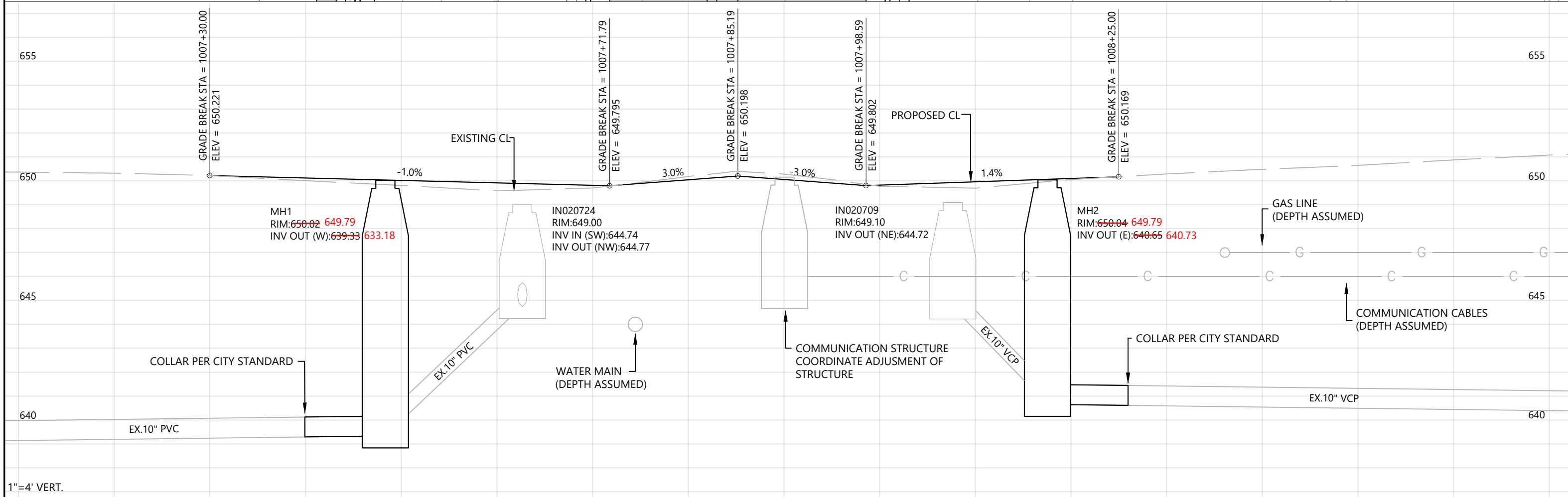
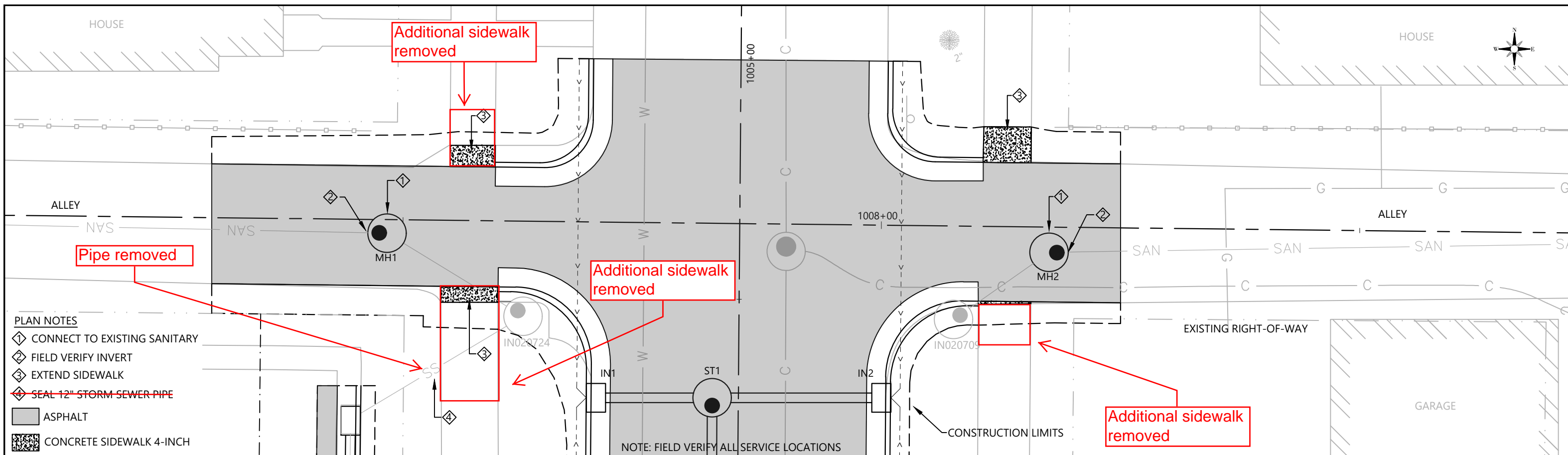




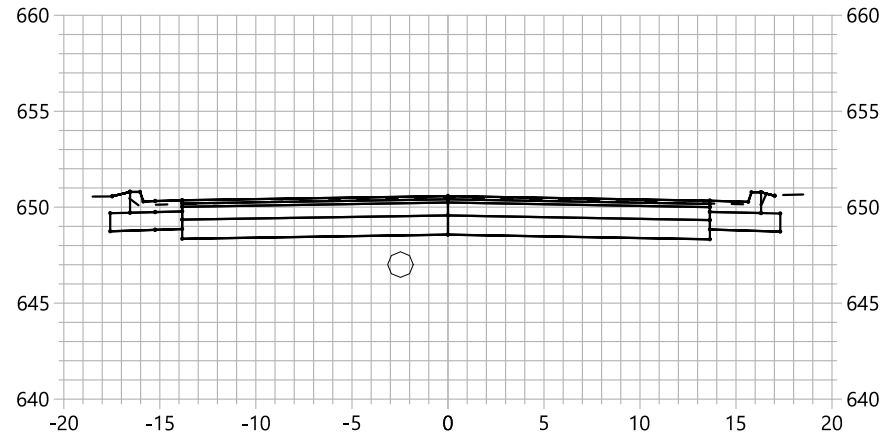
1" = 20' HORZ.  
1" = 4' VERT.



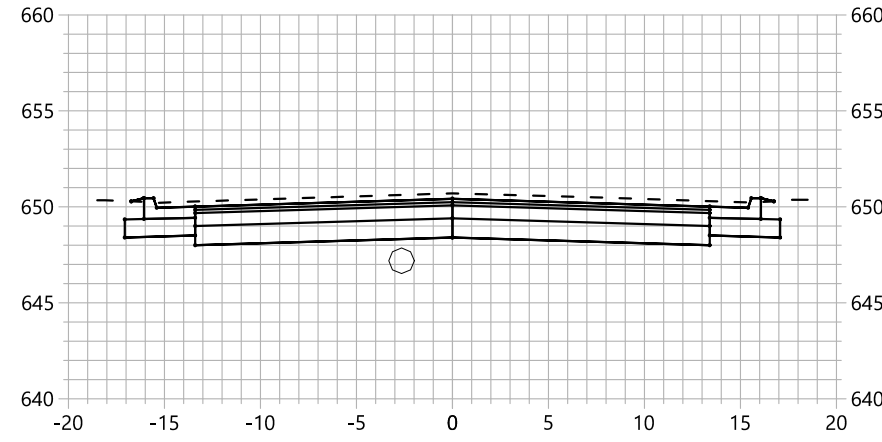




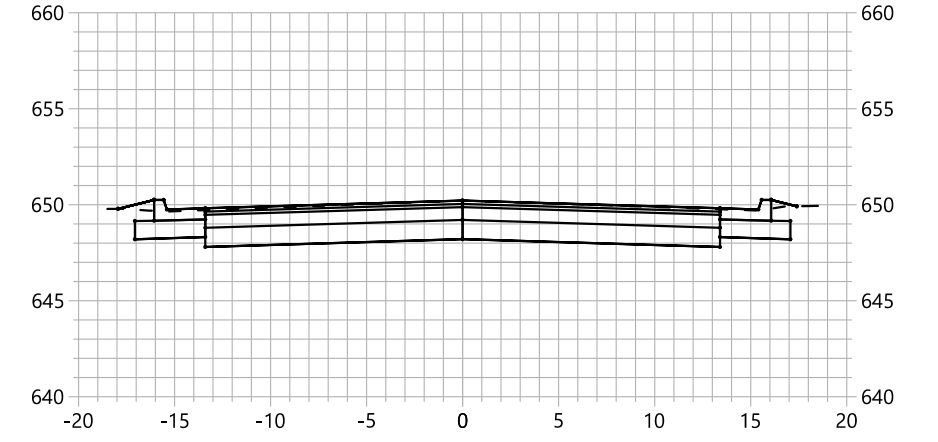
1003+50.00



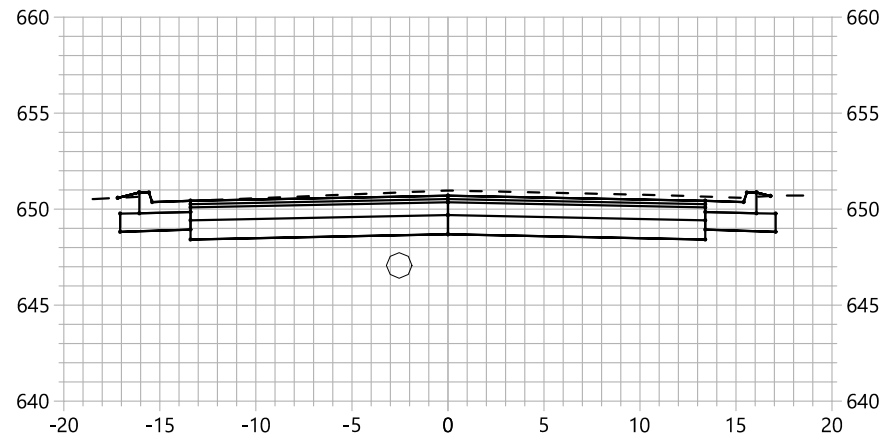
1004+25.00



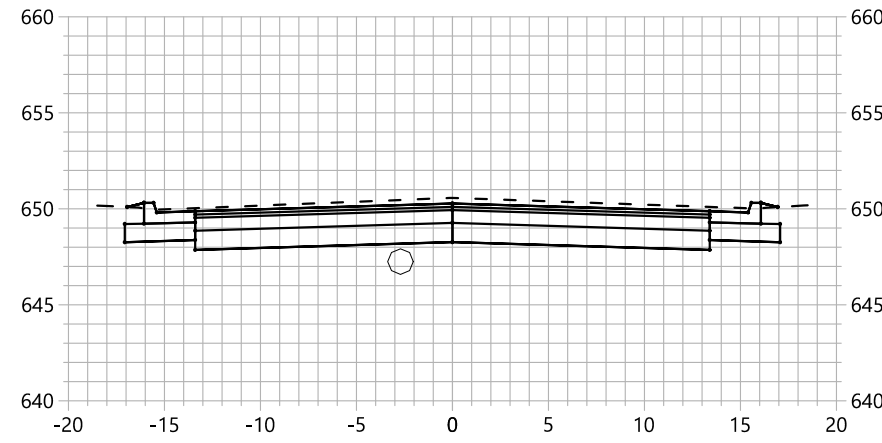
1005+00.00



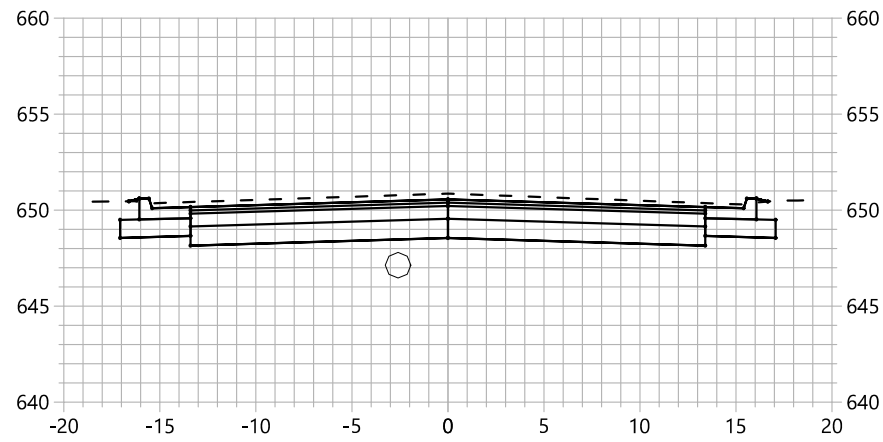
1003+75.00



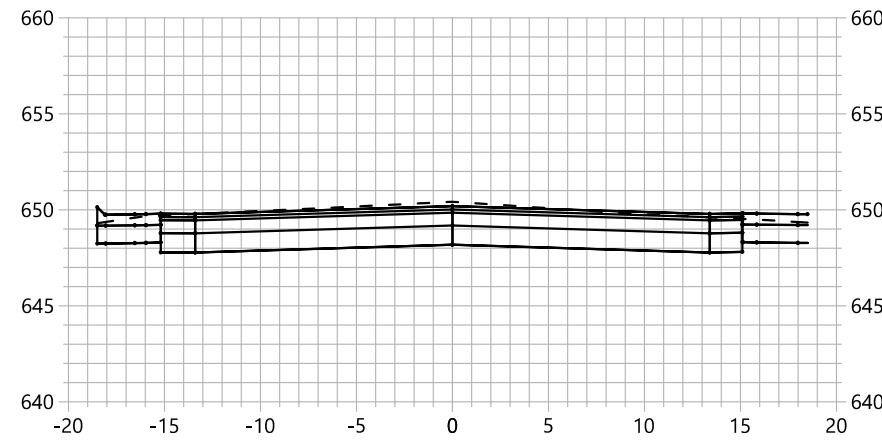
1004+50.00

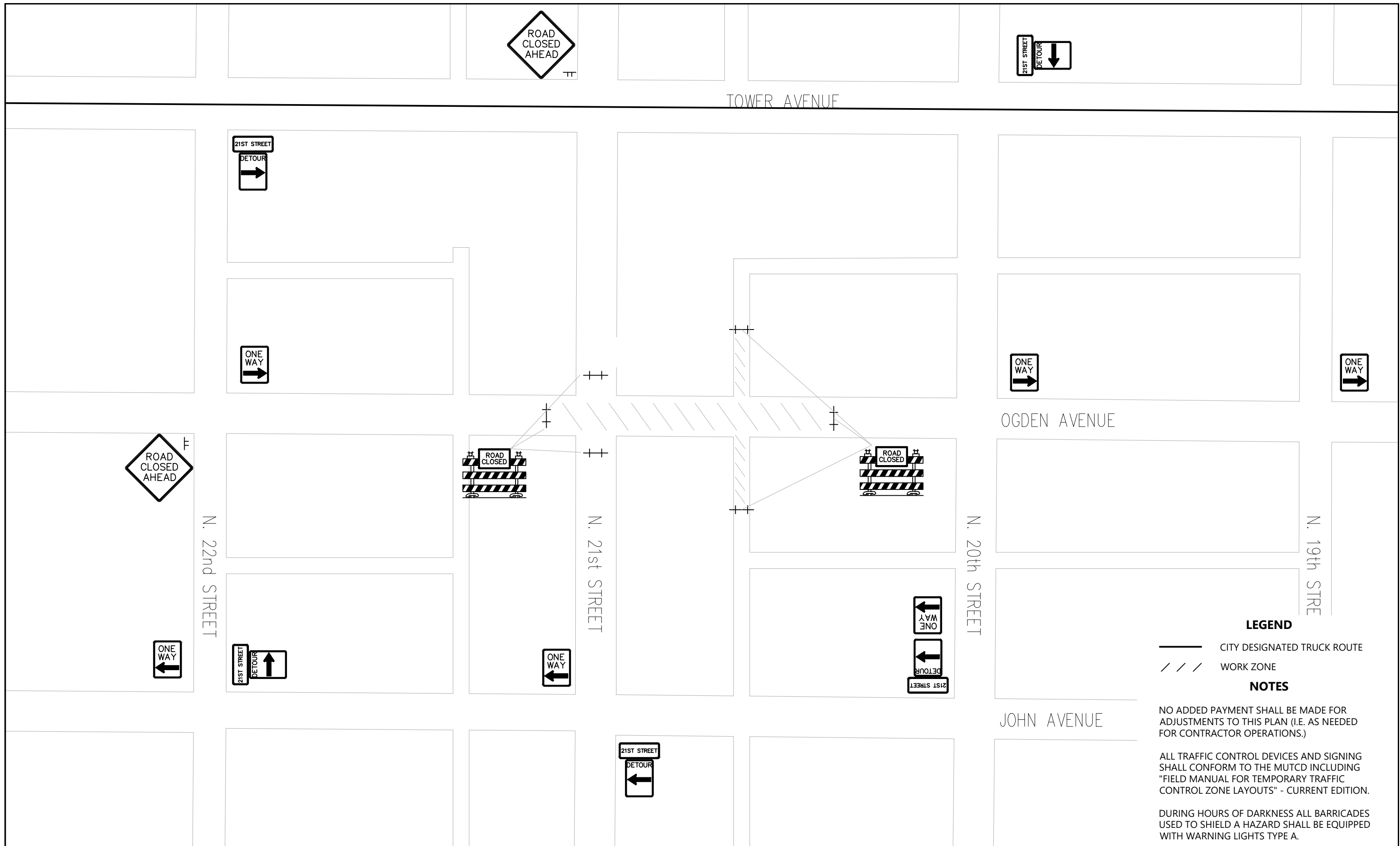


1004+00.00



1004+75.00





**LEGEND**

- CITY DESIGNATED TRUCK ROUTE
- /// WORK ZONE

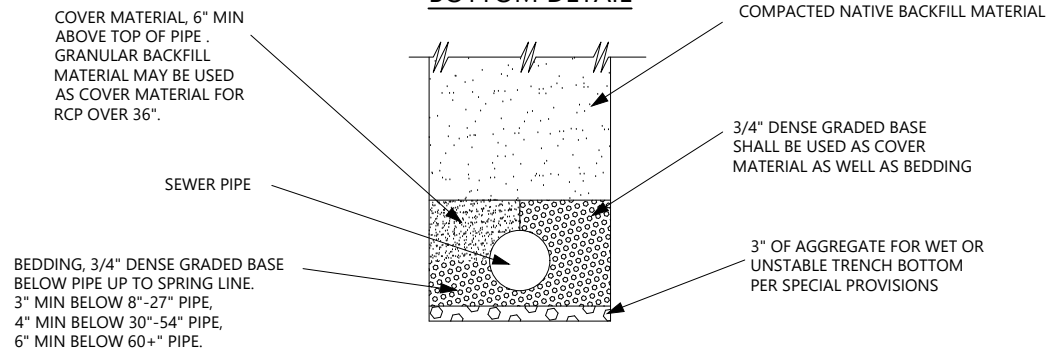
**NOTES**

NO ADDED PAYMENT SHALL BE MADE FOR ADJUSTMENTS TO THIS PLAN (I.E. AS NEEDED FOR CONTRACTOR OPERATIONS.)

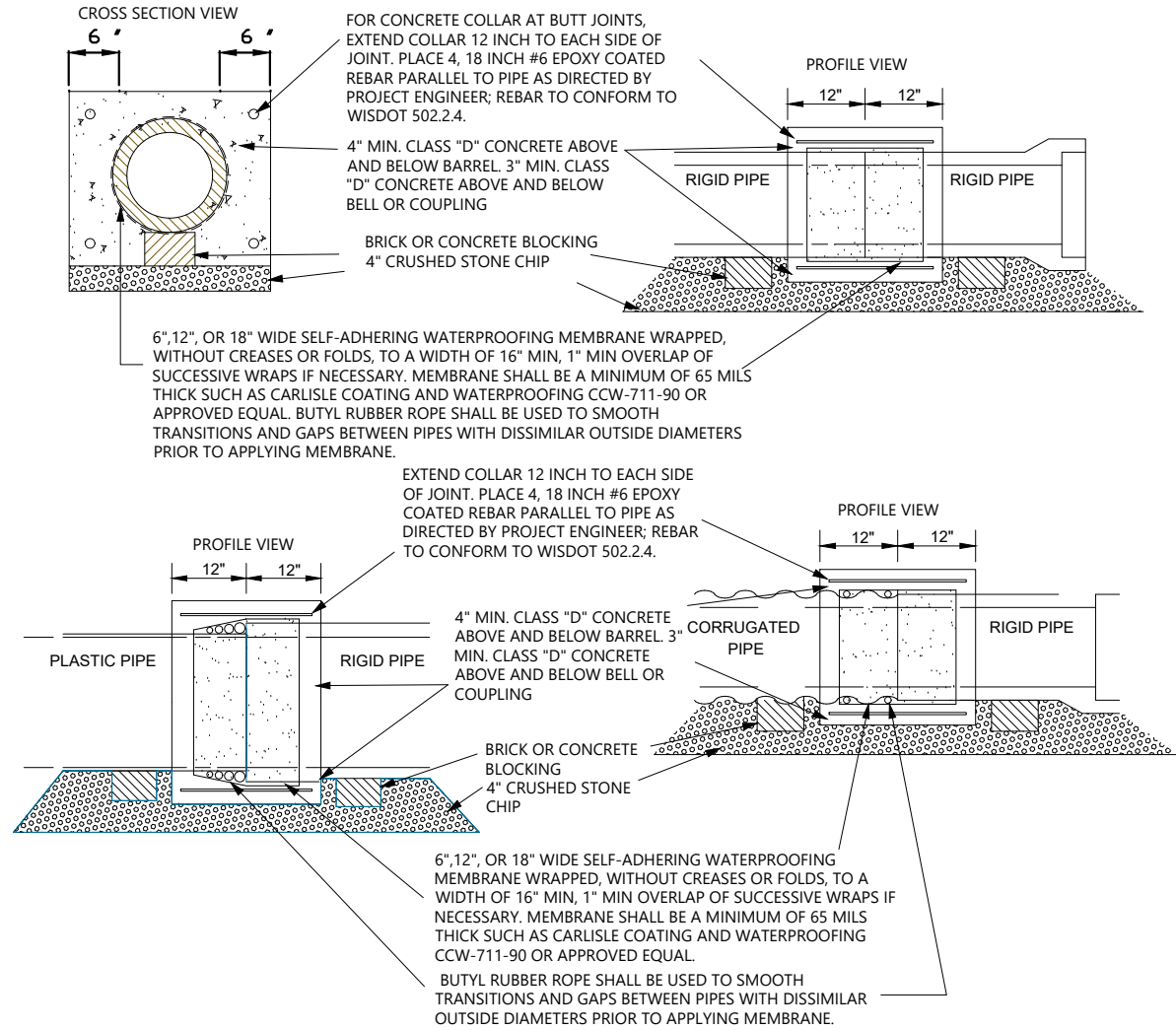
ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM TO THE MUTCD INCLUDING "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS" - CURRENT EDITION.

DURING HOURS OF DARKNESS ALL BARRICADES USED TO SHIELD A HAZARD SHALL BE EQUIPPED WITH WARNING LIGHTS TYPE A.

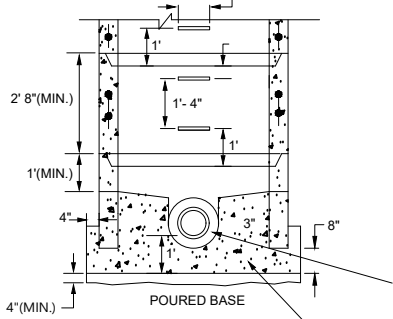
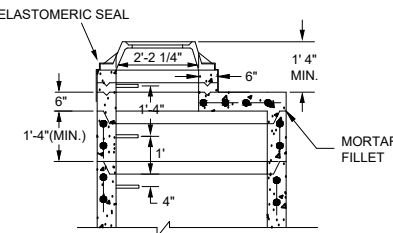
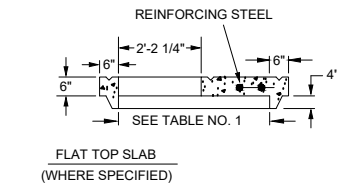
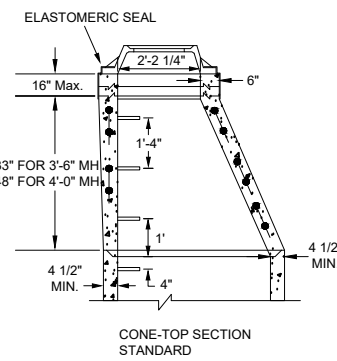
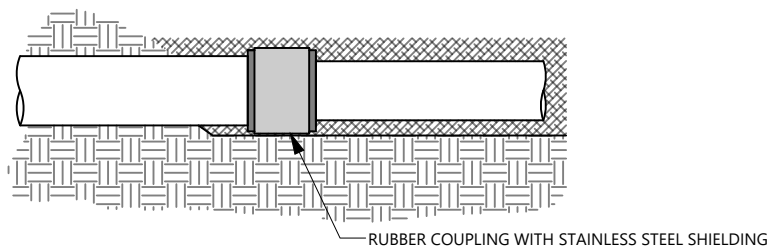
### TYPICAL TRENCH BOTTOM DETAIL



### CONCRETE COLLAR DETAIL 8" - 42" PIPE



### RUBBER COUPLING DETAIL 8" - 12" PIPE



TYPE I FRAME/CHIMNEY JOINT REQUIRED ON ALL SANITARY MANHOLES UNLESS OTHERWISE SPECIFIED. ELASTOMERIC WATERPROOFING SEALER APPLIED TO EXTERIOR AND INTERIOR CHIMNEY SEAL.

FLAT TOP SLAB MAY ONLY BE USED FOR 5'-0" AND 6'-0" DIA. MANHOLES AND WITH PERMISSION OF THE ENVIRONMENTAL SERVICES DIVISION OF PUBLIC WORKS OR WHERE SHOWN ON THE PLANS. FLAT TOP SLAB MUST HAVE A MINIMUM 6" ADJUSTING RING (1 FULL RING) INSTALLED.

ADJUST FRAME TO GRADE WITH BRICK OR CONCRETE RINGS OF VARIABLE THICKNESS, MAXIMUM RING HEIGHT = 6", MINIMUM RING HEIGHT = 2". CONCRETE RINGS SHALL BE REINFORCED WITH ONE LINE OF STEEL CENTERED WITHIN THE RING. WHERE NECESSARY, RINGS SHALL BE GROOVED TO RECEIVE STEP. THE CHIMNEY SHALL BE CONSTRUCTED SO THAT AS FEW ADJUSTING RINGS AS POSSIBLE SHALL BE USED TO BRING MANHOLE TO GRADE.

CONCRETE AND STEEL REINFORCEMENT SHALL CONFORM TO DESIGNATION C-478 REQUIREMENTS OF ASTM SPECIFICATIONS.

JOINTS SHALL BE WATERTIGHT AND SHALL BE MADE USING BUTYL RUBBER GASKETS. ALL JOINTS SHALL CONFORM TO ASTM-C443 VARIATIONS IN DIAMETER, DEFECTIVE OR DAMAGED ENDS, OR OTHER CONDITIONS WHICH, IN THE OPINION OF THE PROJECT ENGINEER, PREVENT MAKING A SATISFACTORY JOINT SHALL BE CONSIDERED CAUSE FOR REJECTION.

AREA OF CIRCUMFERENTIAL STEEL = 0.12 SQ INCH PER LINEAL FOOT.

4" MIN. 3/4" DENSE GRADED BASE UNDER CONCRETE BASE.

PRECAST BASE RISER SECTION WITH A SEPARATE PRECAST BASE SLAB SHALL NOT BE CONSIDERED GENERALLY ACCEPTABLE UNDER THIS SPECIFICATION.

TABLE NO. 1

PIPE DIA	MANHOLE DIA	WALL THICKNESS
8" THRU 30"	4'-0"	5"
36"	5'-0"	6"
42"	6'-0"	7"

### PRECAST MANHOLE

THE STEPS, FRAME, AND COVER SHALL BE CENTERED OVER THE DISCHARGE PIPE.

STANDARD TOP VIEW

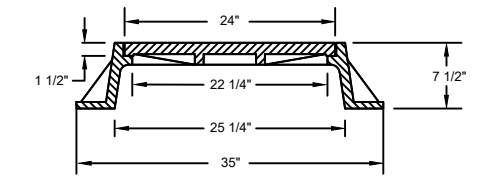
THE FLOW CHANNEL THROUGH MANHOLES SHALL BE MADE TO CONFORM TO THE SHAPE AND SLOPE OF THE SEWERS AND SHALL EXTEND VERTICALLY FROM THE SPRINGLINE TO THE CROWN OF THE DISCHARGE PIPE. THE THROUGH MANHOLE FLOW CHANNEL SHALL BE THE SAME DIAMETER AS THE LARGER OF THE ADJOINING SEWERS.

BENCH SLOPE  
 {  
 STORM MANHOLE 1 INCH PER FOOT  
 SANITARY MANHOLE 2 INCH PER FOOT

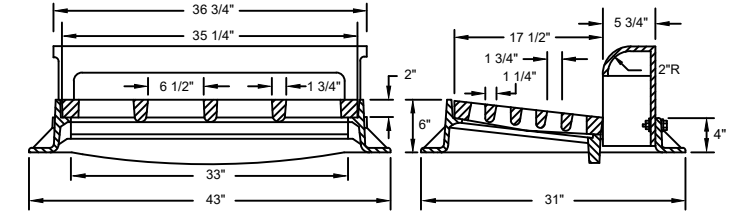
SPACE BETWEEN PIPE AND PRECAST MANHOLE WALL TO BE FILLED WITH BRICK MORTARED IN PLACE EXCEPT THAT AN APPROVED FLEXIBLE WATERTIGHT PIPE TO MANHOLE SEAL IS REQUIRED FOR ALL SANITARY SEWER CONNECTIONS. THE ANNULAR SPACE BETWEEN THE PIPE AND MANHOLE WALL SHALL BE FILLED WITH FLEXIBLE BUTYL RUBBER GASKET MATERIAL.

CLASS "D" CONCRETE, 12" MIN. BELOW BOTTOM OF PIPE

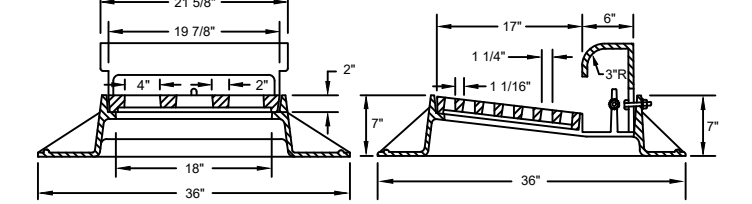
### MANHOLE CASTING DIMENSIONS



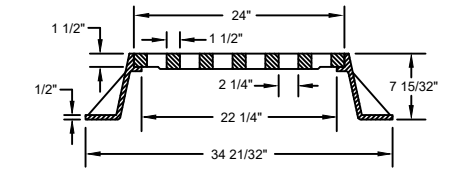
### TYPICAL CURB INLET CASTING DIMENSIONS FOR RECTANGULAR STRUCTURES



### TYPICAL CURB INLET CASTING DIMENSIONS FOR CIRCULAR STRUCTURES



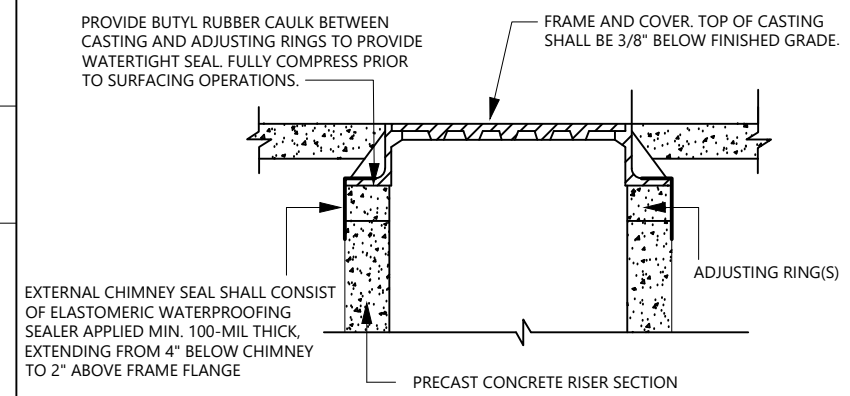
### CASTING DIMENSIONS FOR GRATED MANHOLE COVERS AND CIRCULAR INLETS IN NON-CURB INSTALLATIONS

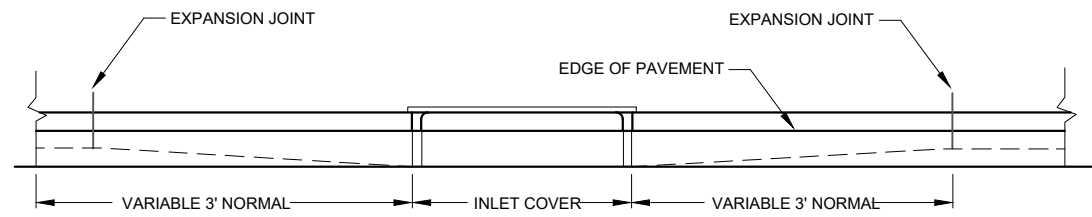


ALL MANHOLE CASTINGS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A-48, CLASS NO. 30-B AND SHALL BE FREE FROM CRACKS, HOLES, SWELLS, AND COLD SHOTS.

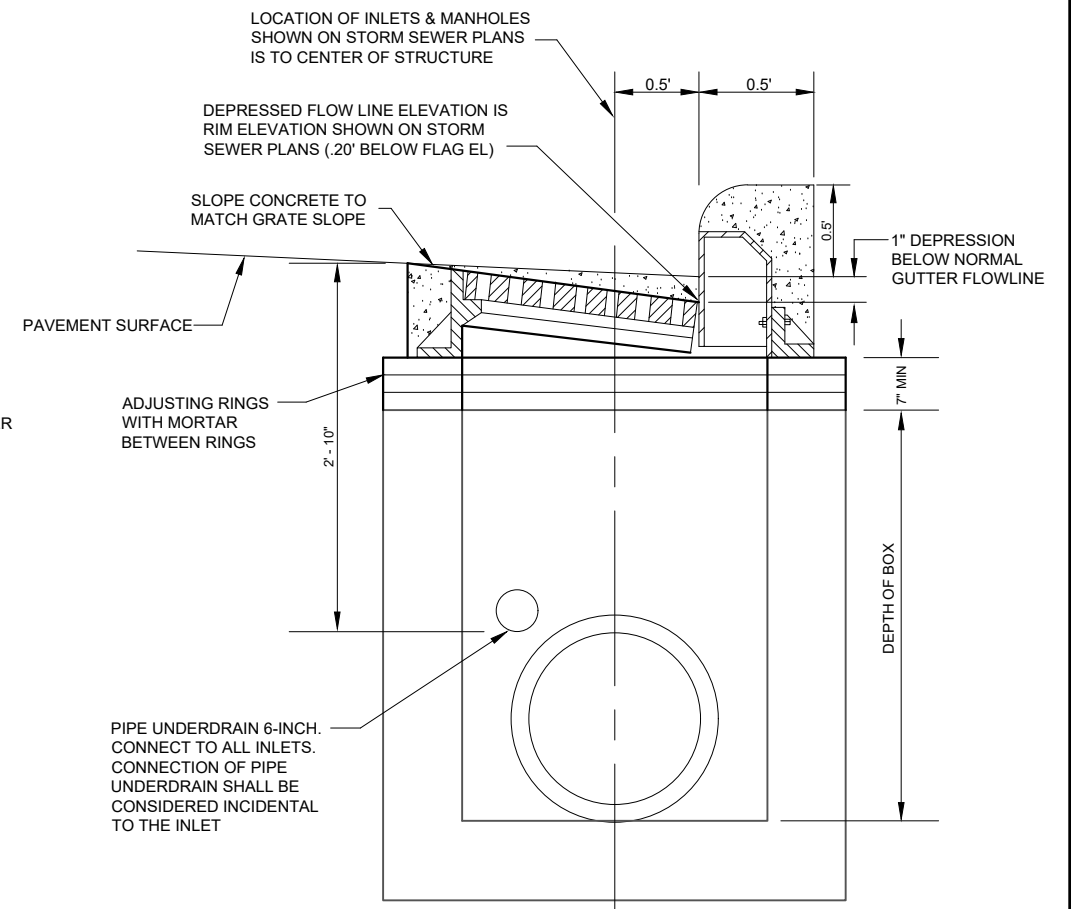
COVERS SHALL BE "SELF-SEALING", "T-SEAL" OR "GASKET SEALED" COVERS WITH "SANITARY" OR "STORM" LABELS AS APPLICABLE, OR OTHER LABELS APPROVED AS EQUAL.

### EXTERNAL CHIMNEY SEAL

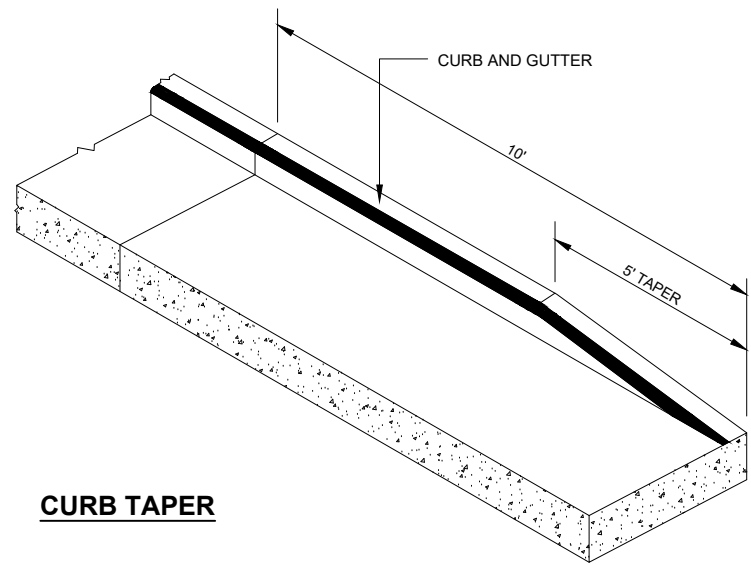




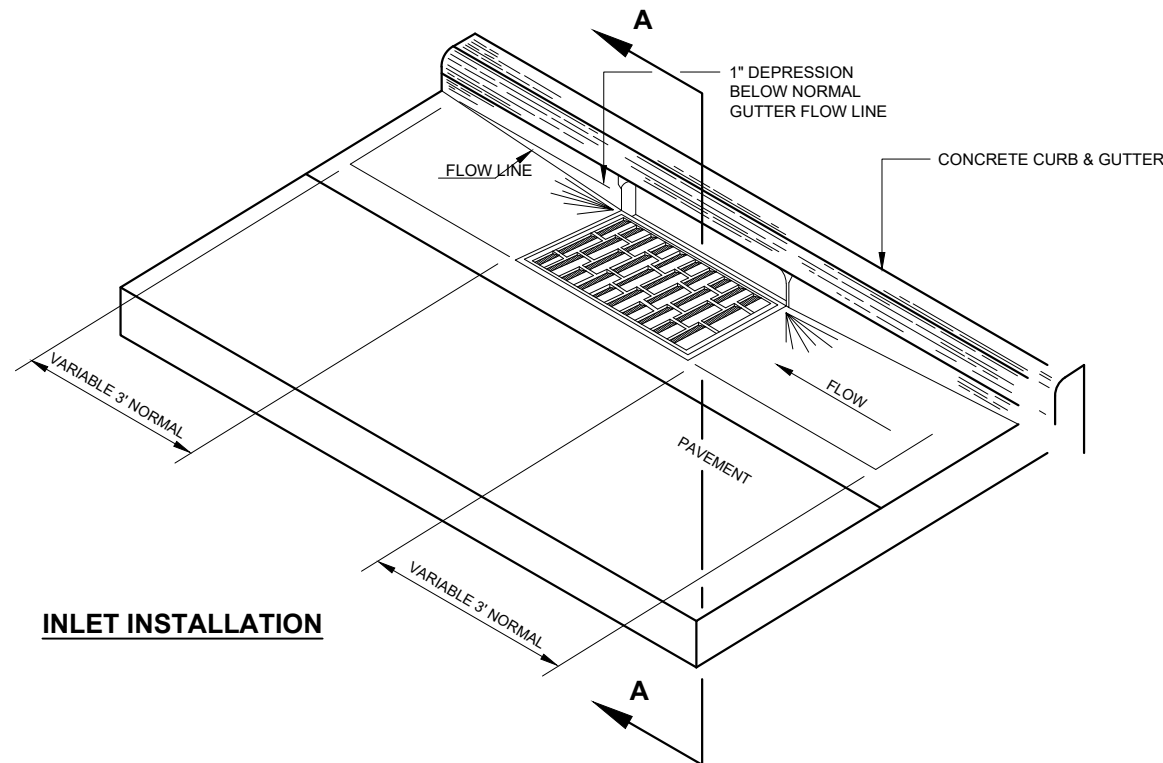
**ELEVATION**



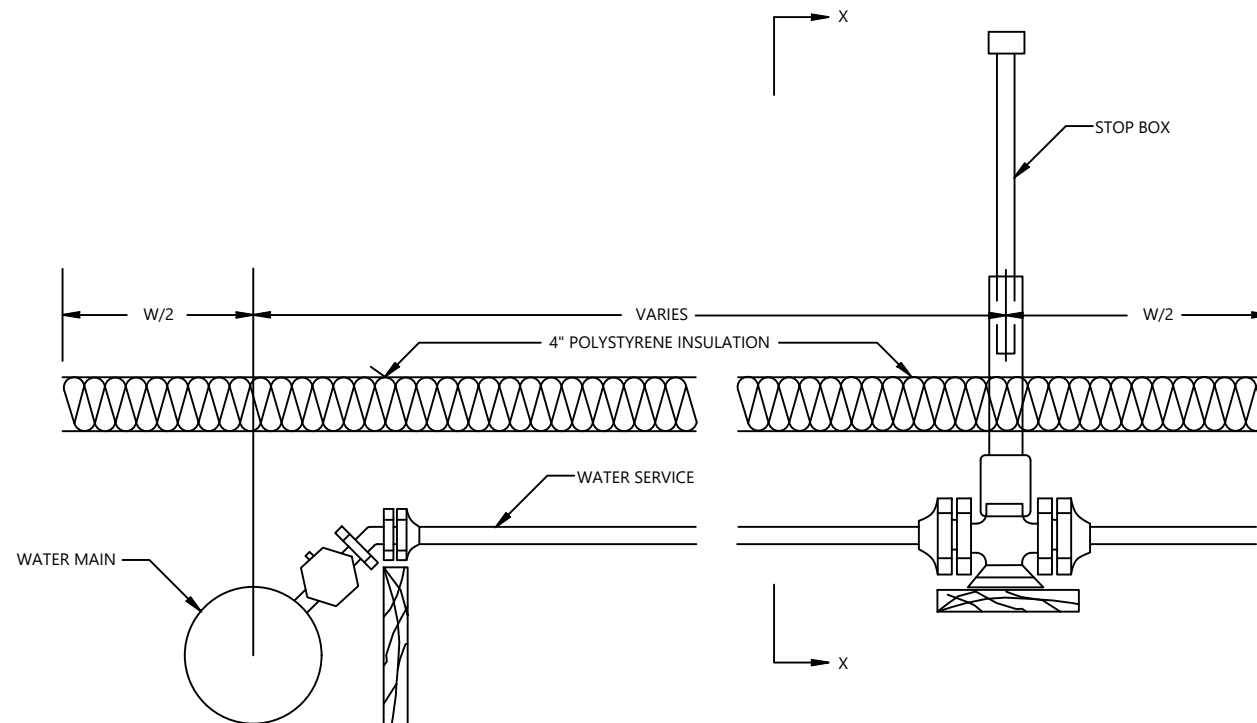
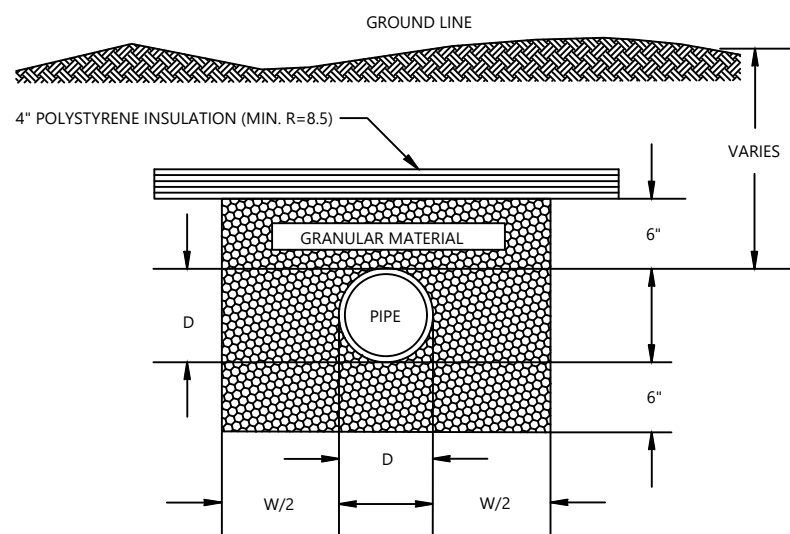
**SECTION A-A  
INLET**



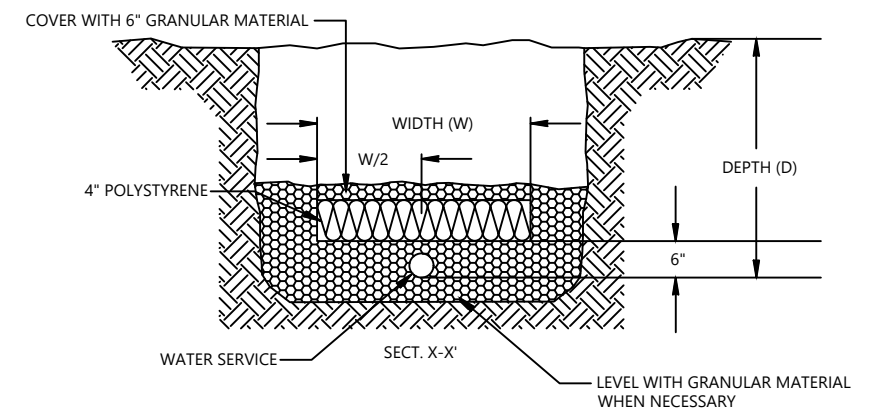
**CURB TAPER**



**INLET INSTALLATION**



**WATER MAIN & SERVICE INSULATION DETAIL**



DEPTH (D)	WIDTH (W)
7.5' OR MORE	NONE
5.2' TO 7.4'	4 FEET
4.3' TO 5.1'	6 FEET
3.0' TO 4.2'	8 FEET

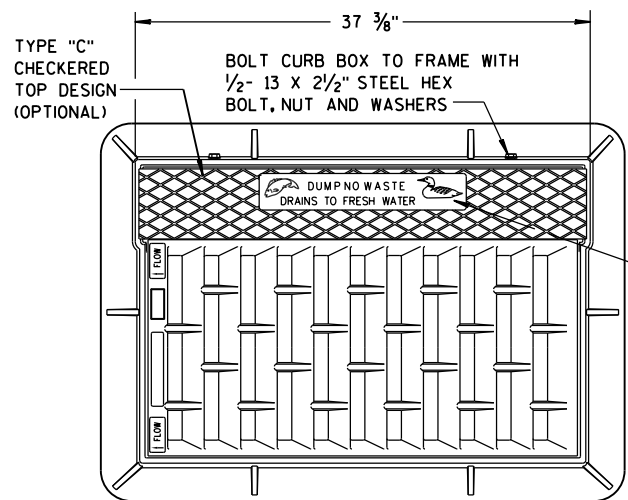
**NOTES:**

1. LAYERING OF 1", 1-1/2", 3" TO ARRIVE AT 3" IS PERMITTED. OFFSET JOINTS.
2. POLYSTYRENE SHALL BE HI DENSITY DOW HI 40 OR CERTIFOAM 40

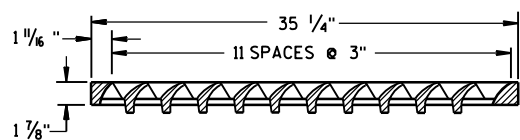
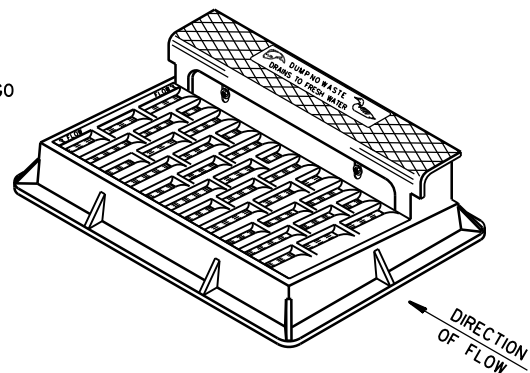




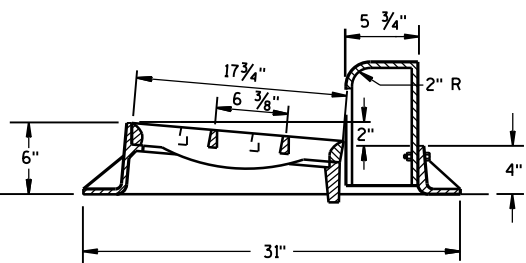
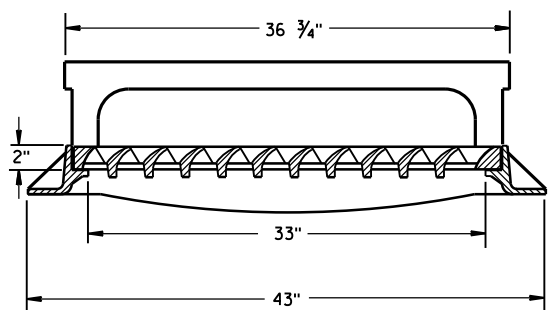
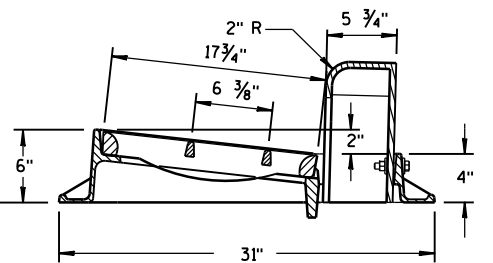
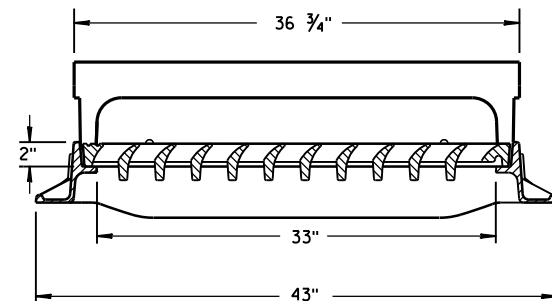
# 8A5 sheet a: Inlet Covers Type A, H, A-S, H-S & Z



**NOTE:  
GRATE IS REVERSIBLE.**

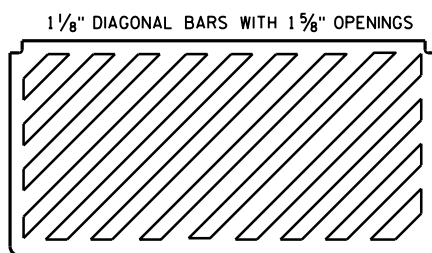


NOTE: CURB BOX HEIGHT ADJUSTABLE 6" TO 9"



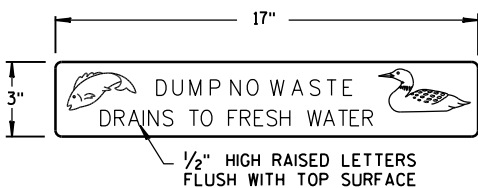
**TYPE "H"**

NOTE: EITHER CASTING IS ACCEPTABLE

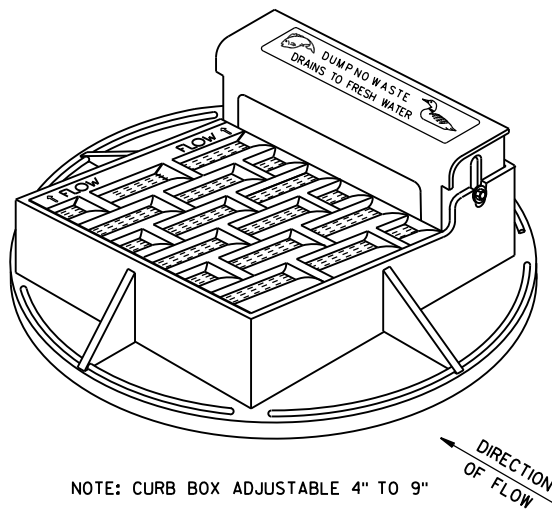


**SPECIAL GRATE FOR  
TYPE "H" COVER**

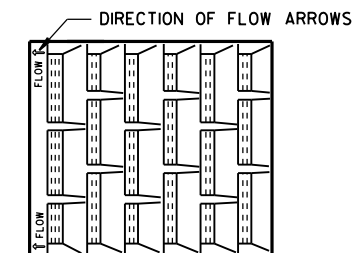
(MEASURES 35 1/4" X 17 3/4" X 2")  
(NOTED AS TYPE H-S ON DRAINAGE TABLE)



**LOGO DETAIL**

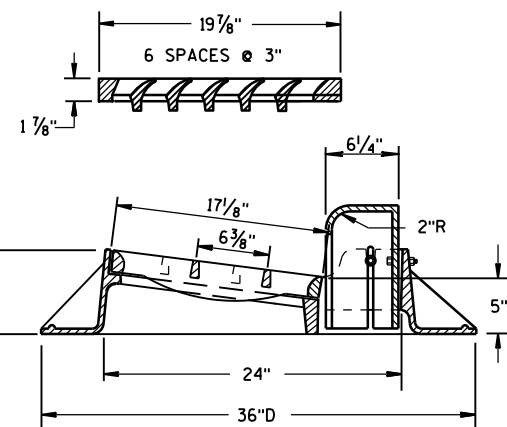
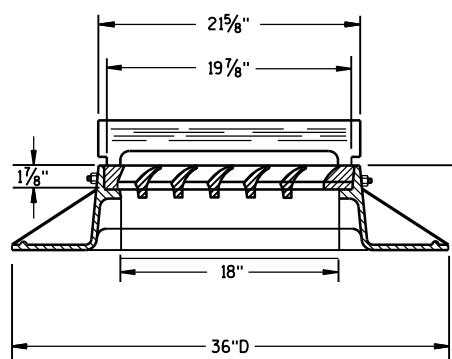


**NOTE:  
GRATE IS REVERSIBLE.**

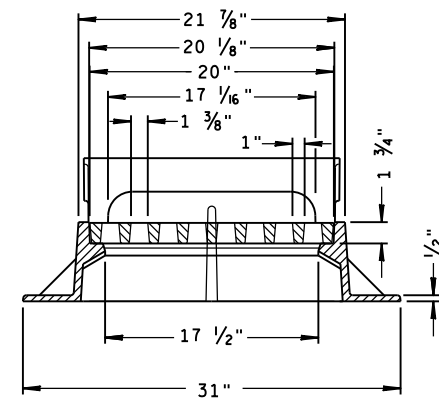
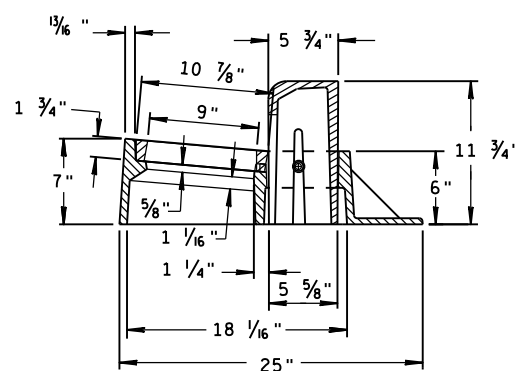


1" DIAGONAL BARS  
WITH 1 1/2" OPENINGS

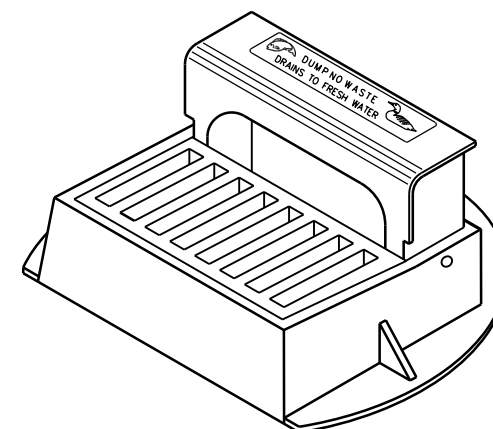
**SPECIAL GRATE FOR  
TYPE "A" COVER**  
(MEASURES 19 3/4" X 17" X 1 7/8")  
(NOTED AS TYPE A-S ON DRAINAGE TABLE)



**TYPE "A"**



**TYPE "Z"**



**INLET COVERS  
TYPE A, H, A-S, H-S & Z**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
11-27-13  
DATE

/s/ Jerry H. Zogg  
ROADWAY STANDARDS DEVELOPMENT  
ENGINEER

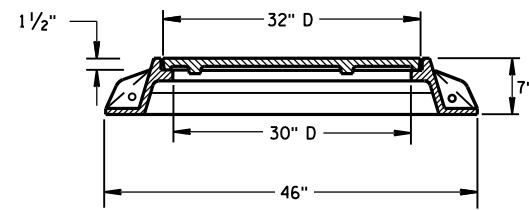
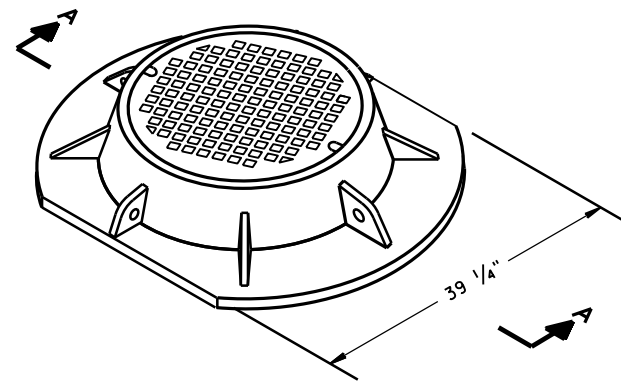
FHWA

6

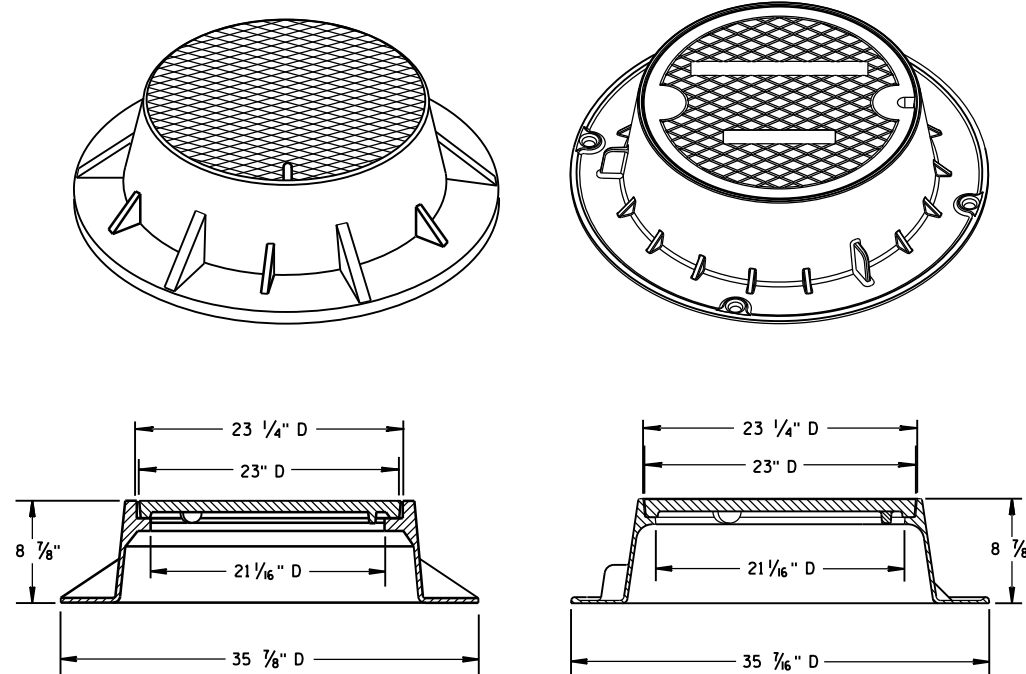
6

S.D.D. 8 A 5-19a

S.D.D. 8 A 5-19a

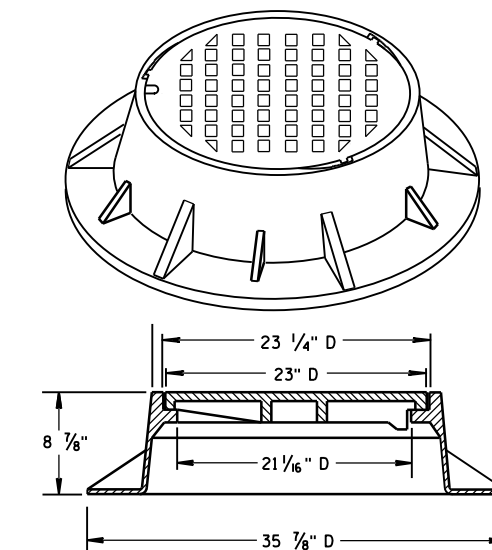
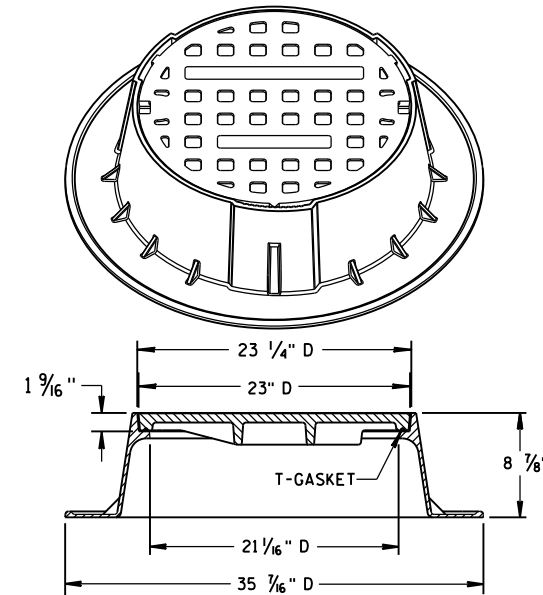


SECTION A-A  
TYPE "K"



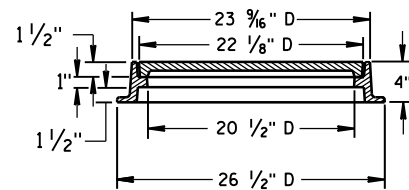
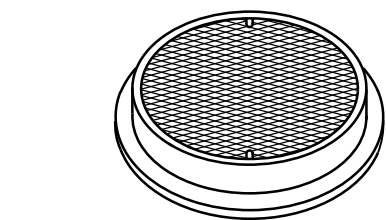
TYPE "J"

NOTE: EITHER CASTING IS ACCEPTABLE

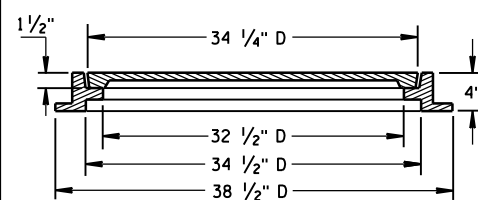
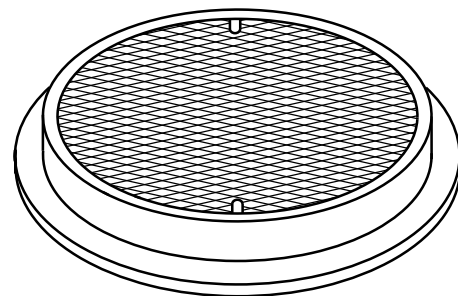


TYPE "J" SPECIAL

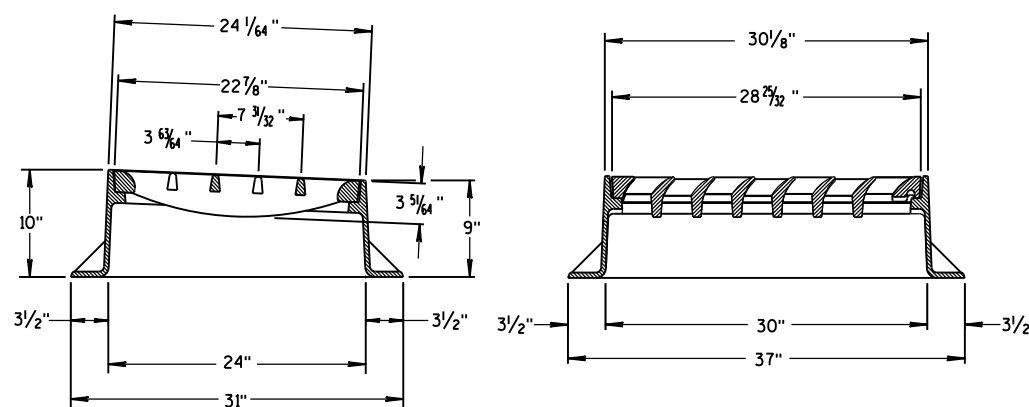
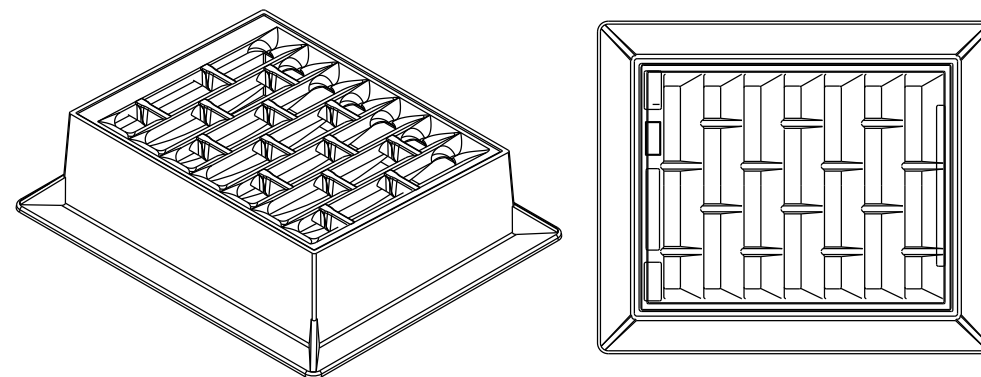
TYPE "B" NON-ROCKING SELF-SEAL LID  
(NOTED AS TYPE J-S ON THE DRAINAGE TABLE)  
NOTE: EITHER CASTING IS ACCEPTABLE



TYPE "L"



TYPE "M"



INLET COVER TYPE "BW"

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR MANHOLE COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ROUND FRAMES AND COVERS SHALL HAVE CONTINUOUSLY MACHINED BEARING SURFACES TO PREVENT ROCKING AND RATTLING.

6

6

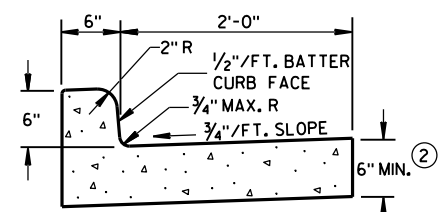
S.D.D. 8 A 5-19d

S.D.D. 8 A 5-19d

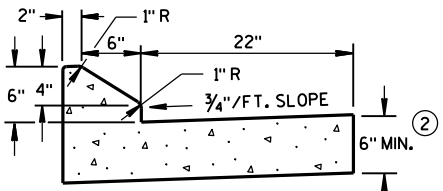
<b>INLET COVER TYPE BW MANHOLE COVERS, TYPE K, J, J-S, L &amp; M</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED DATE FHWA	/s/ Jerry H. Zogg ROADWAY STANDARDS DEVELOPMENT ENGINEER



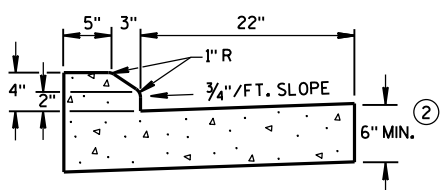
# 8D1: Concrete Curb, Concrete Curb & Gutter and Ties



TYPES A & D ①

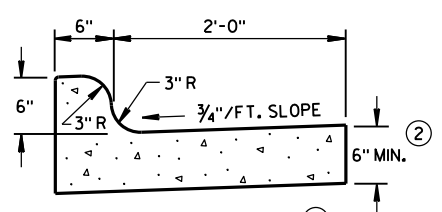


6" SLOPED CURB TYPES G & J ①



4" SLOPED CURB TYPES G & J ①

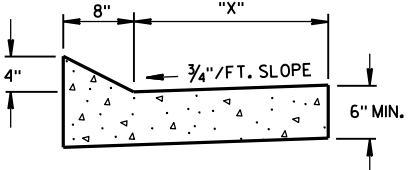
CONCRETE CURB & GUTTER 30"



TYPES K & L ①

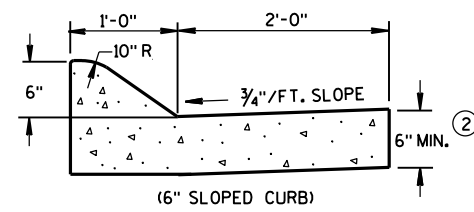
CONCRETE CURB & GUTTER 30"

OPTIONAL CURB SHAPE FOR TYPES K & L ①

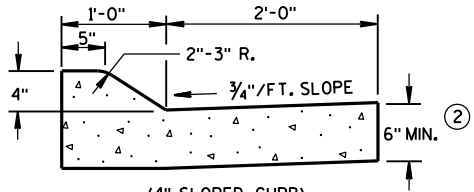


TYPES TBT & TBTT ①  
CONCRETE CURB & GUTTER

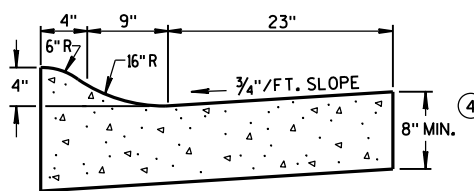
TBT & TBTT	"X"
30"	22"
36"	28"



(6" SLOPED CURB)



(4" SLOPED CURB)  
TYPES A & D ①

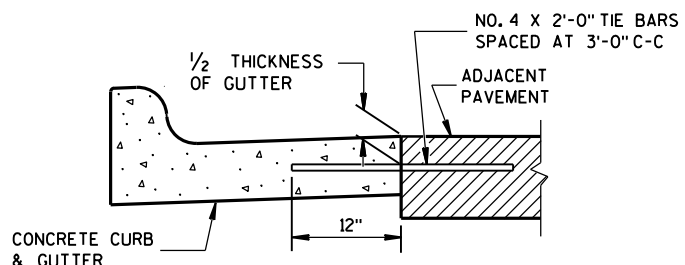


4" SLOPED CURB TYPES R & T ① ⑤  
CONCRETE CURB & GUTTER 36"

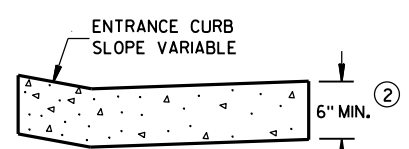
## GENERAL NOTES

- DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.
- PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.
- INTEGRAL CURB & GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB & GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE. A LONGITUDINAL CONSTRUCTION JOINT IS NOT REQUIRED WITH INTEGRAL CURB AND GUTTER.
- WHERE THE TRANSVERSE JOINTS IN THE PAVEMENT ARE REQUIRED TO BE SEALED, THE JOINTS IN THE INTEGRAL CURB AND GUTTER SHALL BE SEALED TO THE FACE OF CURB WITH THE SAME TYPE OF SEALANT. THE COST OF FURNISHING AND INSTALLING THIS SEALANT SHALL BE INCIDENTAL TO THE ITEM CONCRETE CURB AND GUTTER.
- UNLESS OTHERWISE SHOWN ON THE TYPICAL CROSS SECTIONS, THE BASE AGGREGATE AND COMMON EXCAVATION LIMITS ARE 2'-0" BEHIND THE BACK OF CURBS.

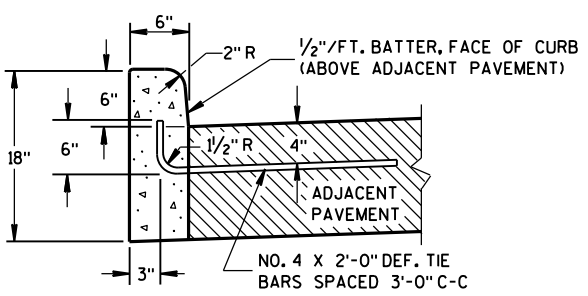
- TIE BARS ARE REQUIRED FOR CURB AND GUTTER TYPES A, G, K, R AND TBTT.
- THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- USE 8" MINIMUM GUTTER THICKNESS WHEN USED WITH AN ADJACENT CONCRETE TRUCK APRON PLACED BEHIND BACK OF CURB.
- THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 8" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- THE FACE OF CURB IS 6" FROM THE BACK OF CURB.
- WHEN REVERSE SLOPE GUTTER IS REQUIRED, THE LOCATION(S) WILL BE SHOWN ELSEWHERE IN THE PLAN.



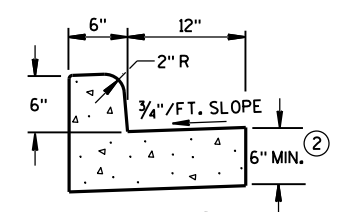
TYPICAL TIE BAR LOCATION ①



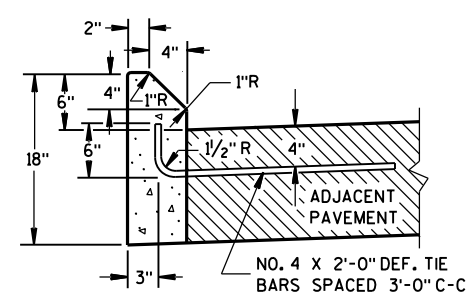
DRIVEWAY ENTRANCE CURB (WHEN DIRECTED BY THE ENGINEER)



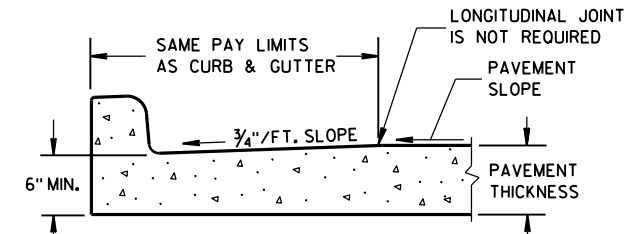
TYPES A & D ①  
CONCRETE CURB



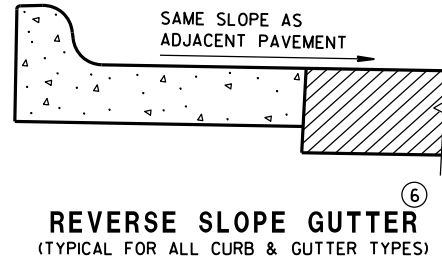
TYPES A & D ①  
CONCRETE CURB & GUTTER 18"



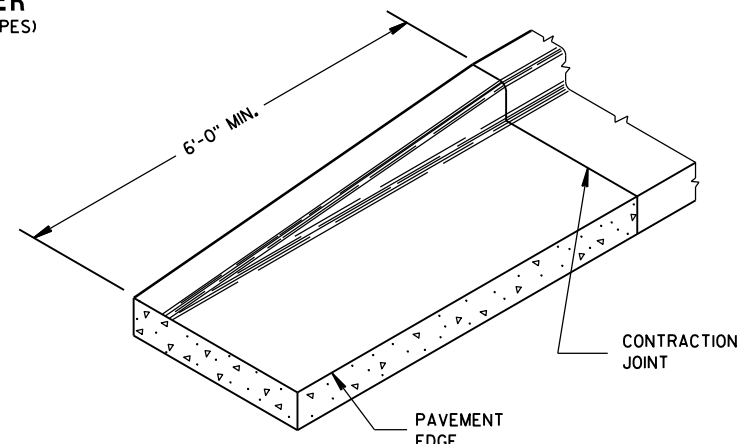
TYPES G & J ①



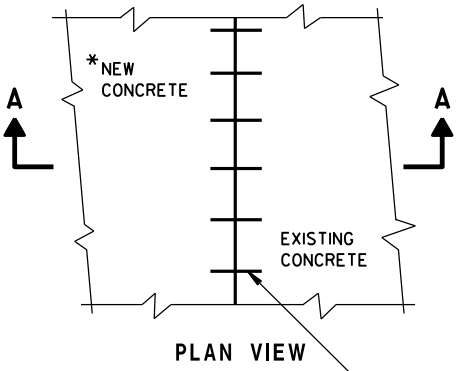
PARTIAL SECTION OF PAVEMENT WITH INTEGRAL CURB & GUTTER



REVERSE SLOPE GUTTER (TYPICAL FOR ALL CURB & GUTTER TYPES) ⑥



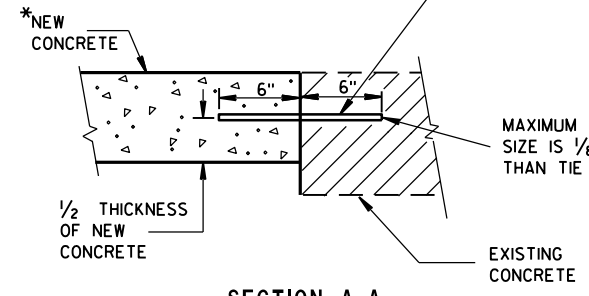
END SECTION CURB & GUTTER



PLAN VIEW

\* NEW CURB & GUTTER, SURFACE DRAINS, CONCRETE PAVEMENT OR OTHER NEW CONCRETE.

NO. 6 TIE BARS SPACED 2'-6" C-C, INSTALLED PERPENDICULAR TO THE LONGITUDINAL JOINT.



SECTION A-A  
TIE BARS DRILLED INTO EXISTING PAVEMENT

CONCRETE CURB, CONCRETE CURB & GUTTER AND TIES	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June, 2016 DATE	/s/ Jerry H. Zogg ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	

6

6

S.D.D. 8 D 1-19

S.D.D. 8 D 1-19

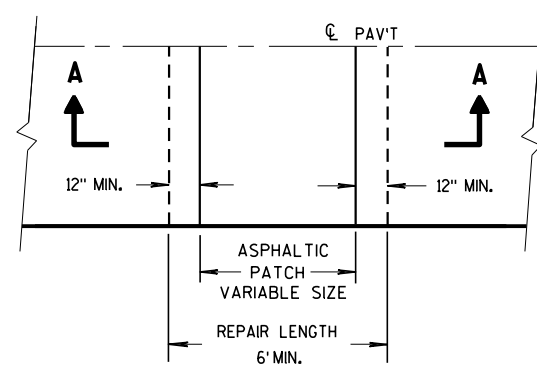
**GENERAL NOTES**

SAW CUT, DRILL, AND LIFT OUT EXISTING CONCRETE PAVEMENT WITHIN THE BOUNDARIES OF CONCRETE REPAIR AREAS. THE CONTRACTOR MAY MAKE ADDITIONAL SAW CUTS INSIDE THE REPAIR LIMITS TO REDUCE WEIGHT AND SIZE OF CONCRETE PIECES.

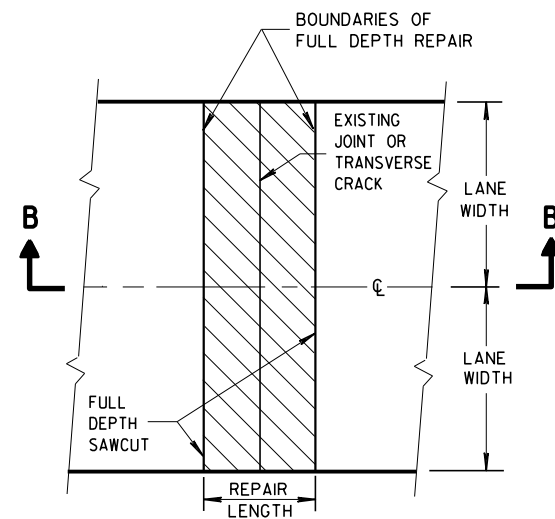
PROVIDE A 6-FOOT MINIMUM DISTANCE FROM BOUNDARIES OF CONCRETE REPAIR AREAS TO ADJACENT TRANSVERSE JOINT OR CRACK IN THE SAME LANE.

THE LENGTH OF THE REPAIRS MAY VARY FROM THE DIMENSIONS SHOWN IF THE EXISTING CONCRETE PAVEMENT IS NONDOWELED AND THE PAVEMENT IS TO BE OVERLAID AFTER REPAIRING.

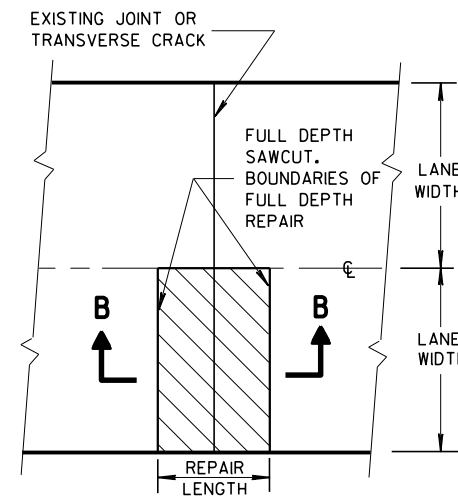
① DOWEL BARS MIGHT NOT EXIST.



**PLAN VIEW**

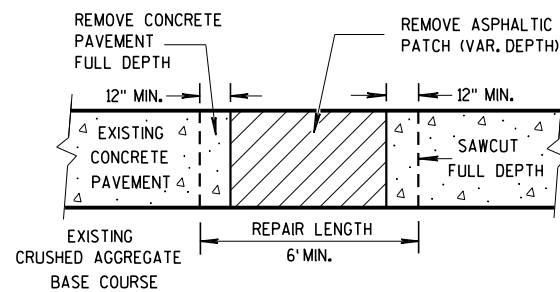


**PLAN VIEW  
(DOUBLE LANE REPAIR)**

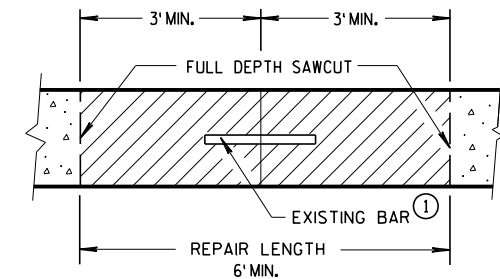


**PLAN VIEW  
(SINGLE LANE REPAIR)**

**FULL DEPTH CONCRETE PAVEMENT REMOVAL**



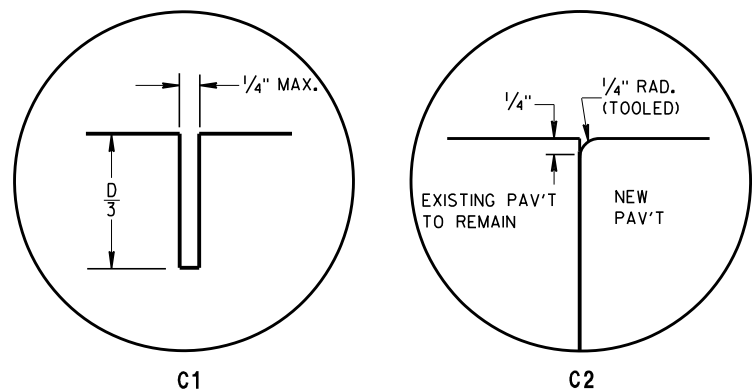
**SECTION A-A  
HMA PATCH REMOVAL**



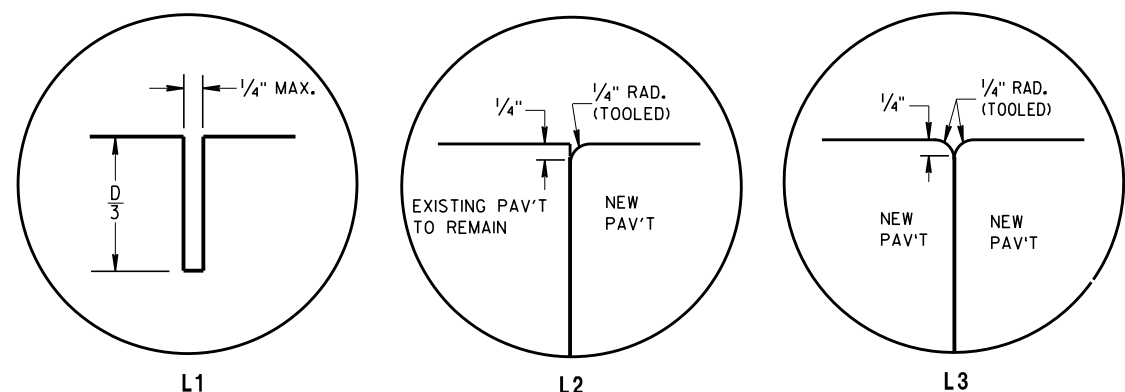
**SECTION B-B  
CONCRETE REMOVAL**

6

6



TRANSVERSE JOINTS



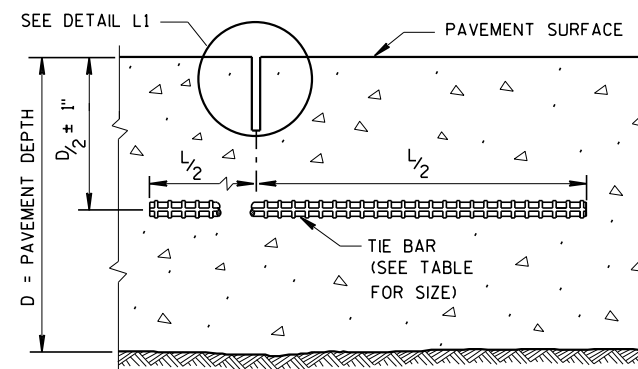
LONGITUDINAL JOINTS

**TIE BAR TABLE**

PAVEMENT DEPTH (D)	TIE BAR SIZE	TIE BAR LENGTH (L)	MAX. TIE BAR SPACING
< 10 1/2"	NO. 4	30"	36"
≥ 10 1/2"	NO. 5	36"	36"
	NO. 4*	30"	24" **

\* SUBSTITUTE BENT BARS AT LONGITUDINAL JOINTS WHEN EQUIPMENT LIMITATIONS DURING CONSTRUCTION WARRANT (e.g. AUXILIARY LANES OR TURN LANES)

\*\* CONFORM TO 15" MINIMUM SPACING FROM TRANSVERSE JOINTS; SPACING BETWEEN TIE BARS WILL BE 30" AT TRANSVERSE JOINTS.



SECTION C-C  
SAWED LONGITUDINAL JOINT

**GENERAL NOTES**

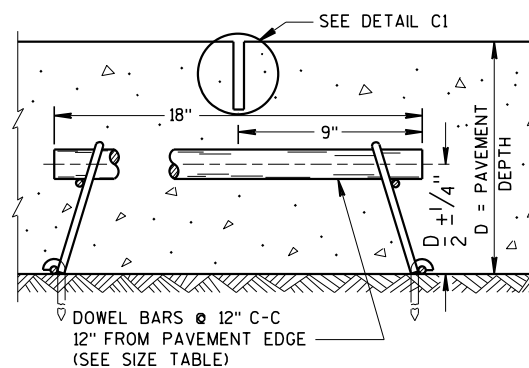
INSTALL DOWEL BARS PARALLEL TO THE PAVEMENT CENTERLINE AND PAVEMENT SURFACE.

CONCRETE PAVEMENT REPAIRS OF EXISTING NONDOWELED CONCRETE PAVEMENTS DO NOT NEED TO BE DOWELED.

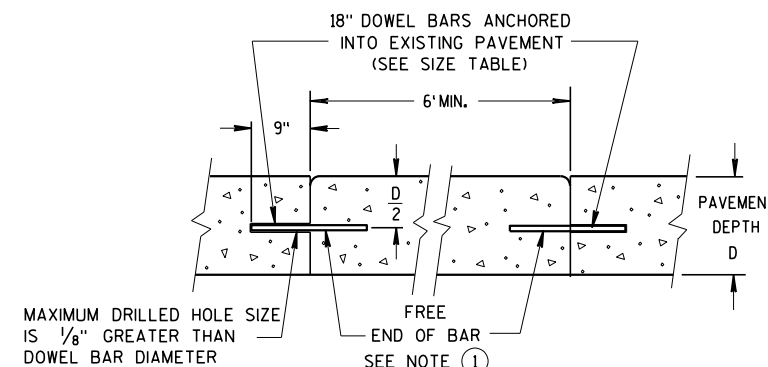
ANCHOR DOWEL BARS AND TIE BARS INTO DRILLED HOLES WITH AN EPOXY.

FOR MULTI-LANE CONCRETE PAVEMENT REPLACEMENTS, PROVIDE A MINIMUM DISTANCE OF 15 INCHES FROM ALL TRANSVERSE JOINTS OR EDGES OF REPLACEMENT TO THE CENTER OF THE TIE BAR NEAREST THAT JOINT OR EDGE.

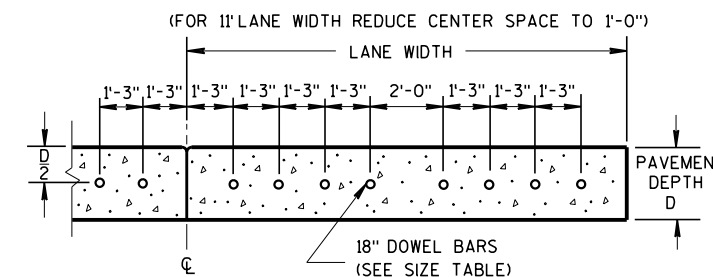
① APPLY A THIN UNIFORM COATING OF SURFACE TREATMENT TO THE FREE END OF DOWEL BARS TO PREVENT BONDING.



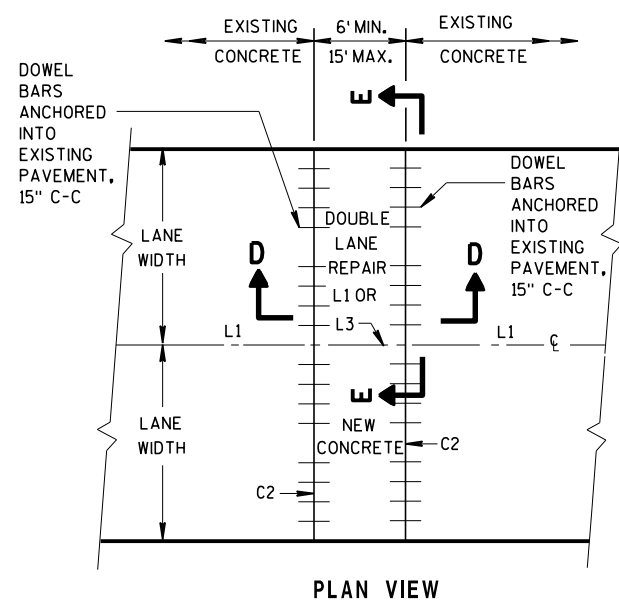
SECTION F-F  
CONTRACTION JOINT



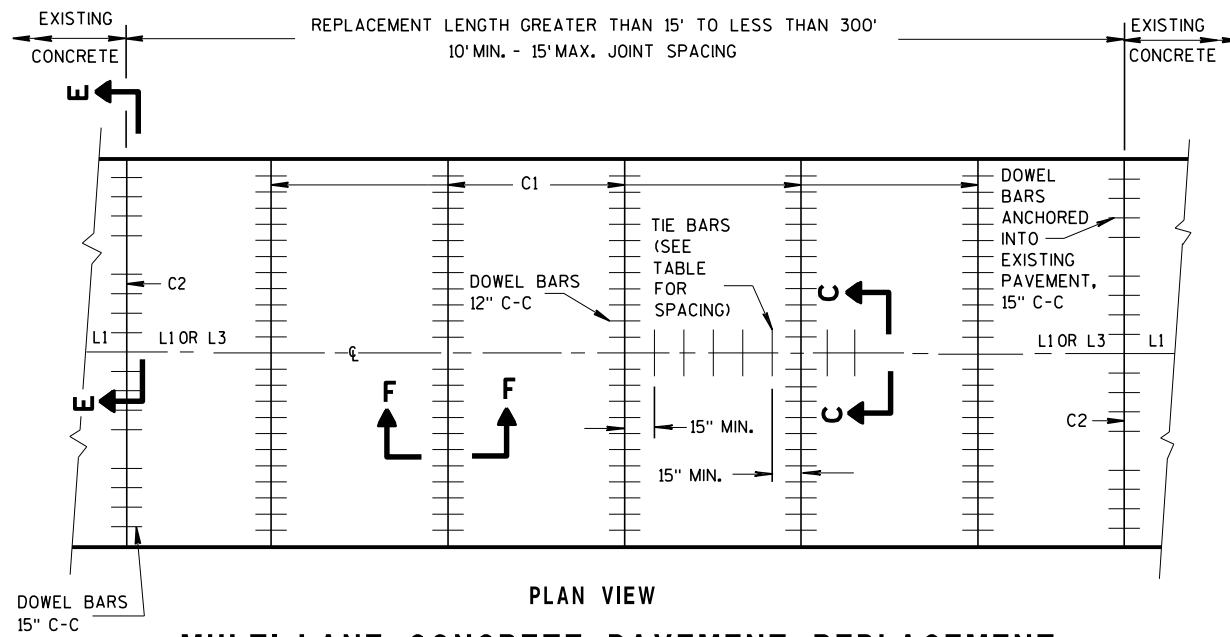
SECTION D-D



SECTION E-E  
DRILLED DOWEL BAR CONSTRUCTION JOINT



PLAN VIEW  
MULTI-LANE CONCRETE PAVEMENT REPAIR



PLAN VIEW  
MULTI-LANE CONCRETE PAVEMENT REPLACEMENT

**PAVEMENT DEPTH, DOWEL BAR SIZE AND JOINT SPACING TABLE**

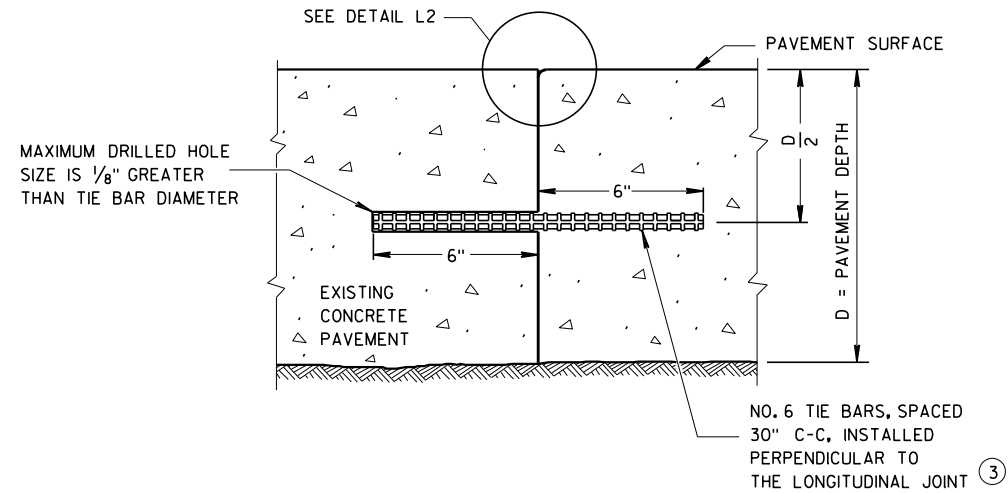
PAVEMENT DEPTH (D)	DOWEL BAR DIAMETER	DRILLED DOWEL BAR DIAMETER	CONTRACTION JOINT SPACING
5 1/2", 6", 6 1/2"	NONE	NONE	12'
7", 7 1/2"	1"	1"	14'
8", 8 1/2"	1 1/4"	1 1/4"	15'
9", 9 1/2"	1 1/4"	1 1/4"	15'
10" & ABOVE	1 1/2"	1 1/4"	15'

**CONCRETE PAVEMENT REPAIR AND REPLACEMENT**

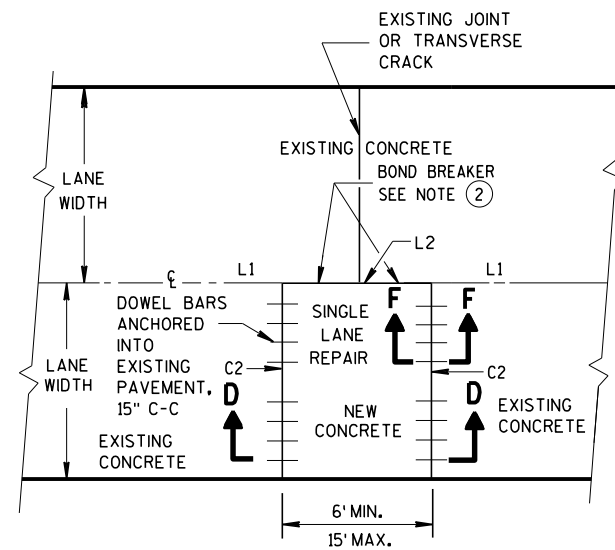
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

**GENERAL NOTES**

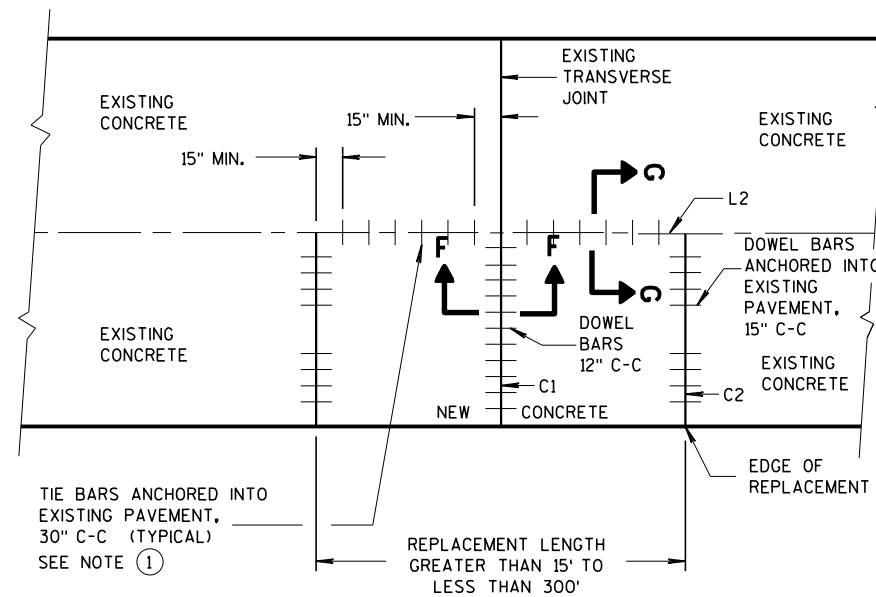
- ① WITH THE APPROVAL OF THE ENGINEER, FOR SINGLE LANE PAVEMENT REPLACEMENTS LESS THAN 30 FEET IN LENGTH, THE CONTRACTOR MAY INSTALL DRILLED TIE BARS ON 6:1 SKEW HORIZONTALLY, DIRECTION OF SKEW ALTERNATING WITH EACH SUCCESSIVE BAR. DRIVE SKEWED TIE BARS TO A DEPTH OF 6 INCHES IN A HOLE OF SUCH A DIAMETER AS TO PROVIDE A TIGHT DRIVEN FIT.
- ② USE AN ENGINEER-APPROVED BOND BREAKER (E.G. RELEASE AGENT, CURING COMPOUND) FOR SINGLE LANE REPAIRS UP TO 15 FEET IN LENGTH.
- ③ ANCHOR TIE BARS INTO DRILLED HOLES WITH AN EPOXY.



**SECTION G-G  
TIE BARS ANCHORED  
INTO EXISTING PAVEMENT**

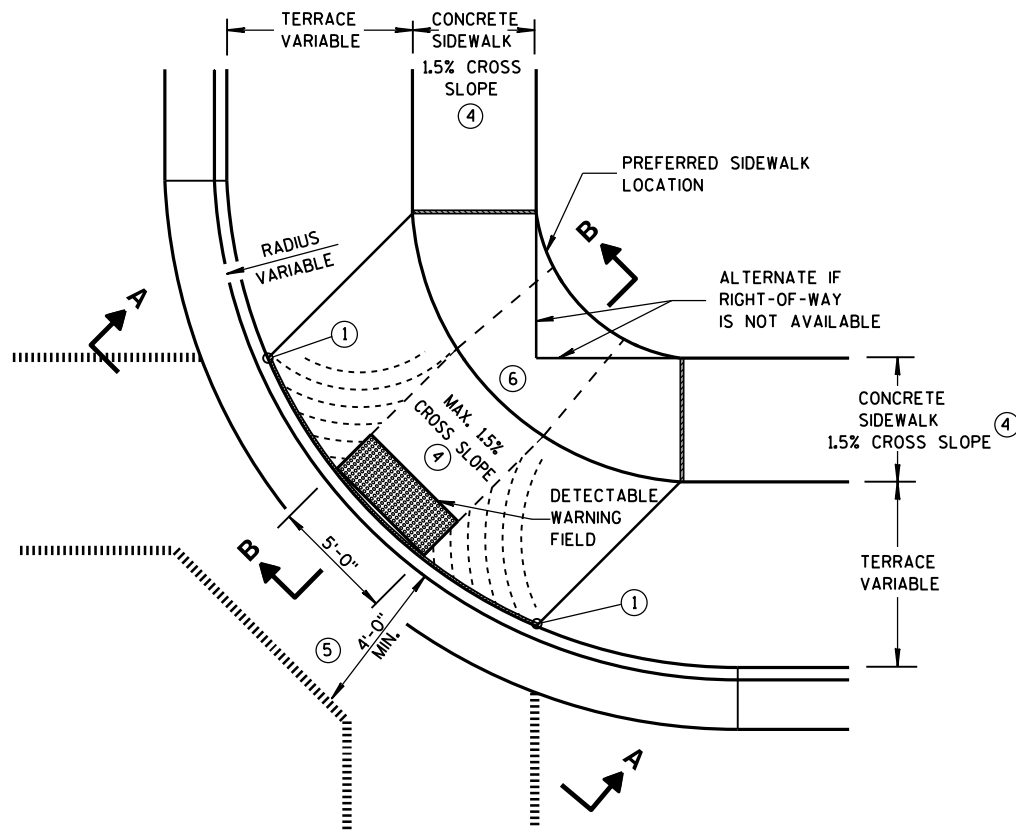


**PLAN VIEW  
SINGLE LANE  
CONCRETE PAVEMENT REPAIR**

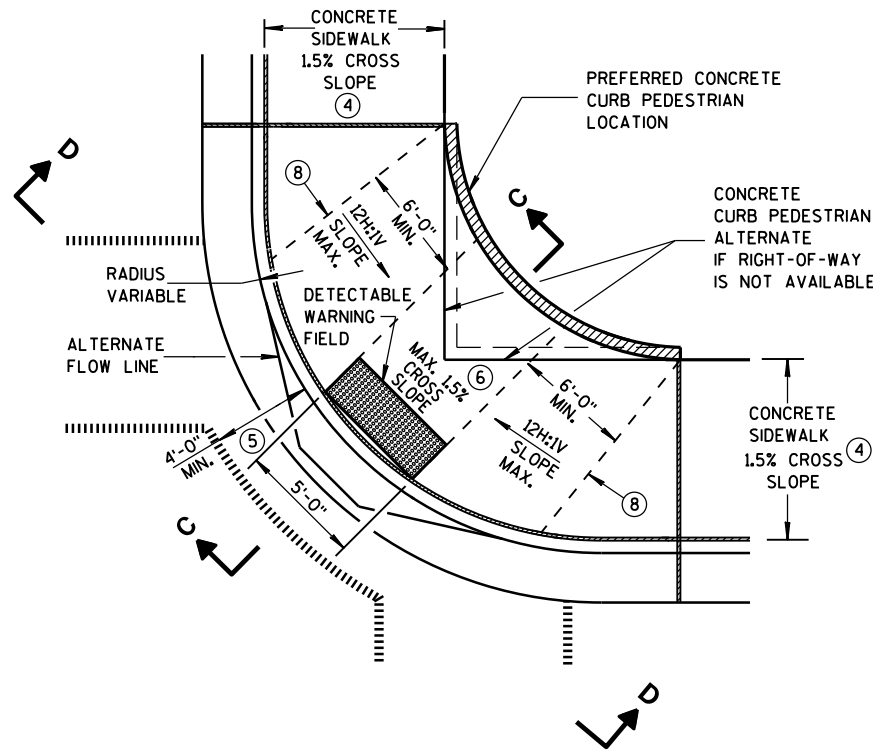


**PLAN VIEW  
SINGLE LANE  
CONCRETE PAVEMENT REPLACEMENT**

<b>CONCRETE PAVEMENT REPAIR AND REPLACEMENT</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED	
March 2018 DATE	/s/ Peter Kemp, P.E. PAVEMENT SUPERVISOR
FHWA	



**PLAN VIEW  
TYPE 1 RAMP**  
(CENTER OF CORNER RADIUS)



**PLAN VIEW  
TYPE 1-A RAMP**  
(NO TERRACE)

**GENERAL NOTES**

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

WHEN NECESSARY, THE SIDEWALK ELEVATION MAY BE LOWERED TO MEET THE HIGH POINT ON THE RAMP.

TYPE 1 RAMPS SHALL HAVE A NORMAL SIDEWALK APRON AND CURB ON BOTH SIDES OF RAMP.

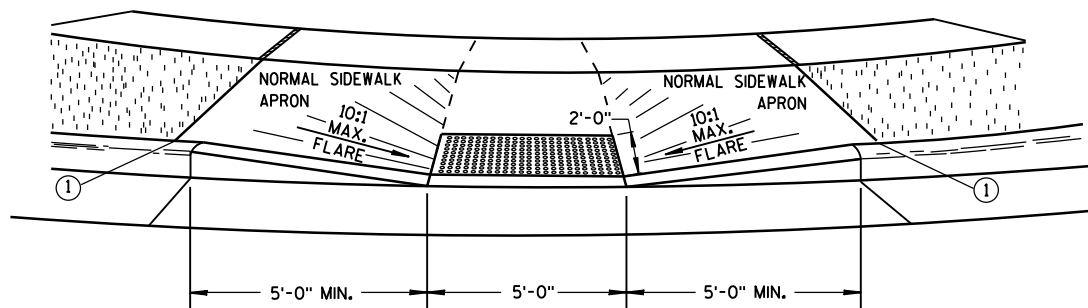
DETECTABLE WARNING FIELD SHALL BE MEASURED AND PAID BY THE SQUARE FOOT AS "CURB RAMP DETECTABLE WARNING FIELD". THE CONCRETE PEDESTRIAN CURB, IF NEEDED, SHALL BE MEASURED AND PAID BY THE LINEAL FOOT AS "CONCRETE CURB PEDESTRIAN". CONCRETE SIDEWALK IN THE CURB RAMP AREA SHALL BE MEASURED AND PAID BY THE SQUARE FOOT AS CONCRETE SIDEWALK, INCLUDING THE AREA UNDER THE DETECTABLE WARNING FIELD.

SELECT CURB RAMP DETECTABLE WARNING FIELD MATERIALS AND DEVICES FROM THE DEPARTMENT'S APPROVED MATERIALS LIST. THE COLOR OF THE DETECTABLE WARNING FIELD IS SPECIFIED ELSEWHERE AND IS INCIDENTAL TO THE BID ITEM OF "CURB RAMP DETECTABLE WARNING FIELD".

DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.

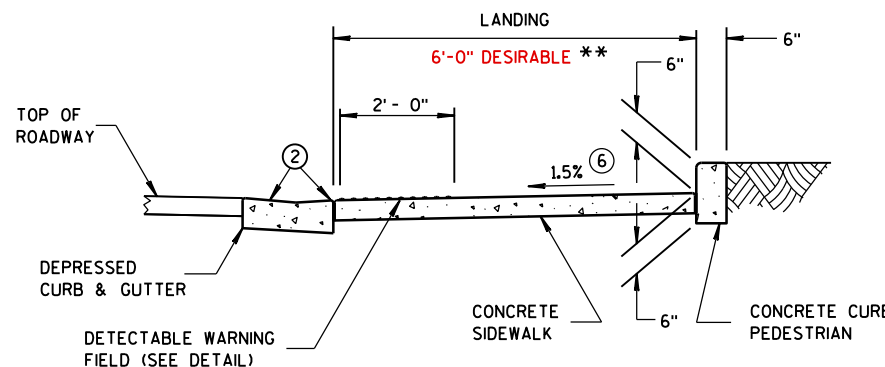
SURFACE TEXTURE OF THE RAMP SHALL BE OBTAINED BY COARSE BROOMING TRANSVERSE TO THE SLOPE OF THE RAMP.

- ① THIS POINT IS AN EXTENSION OF OUTSIDE EDGE OF APPROACHING SIDEWALK WHERE IT MEETS THE BACK OF CONCRETE CURB. POINT LOCATION MAY BE ADJUSTED TO ALIGN WITH BEGINNING OF FULL-HEIGHT CURB IF THIS DISTANCE IS SHORT.
- ② GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4-INCH ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL NOT EXCEED 7%.
- ③ ABSOLUTE MAXIMUM 12H:1V (8.33%) CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.
- ④ ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
- ⑤ PROVIDE A LEVEL LANDING IN THE STREET AND GUTTER AREA. (2% MAXIMUM SLOPE IN ANY DIRECTION). WHEN THE GUTTER SLOPE EXCEEDS 2%, CONSTRUCT THE LEVEL LANDING IN THE STREET AREA.
- ⑥ PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LANDING SIZE IS 5 FEET X 5 FEET.
- ⑧ PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.



**VIEW A-A**

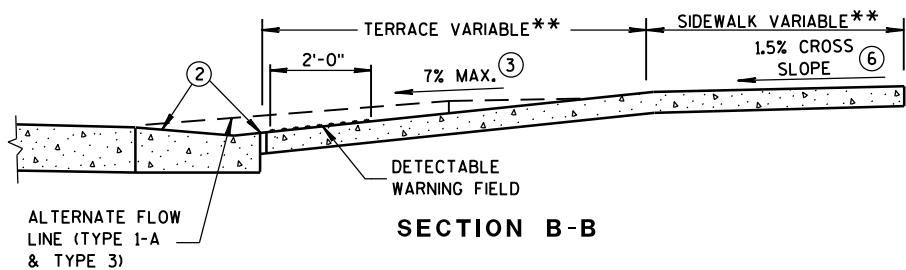
\*\* WIDTH SHOWN ELSEWHERE IN THE PLANS



**SECTION C-C**

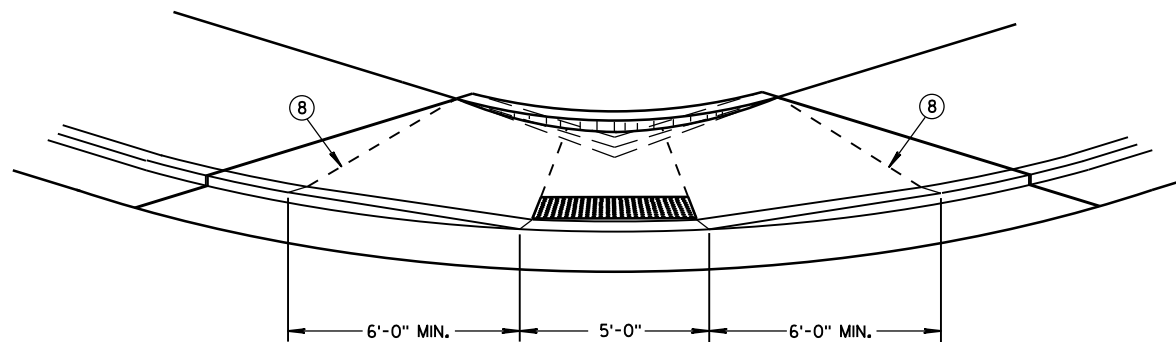
**LEGEND**

- 1/2" EXPANSION JOINT-SIDEWALK
- - - - CONTRACTION JOINT FIELD LOCATED
- ||||| PAVEMENT MARKING CROSSWALK (WHITE)
- ALTERNATIVE LAYOUT



**SECTION B-B**

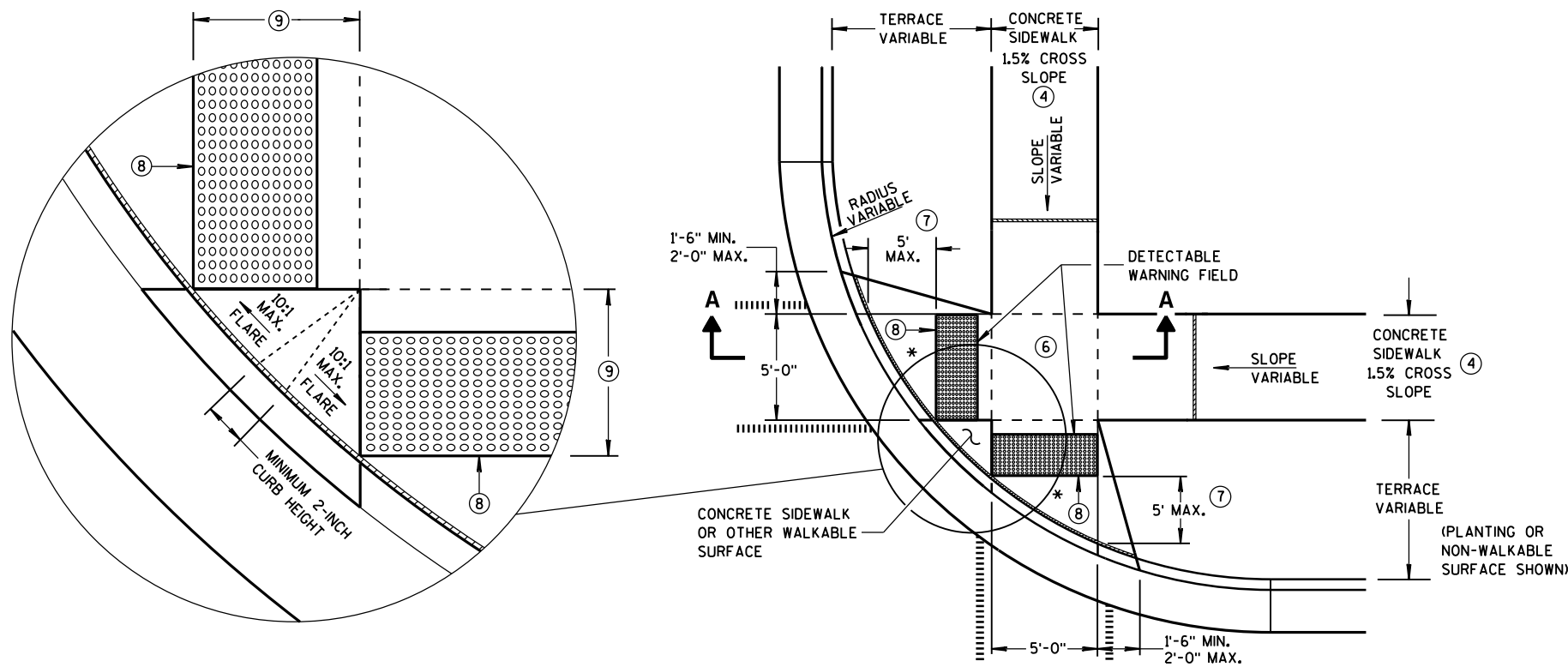
ALTERNATE FLOW LINE (TYPE 1-A & TYPE 3)



**VIEW D-D**

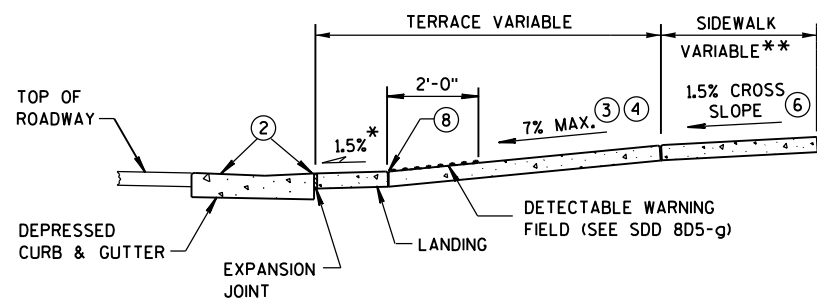
**CURB RAMPS  
TYPES 1 AND 1-A**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



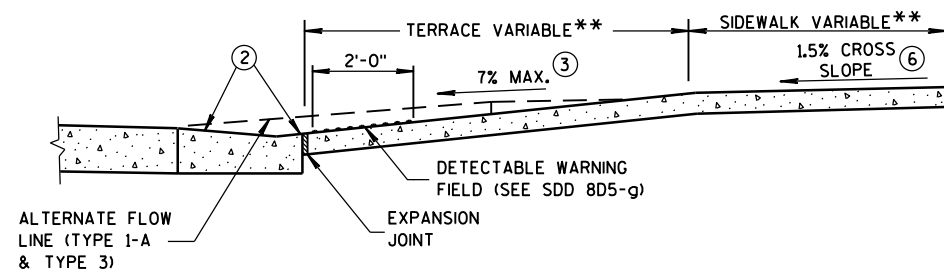
PLAN VIEW  
TYPE 2 RAMP  
(ON LINE WITH SIDEWALK)

\* MAXIMUM 2.0% SLOPE  
IN ALL DIRECTIONS IN  
FRONT OF GRADE BREAK



SECTION A-A

\*\* WIDTH SHOWN ELSEWHERE  
IN THE PLANS



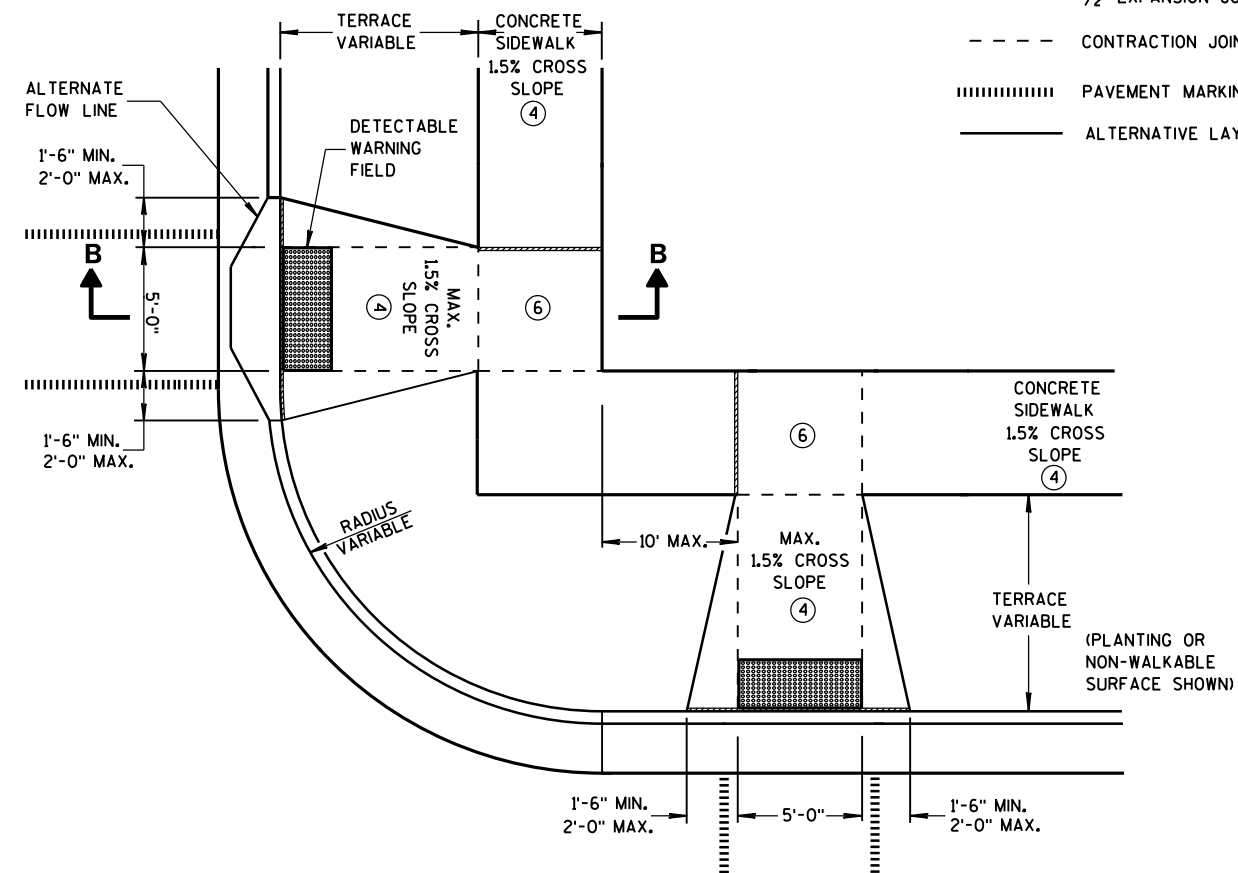
SECTION B-B

GENERAL NOTES

- AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.
- DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.
- ② GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4-INCH ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL MATCH THE RAMP SLOPE, MINIMALLY 1.5% AND NOT TO EXCEED 7%. WHEN ADJACENT TO 1.5% LANDING, CONSTRUCT CURB HEAD OPENING AT 1.5% IN THE DIRECTION OF PEDESTRIAN TRAVEL.
- ③ ABSOLUTE MAXIMUM 12H:1V (8.33%) CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.
- ④ ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
- ⑥ PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LANDING SIZE IS 5 FEET X 5 FEET.
- ⑦ WHEN THIS GRADE BREAK DISTANCE EXCEEDS 5 FEET, USE RADIAL DETECTABLE WARNING FIELD PER SDD 8D5-f.
- ⑧ PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.
- ⑨ WHEN THIS DISTANCE IS LESS THAN 6'-0", IT MAY BE DIFFICULT TO ACHIEVE A 7% SLOPE OR FLATTER ALONG THE RAMP. REDUCE CURB HEIGHT IN TRIANGLE AREA TO ACHIEVE 7% SLOPE OR FLATTER ON RAMP. CONSTRUCT 2-INCH MINIMUM CURB HEIGHT BETWEEN 10:1 FLARES.

LEGEND

- 1/2" EXPANSION JOINT-SIDEWALK
- CONTRACTION JOINT FIELD LOCATED
- PAVEMENT MARKING CROSSWALK (WHITE)
- ALTERNATIVE LAYOUT



PLAN VIEW  
TYPE 3 RAMP  
(OUTSIDE OF CROSSWALK AREA)

CURB RAMPS  
TYPES 2 AND 3

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

6

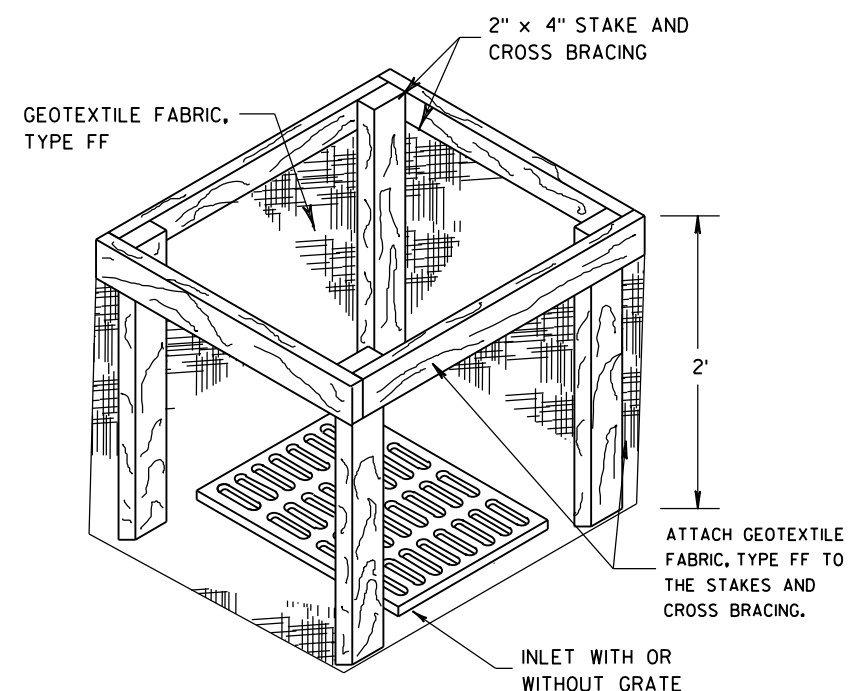
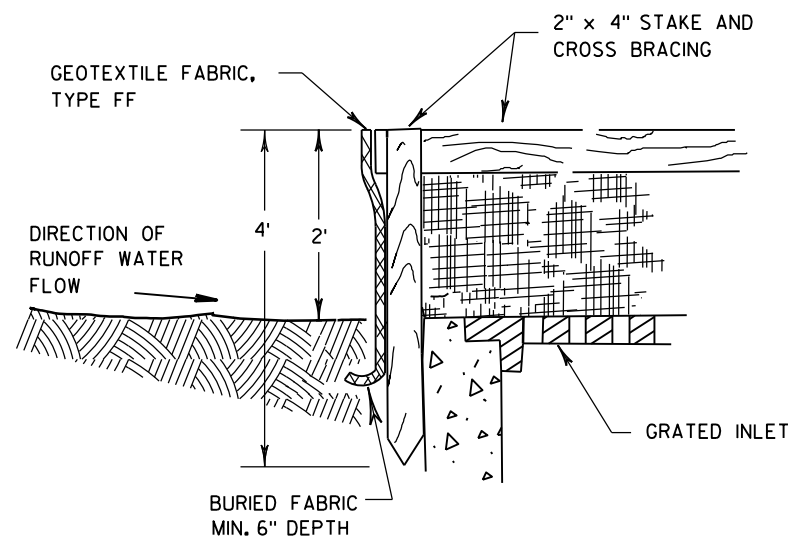
6

S.D.D. 8 D 5-19b

S.D.D. 8 D 5-19b



# 8E10: Inlet Protection Type A, B, C and D



### INLET PROTECTION, TYPE A

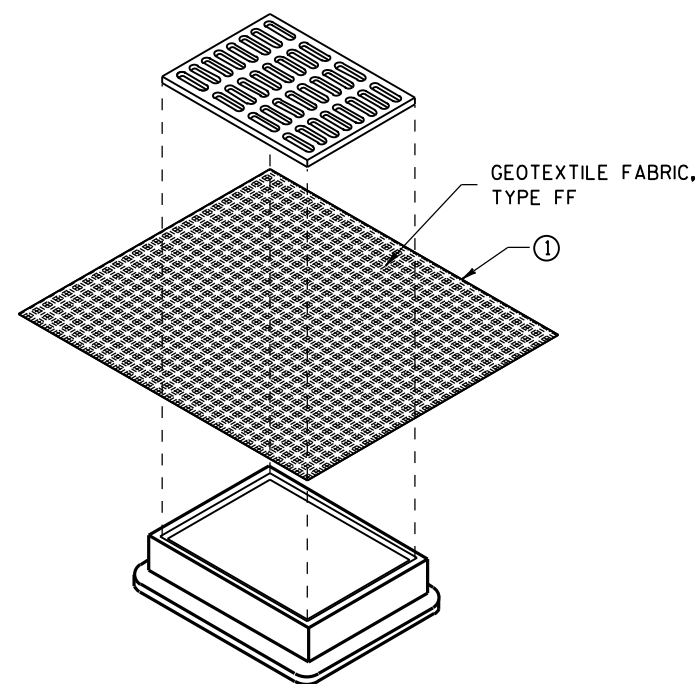
#### GENERAL NOTES

INLET PROTECTION DEVICES SHALL BE MAINTAINED OR REPLACED AT THE DIRECTION OF THE ENGINEER.

MANUFACTURED ALTERNATIVES APPROVED AND LISTED ON THE DEPARTMENT'S EROSION CONTROL PRODUCT ACCEPTABILITY LIST MAY BE SUBSTITUTED.

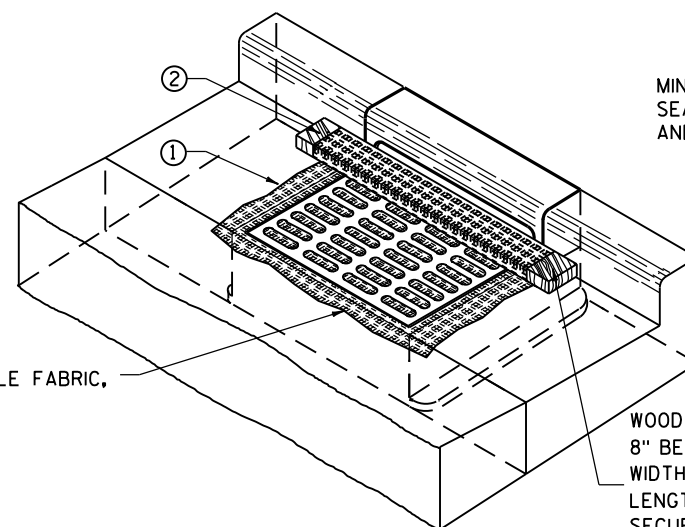
WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

- ① FINISHED SIZE, INCLUDING FLAP POCKETS WHERE REQUIRED, SHALL EXTEND A MINIMUM OF 10" AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.
- ② FOR INLET PROTECTION, TYPE C (WITH CURB BOX), AN ADDITIONAL 18" OF FABRIC IS WRAPPED AROUND THE WOOD AND SECURED WITH STAPLES. THE WOOD SHALL NOT BLOCK THE ENTIRE HEIGHT OF THE CURB BOX OPENING.
- ③ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2X4.



### INLET PROTECTION, TYPE B (WITHOUT CURB BOX)

(CAN BE INSTALLED IN ANY INLET WITHOUT A CURB BOX)



### INLET PROTECTION, TYPE C (WITH CURB BOX)

#### INSTALLATION NOTES

##### TYPE B & C

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

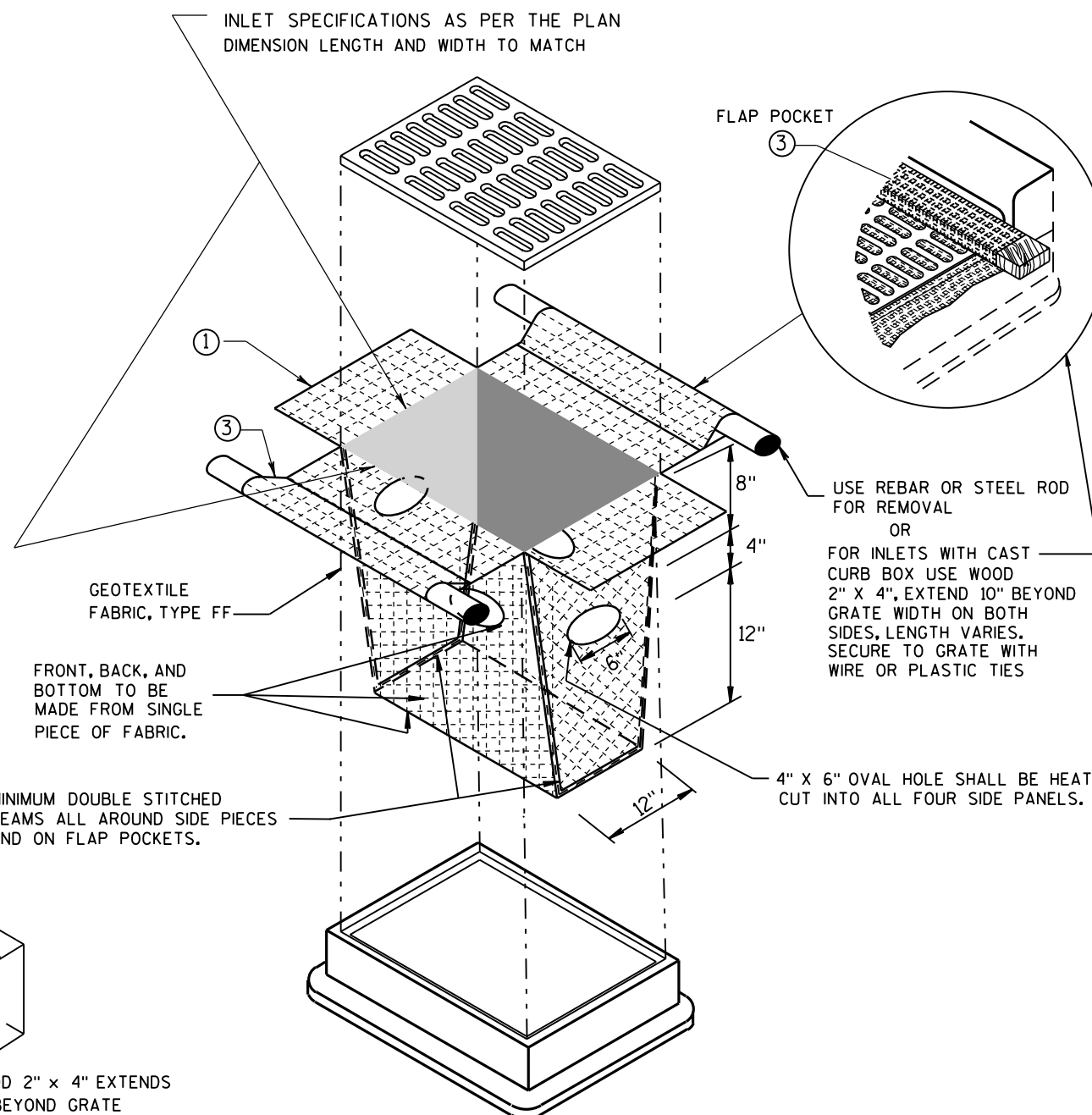
THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

##### TYPE D

DO NOT INSTALL INLET PROTECTION TYPE D IN INLETS SHALLOWER THAN 30", MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE.

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE, BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES, OF 3". WHERE NECESSARY THE CONTRACTOR SHALL CINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3" CLEARANCE. THE TIES SHALL BE PLACED AT A MAXIMUM OF 4" FROM THE BOTTOM OF THE BAG.



### INLET PROTECTION, TYPE D

(CAN BE INSTALLED IN ANY INLET TYPE WITH OR WITHOUT A CURB BOX AS PER NOTE ②)

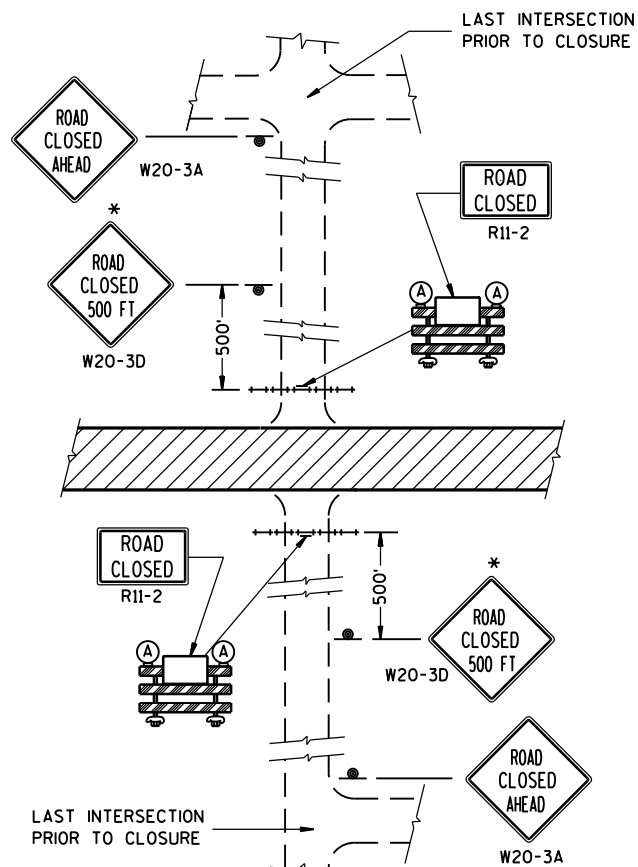
### INLET PROTECTION TYPE A, B, C, AND D

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

APPROVED 10-16-02 /S/ Beth Canestra  
 DATE CHIEF ROADWAY DEVELOPMENT ENGINEER  
 FHWA

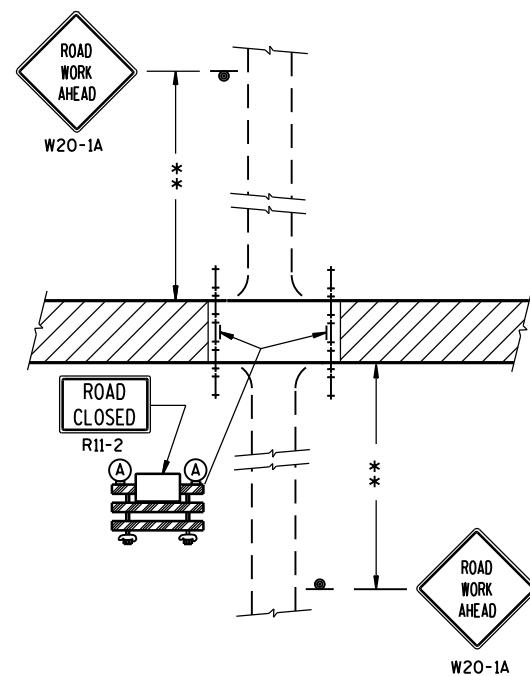


# 15C3: Barricades and Signs for Sideroad Closures



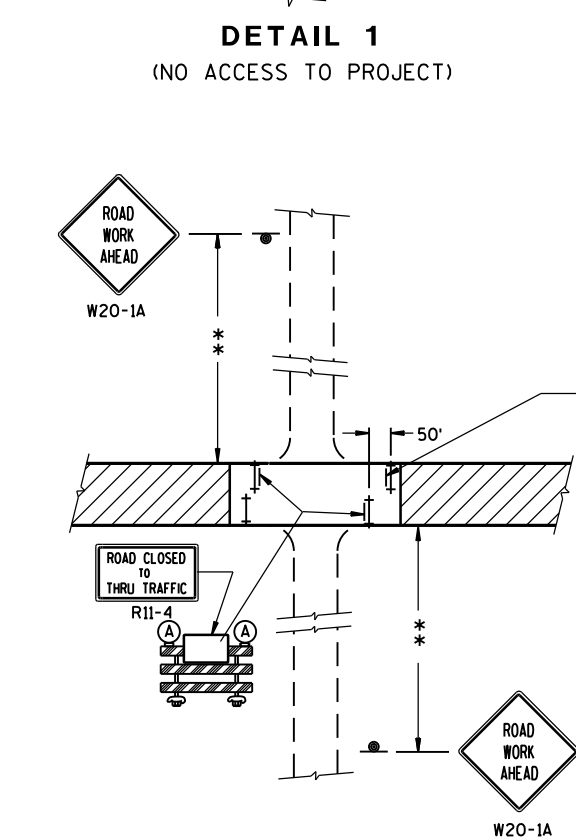
**DETAIL 1**

(NO ACCESS TO PROJECT)



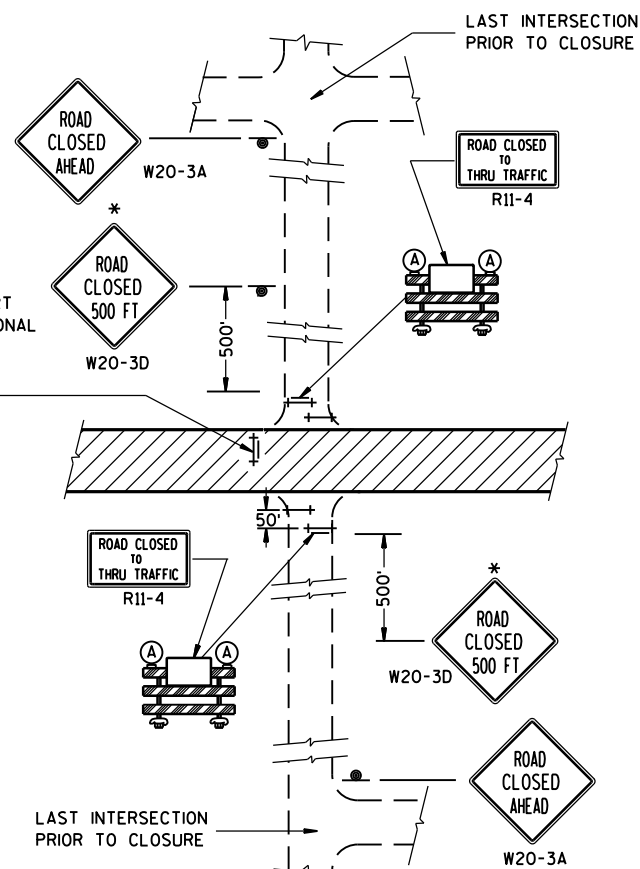
**DETAIL 2**

(PUBLIC CROSS-TRAFFIC MAINTAINED.  
NO ACCESS TO PROJECT).



**DETAIL 3**

(PUBLIC CROSS-TRAFFIC MAINTAINED. CONTRACTOR,  
LOCAL BUSINESS AND RESIDENT ACCESS).



**DETAIL 4**

(CONTRACTOR, LOCAL BUSINESS AND  
RESIDENT ACCESS TO PROJECT)

## GENERAL NOTES

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND BARRICADES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A DESIRABLE MINIMUM OF 200 FEET CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

IF A "STOP" SIGN MUST BE REMOVED FOR A WORK OPERATION, A TEMPORARY "STOP" SIGN SHALL BE PLACED PRIOR TO THE SIGN REMOVAL, OR A FLAGGER SHALL BE PROVIDED UNTIL THE SIGN IS RE-ESTABLISHED.

BARRICADES THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY RE-ESTABLISHED UPON COMPLETION OF THE OPERATION OR, FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

ALL TYPE III BARRICADES SHALL HAVE RAILS REFLECTORIZED ON BOTH FACES. STRIPES SHALL BE PROPERLY SLOPED DOWN TOWARD THE TRAFFIC SIDE OR AS SHOWN IN THE ROAD CLOSURE BARRICADE DETAIL D FOR FULL ROAD CLOSURES.

TYPE "A" LOW-INTENSITY FLASHING WARNING LIGHTS SHALL BE VISIBLE ON BOTH SIDES OF THE BARRICADE.

THE R11-2, R11-3 AND R11-4 SIGNS PLACED ON BARRICADES SHALL COVER NO MORE THAN THE TOP RAIL. THE SIGNS SHALL NOT COVER ANY PORTION OF THE MIDDLE OR BOTTOM RAILS.

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:

R11-2 SHALL BE 48" X 30".

R11-4 AND R11-3 SHALL BE 60" X 30".

\*OMIT THE "ROAD CLOSED 500 FT." SIGN IF THE LAST INTERSECTION IS 500 FT. OR LESS FROM THE WORK ZONE.

\*\*500' MAX. OR AT LAST INTERSECTION WHICHEVER IS CLOSER.

## LEGEND

- SIGN ON PERMANENT SUPPORT
- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- TYPE "A" WARNING LIGHT (FLASHING)
- WORK AREA

**BARRICADES AND SIGNS  
FOR  
SIDEROAD CLOSURES**

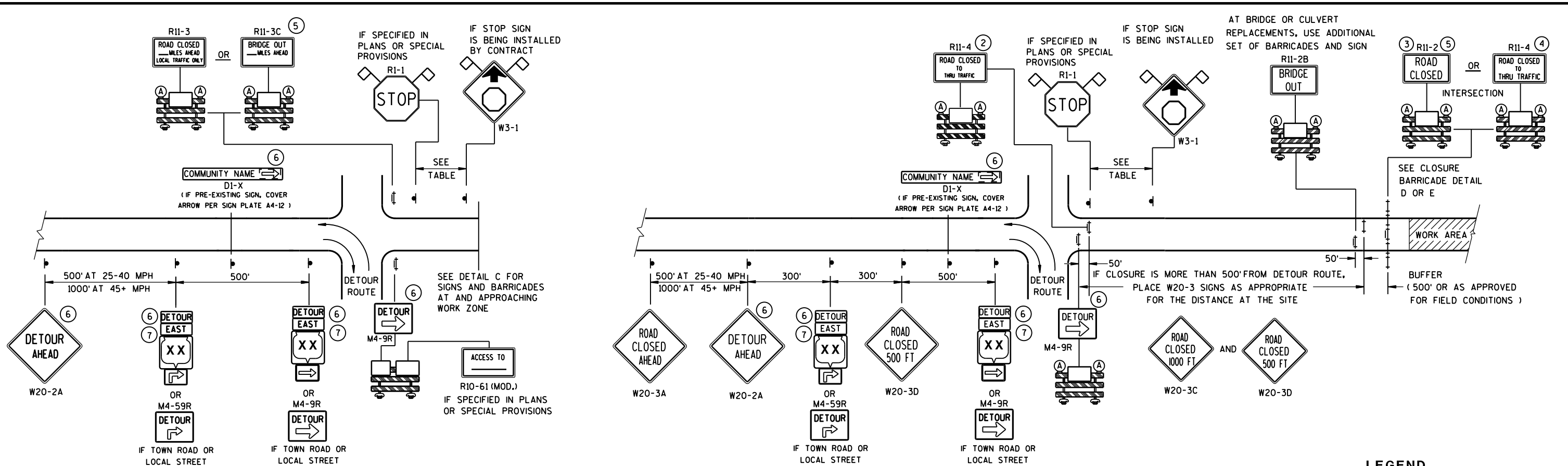
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED	/S/ Peter Amakobe Atepe
DATE	STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER
FHWA	





# 15C2 sheet a: Barricades and Signs for Mainline Closures



**DETAIL A**  
**MAINLINE CLOSURE WITH POSTED DETOUR**

WORK ZONE GREATER THAN 1/2 MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)

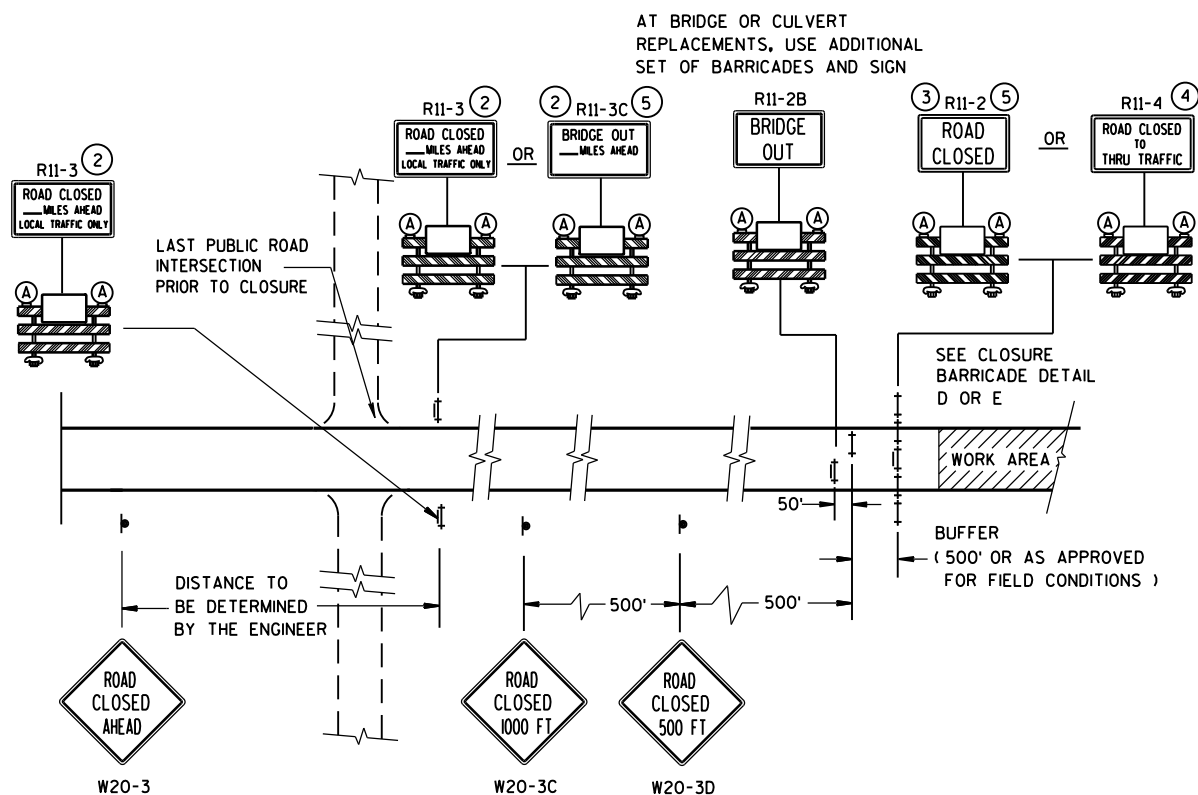
**DETAIL B**  
**MAINLINE CLOSURE WITH POSTED DETOUR**

WORK ZONE LESS THAN 1/2 MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)

**LEGEND**

- ⊙ SIGN ON PERMANENT SUPPORT
- ⊥ TYPE III BARRICADE
- ⊥ TYPE III BARRICADE WITH ATTACHED SIGN
- Ⓐ TYPE "A" WARNING LIGHT (FLASHING)
- ▨ WORK AREA
- M4-8  
M3-X
- OR OR M1-4 M1-5A M1-6
- OR M05-1 M06-1
- FLAGS, 16" X 16" MIN., (ORANGE)

SPEED LIMIT (MPH)	"STOP AHEAD" ADVANCE WARNING DISTANCE (FT)
25	200
30	200
35	350
40	350
45	500
50	550
55	750



**DETAIL C**  
**MAINLINE CLOSURE, NO POSTED DETOUR**

SEE SDD 15C2-SHEET "b"  
 FOR GENERAL NOTES  
 AND FOOTNOTES ① THROUGH ⑦

**BARRICADES AND SIGNS FOR MAINLINE CLOSURES**

STATE OF WISCONSIN  
 DEPARTMENT OF TRANSPORTATION

Sept. 2015 /S/ Peter Amakobe Atepe  
 DATE STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER  
 FHWA

6

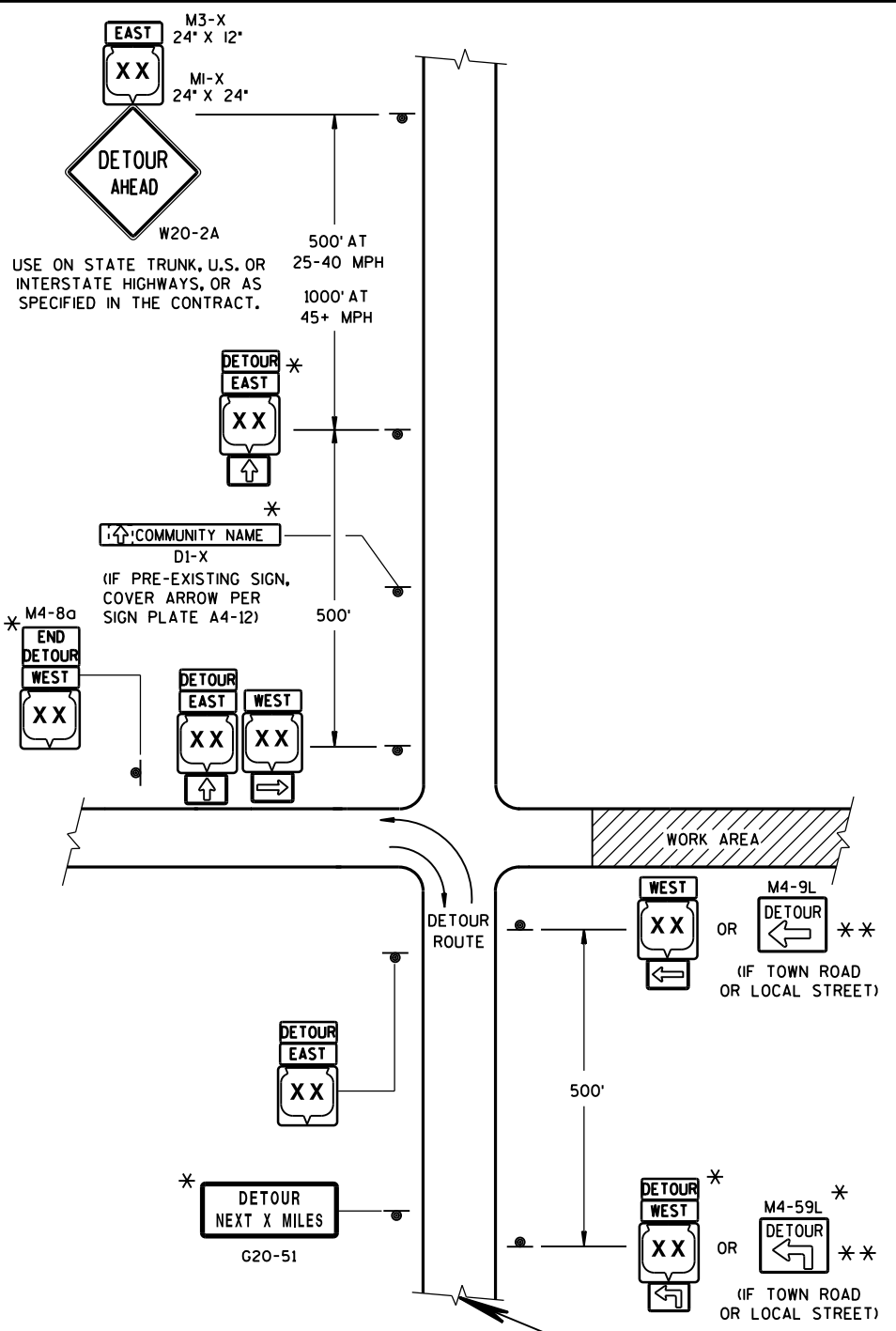
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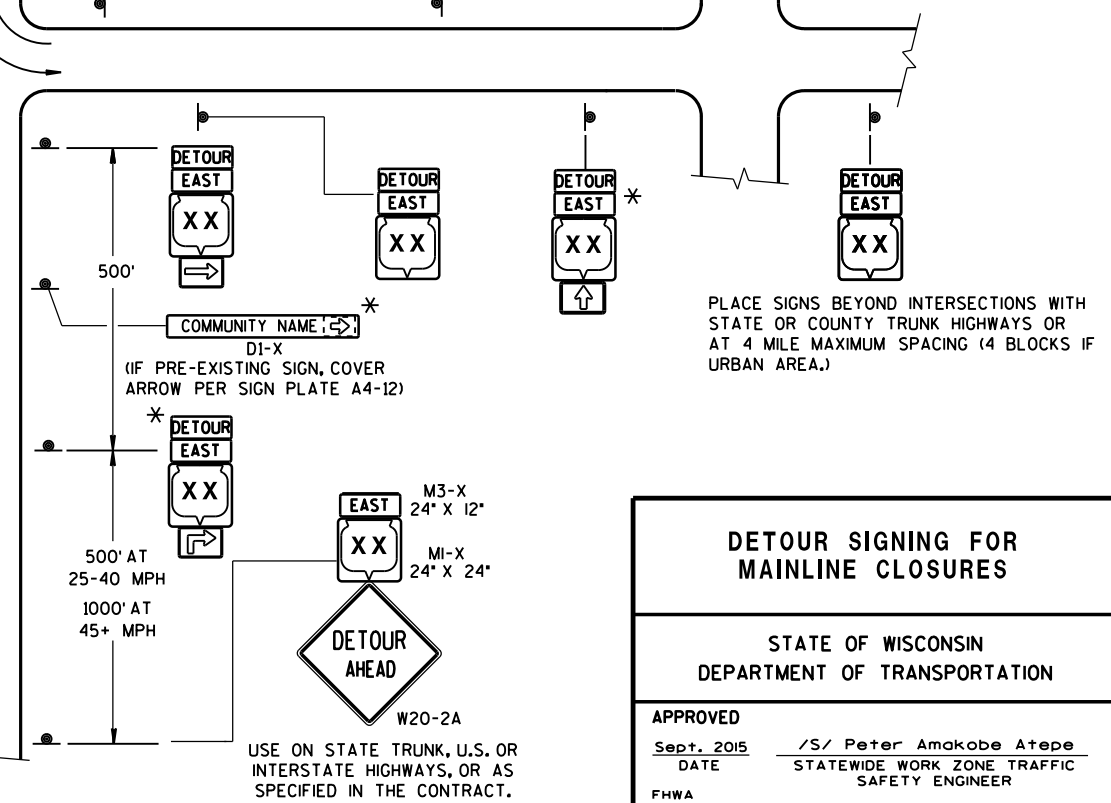
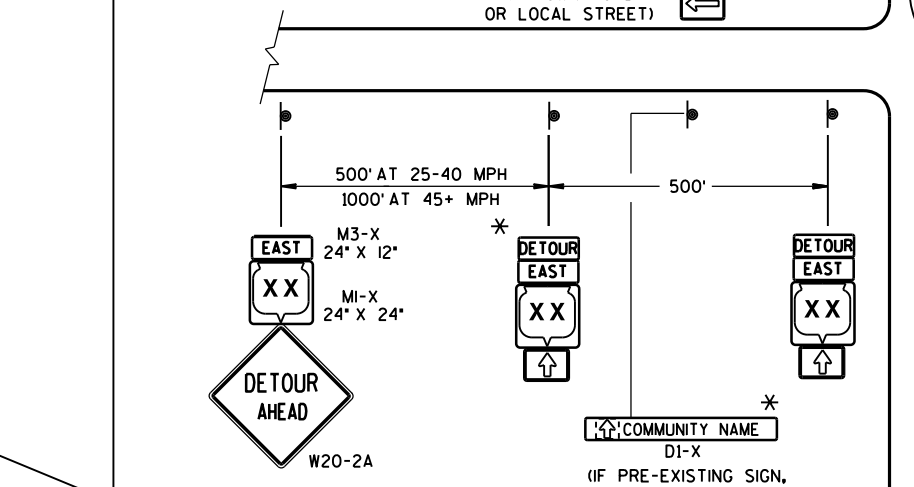
THIS DRAWING PROVIDES GENERAL GUIDANCE ON TYPICAL DETOUR SIGN LAYOUT AND SPACING. SEE PROJECT DETOUR SIGNING SHEETS FOR SPECIFIC DETAILS FOR EACH PROJECT.

GENERAL NOTES

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER. IF THERE ARE EXISTING ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE DETOUR ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS, MODIFY EXISTING SIGNS WHERE POSSIBLE. THE SPACING BETWEEN TRAFFIC CONTROL AND DETOUR SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A DESIRABLE MINIMUM OF 200 FEET CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE. ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE", SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER. SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS. "MO" SIGNS ARE THE SAME AS "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE. SIGN SIZES SHALL BE AS FOLLOWS: M3-X SHALL BE 24" X 12". (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS.) M4-8 SHALL BE 24" X 12". (30" X 15" IF NEEDED TO MATCH EXISTING SIGNS.) MI-4, MI-5A, AND MI-6 SHALL BE 24" X 24". (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS.) MO5-1 AND MO6-1 SHALL BE 21" X 21". (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS.) M4-9 SHALL BE 30" X 24". M4-8a SHALL BE 24" X 18". G20-51 SHALL BE 60" X 24". W20-2 SHALL BE 48" X 48". DI-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS. \* OPTIONAL SIGNS. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. \*\* FOR A TOWN ROAD OR LOCAL STREET DETOURED ONTO A STATE TRUNK HIGHWAY, PLACE A ROAD NAME PLAQUE ABOVE THE M4-9 SIGN AS SPECIFIED IN THE CONTRACT.



MATCH POINT



LEGEND

- SIGN ON PERMANENT SUPPORT
- WORK AREA
- M4-8, M3-X
- MI-4, MI-5A, MI-6
- MO5-1, MO6-1, MO6-1

SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS AND DETAIL A OR B ON SDD 15C2-SHEET "a"

DETAIL F DETOUR SIGNING

USE ON STATE TRUNK, U.S. OR INTERSTATE HIGHWAYS, OR AS SPECIFIED IN THE CONTRACT.

USE ON STATE TRUNK, U.S. OR INTERSTATE HIGHWAYS, OR AS SPECIFIED IN THE CONTRACT.

DETOUR SIGNING FOR MAINLINE CLOSURES  
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION  
APPROVED DATE: Sept. 2015 /S/ Peter Amakobe Atepe STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER

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S.D.D. 15 C 2-6C

S.D.D. 15 C 2-6C