

# CITY OF ROLLINGWOOD, TEXAS

## CITY OF ROLLINGWOOD PROPOSED DRAINAGE IMPROVEMENTS FOR HUBBARD CIRCLE, HATLEY DRIVE AND PICKWICK LANE



PREPARED & SUBMITTED FOR APPROVAL BY:

**PRELIMINARY**

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\_\_\_\_\_  
GEOFF ELFERS, P.E. DATE

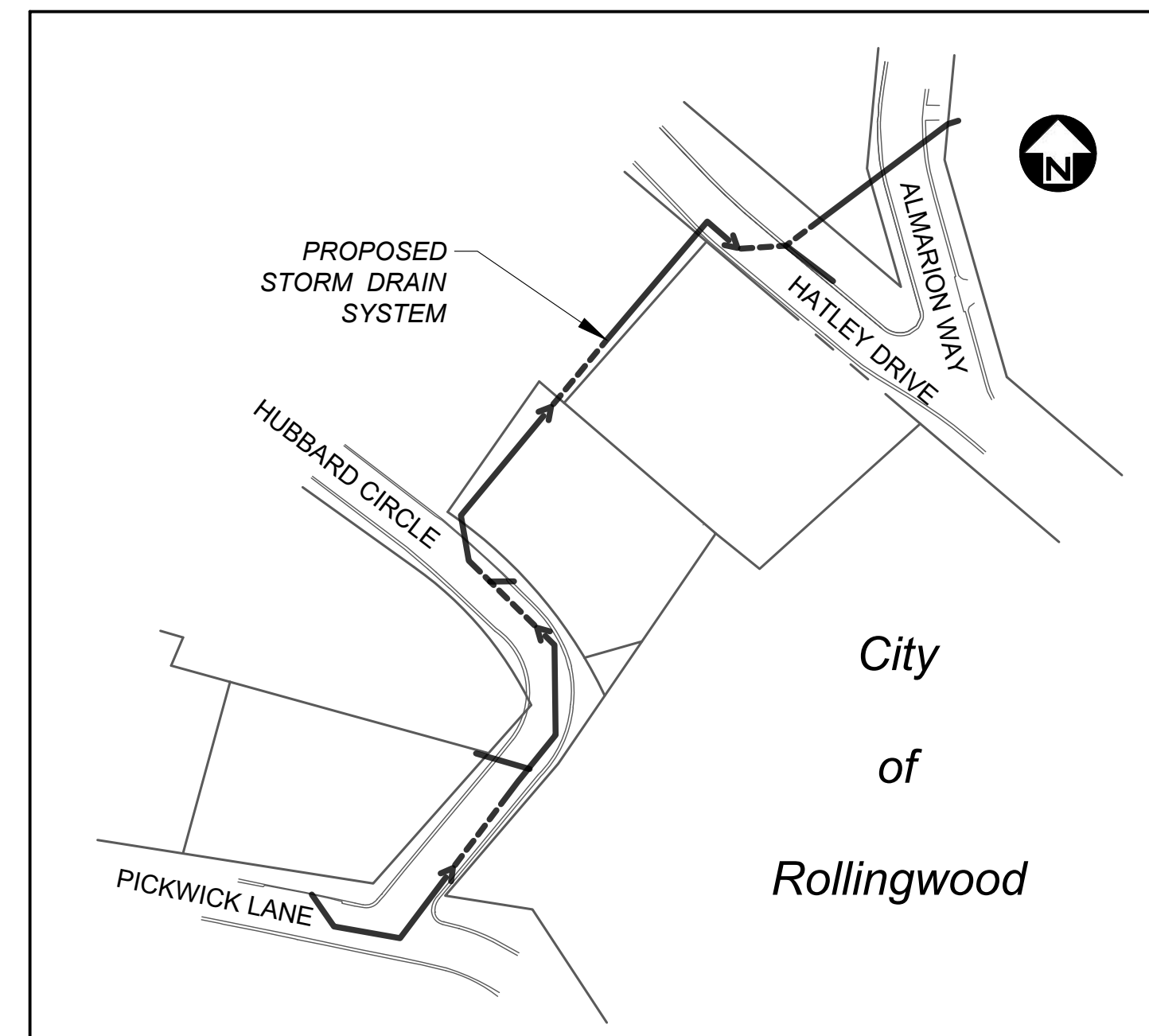
**RECOMMENDED FOR APPROVAL BY:**

\_\_\_\_\_  
MAYOR GAVIN MASSINGILL - CITY OF ROLLINGWOOD DATE

\_\_\_\_\_  
ASHLEY WAYMAN - INTERIM CITY ADMINISTRATOR DATE

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LOCATION MAP  
N.T.S.

**MAYOR**  
GAVIN MASSINGILL  
**COUNCIL MEMBERS**

SARA HUTSON  
ALEC ROBINSON  
BROOK BROWN  
PHIL McDUFFEE  
ROXANNE McKEE

**INTERIM CITY ADMINISTRATOR**  
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CITY OF ROLLINGWOOD  
PROPOSED DRAINAGE IMPROVEMENTS

X:\PROJECTS\0803\_ROLLINGWOOD\_HUBBARD-HATLEY\_DRAINAGE\_IMPROVEMENTS\0803-GN-COVR.DWG - COA\_ESD.STB 3/15/2023 12:15 PM GEOFFREY ELFERS

GENERAL NOTES:

- 1. THE CONTRACTOR WILL NOTIFY THE OWNER'S REPRESENTATIVE FORTY-EIGHT (48) HOURS IN ADVANCE OF BEGINNING ANY CONSTRUCTION IN THE RIGHT OF WAY OR EASEMENTS.
2. CONTRACTOR SHALL PROVIDE A ONE CALL CENTER CONFIRMATION NUMBER BEFORE BEING ISSUED AN EXCAVATION PERMIT. "ONE CALL" PHONE NUMBER: 811.
3. THE INFORMATION SHOWN ON THESE DRAWINGS INDICATING TYPE AND LOCATION OF SURFACE, SUBSURFACE, AND AERIAL UTILITIES IS NOT GUARANTEED TO BE EXACT OR COMPLETE. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE EXACT TYPE AND LOCATION OF ALL UTILITIES AFFECTED BY THE CONSTRUCTION IN ORDER TO AVOID DAMAGING THOSE UTILITIES.
...
21. LANDSCAPED AREAS SHALL BE LEFT UNDISTURBED AS MUCH AS POSSIBLE DURING CONSTRUCTION. ALL AREAS THAT HAVE BEEN DISTURBED DURING CONSTRUCTION SHALL BE RE-SODDED, RE-VEGETATED AND RESTORED TO ORIGINAL OR BETTER CONDITIONS. ALL NEW VEGETATION MUST BE OF THE SAME SPECIES AS ORIGINAL CONDITIONS.

- 22. THE CONTRACTOR SHALL ENSURE THAT ADEQUATE SAFETY PRECAUTIONS ARE MAINTAINED AT ALL TIMES REGARDING AREAS OF OPEN PIPE TRENCH. ALL PIPE TRENCHES SHALL BE COVERED AT ALL TIMES WHEN CONSTRUCTION IS NOT IN PROGRESS. THE TRENCH COVERING SHALL BE CAPABLE OF SUPPORTING TRAFFIC LOADS.
23. ALL TRENCH SAFETY CONSTRUCTION OPERATIONS SHALL BE ACCOMPLISHED IN ACCORDANCE WITH OSHA SPECIFICATIONS, STATE OF TEXAS REQUIREMENTS, AND CONTRACT DOCUMENTS WHICH INCLUDE A TRENCH SAFETY PLAN AND A PAY ITEM FOR TRENCH SAFETY MEASURES.
...
32. CONTRACTOR SHALL PERFORM WORK ONLY DURING HOURS ALLOWED PER THE CURRENT ORDINANCES.

STREET CONSTRUCTION SPECIAL NOTE:

ALL DAMAGE CAUSED DIRECTLY OR INDIRECTLY TO THE STREET SURFACE, SIDEWALK, DRIVEWAY, CURB & GUTTER, OR SUBSURFACE OUTSIDE OF THE PAVEMENT CUT AREA SHALL BE REGARDED AS A PART OF THE STREET CUT REPAIR. THIS INCLUDES ANY SCRAPES, GOUGES, CUTS, CRACKING, DEPRESSIONS, AND/OR ANY OTHER DAMAGE CAUSED BY THE CONTRACTOR DURING THE EXECUTION OF THE WORK. THESE REPAIR AREAS WILL BE INCLUDED IN THE TOTAL AREA OF RESTORATION. THESE AREAS SHALL BE SAW CUT IN STRAIGHT, NEAT LINES PARALLEL TO THE EXCAVATION OR UTILITY TRENCH AND TO THE NEXT EXISTING JOINT FOR SIDEWALKS AND CURB & GUTTER. ALL SUCH REPAIRS SHALL BE AT THE CONTRACTOR'S EXPENSE AND SHALL MEET ALL STANDARDS AND SPECIFICATIONS.

PLAN NOTES:

- 1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING AND INSPECTING, ON A REGULAR BASIS, ALL EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES, INCLUDING SILT FENCES, CONSTRUCTION ENTRANCES, ROCK FILTER DAMS, ETC., DURING CONSTRUCTION/DEMOLITION AND INCLUDING THE REMOVAL AND PROPER DISPOSAL OF ANY ACCUMULATED SILT AND DEBRIS.
2. THE CONTRACTOR SHALL NOT BEGIN ANY WORK UNTIL TREE PROTECTION AND THE EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES SUCH AS SILT FENCE, CONSTRUCTION ENTRANCES, ROCK FILTER DAMS, ETC., HAVE BEEN INSTALLED.
...
4. INCREASED STORMWATER PEAK FLOWS DURING CONSTRUCTION MUST BE MITIGATED WITH TEMPORARY BEST MANAGEMENT PRACTICES TO PREVENT HARM TO NEIGHBORING PROPERTIES.

CONSTRUCTION SEQUENCING NOTES:

- 1. PHASE 1 CONSTRUCTION ACTIVITIES SHALL INCLUDE CHANNEL CONSTRUCTION PROGRESSING FROM STATION 1+00 TO 4+75 DOWNSTREAM TO UPSTREAM.
2. PHASE 2 CONSTRUCTION ACTIVITIES SHALL INCLUDE CONSTRUCTION OF THE STORM DRAIN IMPROVEMENTS PROGRESSING FROM STATION 10+00.00 TO 13+80.00 DOWNSTREAM TO UPSTREAM.
3. CONSTRUCTION SHALL BE SEQUENCED IN A MANNER THAT WILL NOT DISTURB OR DAMAGE PREVIOUSLY CONSTRUCTED WORK.

CONSTRUCTION ACCESS AND SEQUENCING NOTES:

- 1. CHANNEL DEMOLITION AND CONSTRUCTION SHALL BE SEQUENCED FROM DOWNSTREAM TO UPSTREAM. EACH SEGMENT MUST BE ACCEPTED BY THE CITY PRIOR TO COMMENCING NEXT SEGMENT. THE CONTRACTOR SHALL SUBMIT AN ALTERNATE SEQUENCING PLAN FOR REVIEW AND ACCEPTANCE BY THE CITY IN WRITING.
2. EROSION AND CONTROL MEASURES MUST BE IN PLACE PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES.
...
16. NO CONSTRUCTION STORAGE OR STAGING SHALL OCCUR WITHIN THE FEMA FLOODPLAIN.

SCHEDULING

- 1. CONTRACTOR TO PROVIDE ENGINEER WITH AN UPDATED SCHEDULE WEEKLY. IF NO CHANGES ARE MADE TO THE SCHEDULE FROM THE LAST SUBMITTAL, THE CONTRACTOR IS TO NOTIFY THE ENGINEER OF NO CHANGES.
2. THE CONTRACTOR SHALL SUBMIT A DETAILED SCHEDULE OF CONSTRUCTION WHICH COMPLIES WITH THE FOLLOWING SEQUENCE:
A. INSTALL TEMPORARY EROSION AND SEDIMENTATION CONTROLS IMMEDIATELY PRIOR TO CONSTRUCTION.
...
F. COMMENCE RESTORATION AND REVEGETATION IMMEDIATELY UPON COMPLETION OF EACH PHASE OF THE PROJECT.

UTILITIES

- 1. AT LEAST 48 HOURS BEFORE BEGINNING ANY CONSTRUCTION IN PUBLIC R.O.W. OR PUBLIC EASEMENT, THE CONTRACTOR SHALL NOTIFY PUBLIC WORKS.
2. THE CONTRACTOR SHALL CONTACT THE ROLLINGWOOD AREA "ONE" CALL SYSTEM AT 1-800-344-8377 FOR EXISTING UTILITY LOCATIONS PRIOR TO ANY EXCAVATION IN ADVANCE OF CONSTRUCTION. THE CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL UTILITIES TO BE EXTENDED, TIED TO, OR ALTERED OR SUBJECT TO DAMAGE/INCONVENIENCE BY THE CONSTRUCTION OPERATIONS. THE CITY OF ROLLINGWOOD WATER AND WASTEWATER MAINTENANCE RESPONSIBILITY ENDS AT R.O.W./EASEMENT LINES.
...
7. CONTRACTOR TO ACQUIRE ALL REQUIRED PERMITS.

CONSTRUCTION NOTES:

- 1. WHERE REMOVAL OF BASE AND PAVEMENT IS NECESSARY FOR THE PROJECT, ALL BASE AND PAVEMENT SHALL BE REPLACED IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS, CITY OF AUSTIN, STANDARD SPECIFICATIONS AND STANDARD DETAILS FOR CUT IN PUBLIC RIGHT-OF-WAY. ALL PAVEMENT CUTS SHALL BE SAW-CUT PRIOR TO PLACEMENT OF HMAC.
2. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REMOVE, PRESERVE AND RESET STREET MARKERS AND TRAFFIC CONTROL SIGNS THAT ARE WITHIN THE CONSTRUCTION LIMITS, AS NECESSARY, TO THE LINE AND HEIGHT AS DESCRIBED IN THE LATEST EDITION OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES BEFORE AND DURING ALL CONSTRUCTION PHASES AND UPON THE COMPLETION OF CONSTRUCTION. SIGNS SHALL NOT BE LAID ON THE GROUND. NO PAYMENT WILL BE MADE FOR THIS WORK, BUT IT WILL BE CONSIDERED SUBSIDIARY TO OTHER BID ITEMS.
...
9. CONTRACTOR'S EQUIPMENT SHALL NOT BE LEFT RUNNING WHEN LEFT UNATTENDED OR LEFT IN ONE LOCATION FOR MORE THAN FIVE (5) MINUTES WHILE ATTENDED.

PHASE 1: CHANNEL IMPROVEMENTS

- 1. PHASE 1 CONSTRUCTION ACTIVITIES SHALL INCLUDE CHANNEL CONSTRUCTION PROGRESSING FROM STATION 1+00 TO 4+50 DOWNSTREAM TO UPSTREAM.
2. INSTALL TEMPORARY FENCING AT 303 NIXON DRIVE TO ENCLOSE BACKYARD PERIMETER AREA PRIOR TO BEGINNING CONSTRUCTION. TEMPORARY FENCING SHALL REMAIN IN PLACE THRU DURATION OF CONSTRUCTION UNTIL NEW FENCING IS IN PLACE AND BACKYARD PERIMETER IS SECURED.
...
8. COMPLETE ALL WORK IN THIS PHASE BEFORE STARTING PHASE 2.

Table with 2 columns: REVISION DESCRIPTION, DATE. Multiple empty rows.

Table with 2 columns: REV. BY, NO. Multiple empty rows.

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CITY OF ROLLINGWOOD, TEXAS PUBLIC WORKS DEPARTMENT CITY OF ROLLINGWOOD PROPOSED DRAINAGE IMPROVEMENTS GENERAL NOTES

ROLLINGWOOD TEXAS K-FRIESE + ASSOCIATES PUBLIC PROJECT ENGINEERING 1120 S. Capital of Texas Highway Austin, Texas 78746 CityView 2, Suite 100 TBE Firm #6535 www.kfriese.com

Table with 3 columns: NOTES, NAME, DATE. Includes SURVEY BY, DRAWN BY (KT, 07/21), DESIGNED BY (AF, 07/21), CHECKED BY (GE, 07/21), REVIEWED BY.



SUMMARY OF ITEMS														
STORM SEWER PLAN AND PROFILE SHEET	LOCATION													
		110S-A	132S-A	315S-A	340S-B	340S-B	400	430S-A	432	462	464	464		
		TCEQ PERMIT APPLICATION FEE	UTILITY ADJUSTMENT	STREET EXCAVATION	EMBANKMENT	SURFACE MILLING	HOT MIX ASPHALTIC CONCRETE PAVEMENT, 2 inches, Type D	Hot Mix Asphaltic Concrete Pavement, 12 inches, Type C	CUT & RESTORING PAV (CONC)	P.C. CONCRETE CURB AND GUTTER (EXCAVATION)	RIPRAP (STONE TY R)(DRY)(6 IN)	CONC BOX CULV (4 FT X 2 FT)	RC PIPE (CL III)(18 IN)	RC PIPE (CL III)(24 IN)
		LF	EA	CY	CY	SY	SY	SY	SY	LF	CY	LF	LF	
SHEET 1 OF 3	STA 10+00 TO STA 13+50	393	5	437	5000	656	656	328	17	246			57	277
SHEET 2 OF 3	STA 13+50 TO STA 16+20	272		53	600	80	80	40	17	10				
SHEET 3 OF 3	STA 16+20 TO STA 19+00	198	9	184		276	276	138	17	80	3	126	5	
	<b>PROJECT TOTALS:</b>	<b>863</b>	<b>14</b>	<b>674</b>	<b>5600</b>	<b>1012</b>	<b>1012</b>	<b>506</b>	<b>51</b>	<b>336</b>	<b>3</b>	<b>126</b>	<b>62</b>	<b>277</b>

SUMMARY OF ITEMS																
STORM SEWER PLAN AND PROFILE SHEET	LOCATION	464	464	465	465	465	465	467	496	508S-110S	509S-1	610S-1	641S	642S	648S-1	
		2007	2009	2092	6020	6028	6055	2030	2007		Inlet, Standard	Trench Excavation Safety Protective Systems (all depths)	TREE PROTECTION FENCE LOCATIONS	STABILIZED CONSTRUCTION ENTRANCE	SILT FENCE EROSION CONTROL	MULCH SOCK
		RC PIPE (CL III)(30 IN)	RC PIPE (CL III)(36 IN)	MANH (COMPL)(TY 1)	INLET (COMPL)(PCO)(4 FT)(BOTH)	INLET (COMPL)(PCO)(6 FT)(BOTH)	INLET (COMPL)(PSL)(SL)(4 FT)(4FT)	SET (TY I)(S= 4 FT)(HW= 3 FT)(3:1)	REMOV STR (PIPE)							
		LF	LF	EA	EA	EA	EA	EA			LF	EA	EA	LF	LF	
SHEET 1 OF 3	STA 10+00 TO STA 13+50	59		2	1	1				2	393	5		308	60	
SHEET 2 OF 3	STA 13+50 TO STA 16+20	126	146	2			1		58		272	5	1	507	56	
SHEET 3 OF 3	STA 16+20 TO STA 19+00		67	1		2		1		1	198	4	1	117	50	
	<b>PROJECT TOTALS:</b>	<b>185</b>	<b>213</b>	<b>5</b>	<b>1</b>	<b>3</b>	<b>1</b>	<b>1</b>	<b>58</b>	<b>3</b>	<b>863</b>	<b>14</b>	<b>2</b>	<b>932</b>	<b>166</b>	

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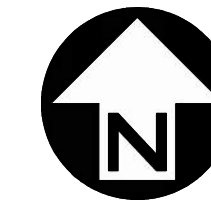
CITY OF ROLLINGWOOD  
PROPOSED DRAINAGE IMPROVEMENTS

ESTIMATED QUANTITIES

**K-FRIESE + ASSOCIATES**  
PUBLIC PROJECT ENGINEERING  
1120 S. Capital of Texas Highway  
CityView 2, Suite 100  
Austin, Texas 78746  
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TBE Firm #6535  
www.kfriese.com

NOTES	NAME	DATE
SURVEY BY		
DRAWN BY	KT	07/21
DESIGNED BY	AF	07/21
CHECKED BY	GE	07/21
REVIEWED BY		

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LEGEND	
ALIGNMENT	—+—+—+—+—+—
EXISTING ROW	- - - - -
PROPERTY LINE	— · — · — · — · — · —
EXISTING EASEMENT	- · - · - · - · - · - · - · - ·
PROPOSED EASEMENT	- · - · - · - · - · - · - · - ·
BUILDING SETBACK	— · — · — · — · — · —
SURVEY CONTROL POINT	▲

POINT TABLE				
POINT NO.	NORTHING	EASTING	ELEVATION	DESCRIPTION
1001	10073990.00	3101415.73	648.51	CP,MAG NAIL
1002	10073902.18	3101762.36	616.59	CP,MAG NAIL
1004	10074184.00	3101788.92	602.01	CP,MAG NAIL
1005	10074409.85	3101960.64	585.32	CP,MAG NAIL
1006	10074234.42	3102179.19	590.73	CP,MAG NAIL
1007	10073942.31	3102133.56	610.09	CP,MAG NAIL
1008	10073823.39	3101989.39	615.89	CP,MAG NAIL

SDL-A				
NO.	LENGTH	DIRECTION	START PT.	END PT.
L1	2.09	S03° 35' 54"E	STA. 10+00.00 N. 10073946.74 E. 3101697.91	STA. 10+02.09 N. 10073944.66 E. 3101698.04
L2	25.42	S34° 40' 03"E	STA. 10+02.09 N. 10073944.66 E. 3101698.04	STA. 10+27.51 N. 10073923.75 E. 3101712.50
L3	43.92	S79° 55' 49"E	STA. 10+27.51 N. 10073923.75 E. 3101712.50	STA. 10+71.43 N. 10073916.08 E. 3101755.74
L4	167.52	N37° 27' 20"E	STA. 10+71.43 N. 10073916.08 E. 3101755.74	STA. 12+38.95 N. 10074049.06 E. 3101857.62
L5	58.93	N00° 42' 48"W	STA. 12+38.95 N. 10074049.06 E. 3101857.62	STA. 12+97.88 N. 10074107.98 E. 3101856.88
L6	78.68	N45° 27' 46"W	STA. 12+97.88 N. 10074107.98 E. 3101856.88	STA. 13+76.55 N. 10074163.16 E. 3101800.80
L7	30.06	N09° 56' 18"W	STA. 13+76.55 N. 10074163.16 E. 3101800.80	STA. 14+06.61 N. 10074192.77 E. 3101795.62
L8	89.12	N39° 17' 57"E	STA. 14+06.61 N. 10074192.77 E. 3101795.62	STA. 14+95.73 N. 10074261.73 E. 3101852.06
L9	161.89	N40° 19' 02"E	STA. 14+95.73 N. 10074261.73 E. 3101852.06	STA. 16+57.62 N. 10074385.17 E. 3101956.81
L10	27.21	S49° 01' 49"E	STA. 16+57.62 N. 10074385.17 E. 3101956.81	STA. 16+84.83 N. 10074367.33 E. 3101977.36
L11	31.02	N86° 12' 21"E	STA. 16+84.83 N. 10074367.33 E. 3101977.36	STA. 17+15.85 N. 10074369.38 E. 3102008.31
L12	132.58	N53° 07' 56"E	STA. 17+15.85 N. 10074369.38 E. 3102008.31	STA. 18+48.43 N. 10074448.93 E. 3102114.37
L13	7.11	N72° 04' 46"E	STA. 18+48.43 N. 10074448.93 E. 3102114.37	STA. 18+55.54 N. 10074451.11 E. 3102121.14

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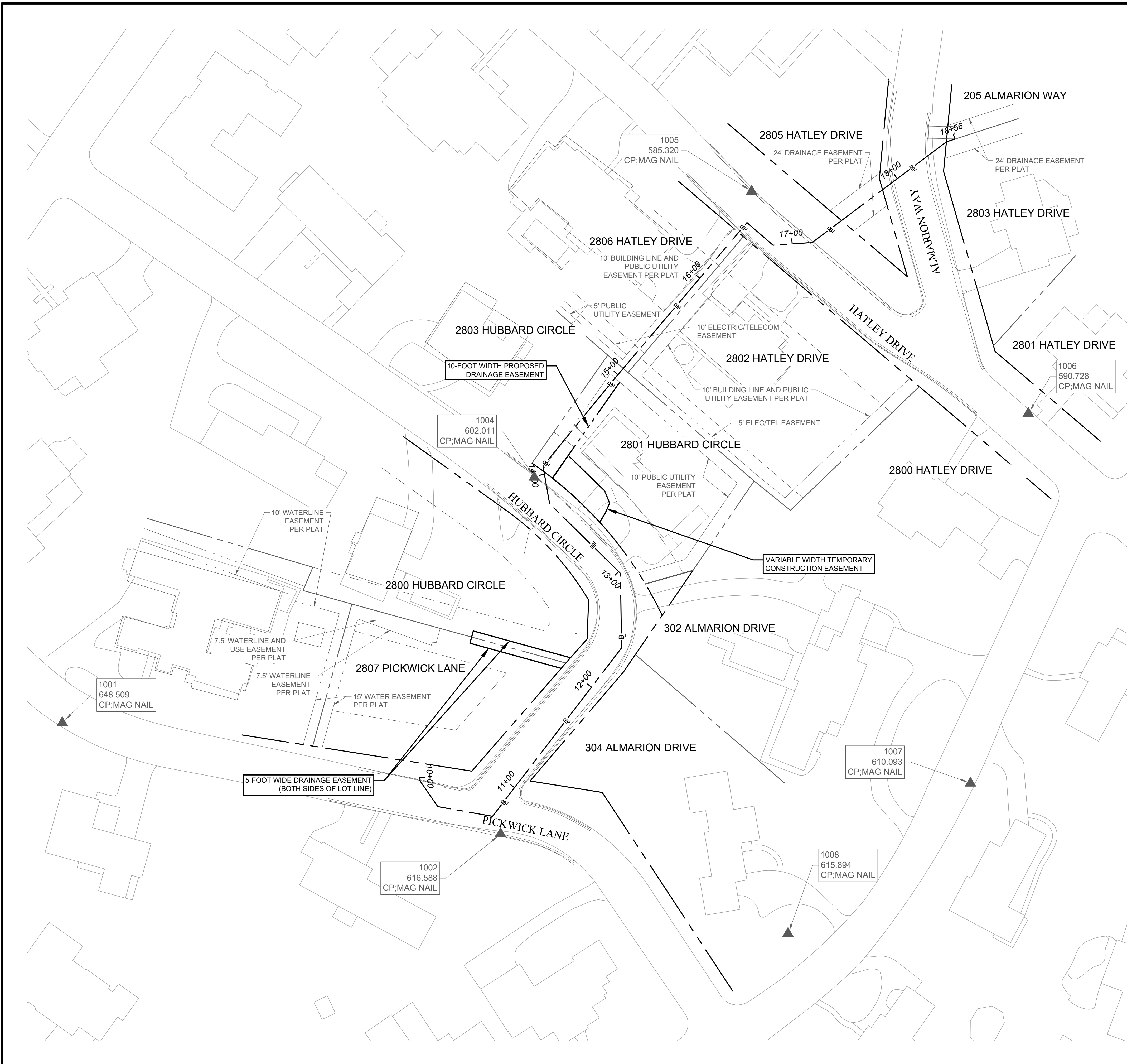
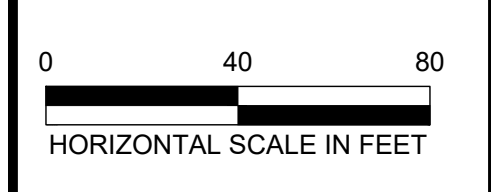
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 PROPOSED DRAINAGE IMPROVEMENTS  
 HORIZONTAL CONTROL LAYOUT SHEET

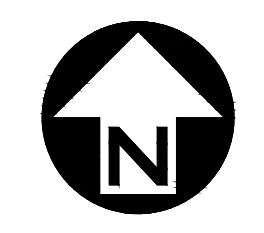
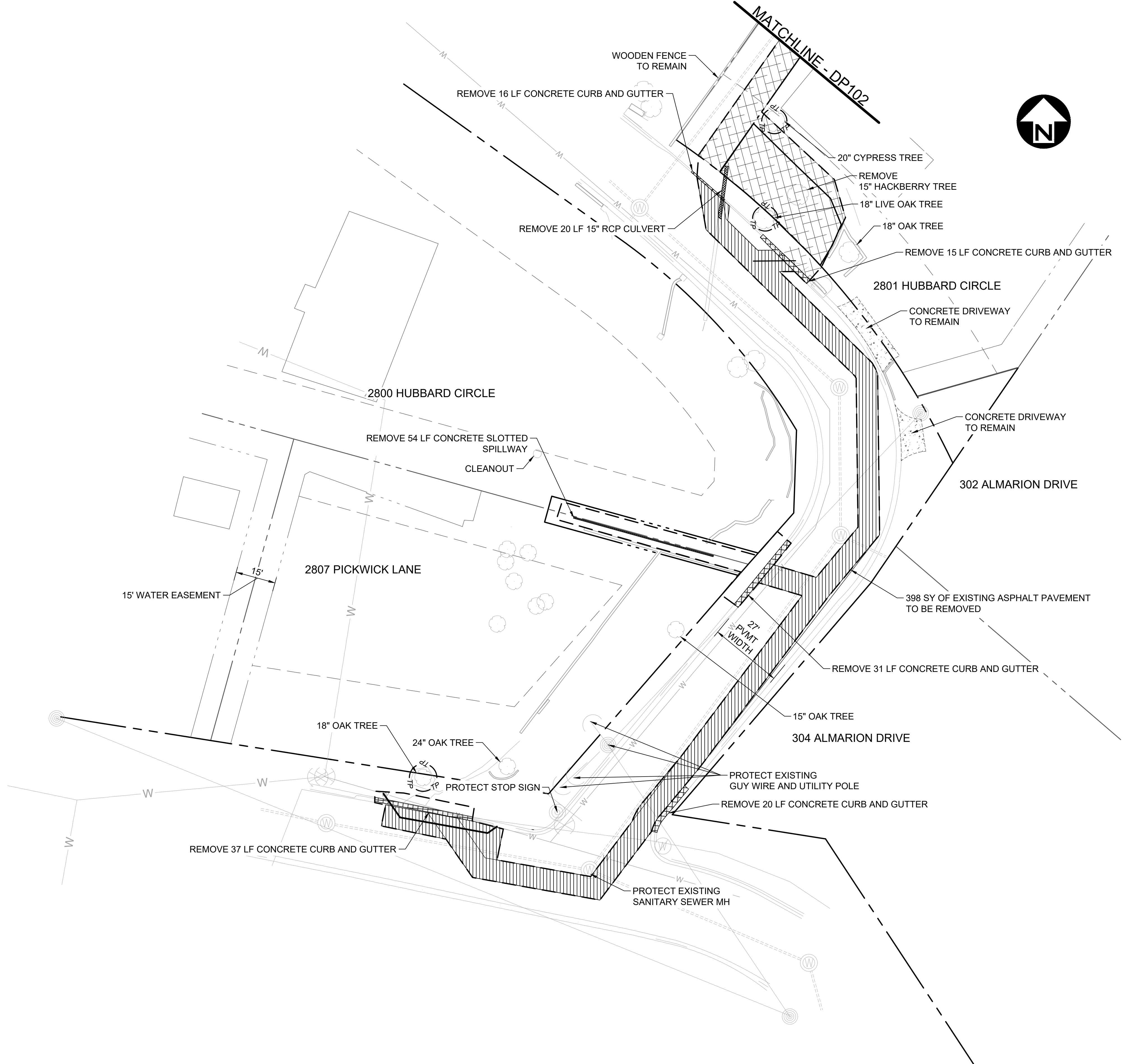
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REVIEWED BY		



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**NOTES:**

1. CONTRACTOR TO PROVIDE TREE PROTECTION FOR ANY TREE WITHIN 10' OF LIMITS OF CONSTRUCTION.
2. ALL PVIOUS AREAS DISTURBED SHALL BE RESTORED AND REVEGETATED AS REQUIRED AND TO THE SATISFACTION OF THE CITY FOLLOWING CONSTRUCTION.
3. CONTRACTOR SHALL ONLY CLEAR BRUSH AND SMALL TREES NECESSARY TO PERFORM THE WORK SHOWN.
4. CONTRACTOR SHALL FIELD VERIFY LOCATION AND DEPTH OF EXISTING WATERLINE, GAS LINE AND SEWER LINE. UTILITY CROSSINGS SHALL PROVIDE A MINIMUM OF 12 INCHES OF ALLOWABLE CLEARANCE BETWEEN ANY PROPOSED STRUCTURES. NOTIFY THE ENGINEER IMMEDIATELY IF THIS REQUIREMENT IS NOT MET FOR AUTHORIZATION PRIOR TO PROCEEDING.

**EXISTING FEATURES**

	CENTERLINE
	RIGHT OF WAY LINE
	PROPERTY LINE
	EASEMENT LINE
	BUILDING SETBACK LINE
	BACK OF CURB
	EDGE OF ASPHALT
	EDGE OF CONCRETE
	GUTTER
	CONCRETE PAVEMENT
	DRAINAGE FLOW LINE
	DITCH EDGE
	WOOD FENCE
	MAJOR CONTOURS
	MINOR CONTOURS
	GRADE BREAK
	SLOPE TOP
	SLOPE BOTTOM
	WASTEWATER LINE
	WATER LINE
	ROCK WALL
	EXISTING RCP PIPE
	NATURAL GAS LINE
	ELECTRIC OVERHEAD
	ELECTRIC UNDERGROUND
	GUY WIRE
	WATER METER
	WATER VALVE
	SPRINKLER VALVE
	WASTEWATER MANHOLE
	CLEANOUT
	FIRE HYDRANT
	POWER POLE
	ELECTRIC JUNCTION BOX
	STOP SIGN
	MAILBOX
	TREE
	TREE WELL

**LEGEND**

	LIMITS OF CONSTRUCTION
	ASPHALT/CONCRETE REMOVAL
	DEMOLISH CURB & GUTTER
	CLEAR & GRUB VEGETATION
	TREE PROTECTION

REVISION DESCRIPTION	DATE	REV BY	NO.

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PUBLIC WORKS DEPARTMENT

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PROPOSED DRAINAGE IMPROVEMENTS

DEMOLITION AND PROTECTION PLAN

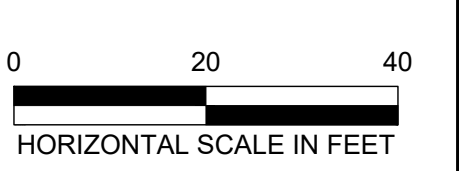
**ROLLINGWOOD TEXAS**

**K-FRIESE + ASSOCIATES**

PUBLIC PROJECT ENGINEERING

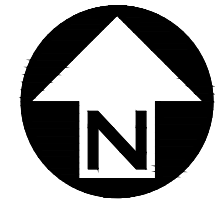
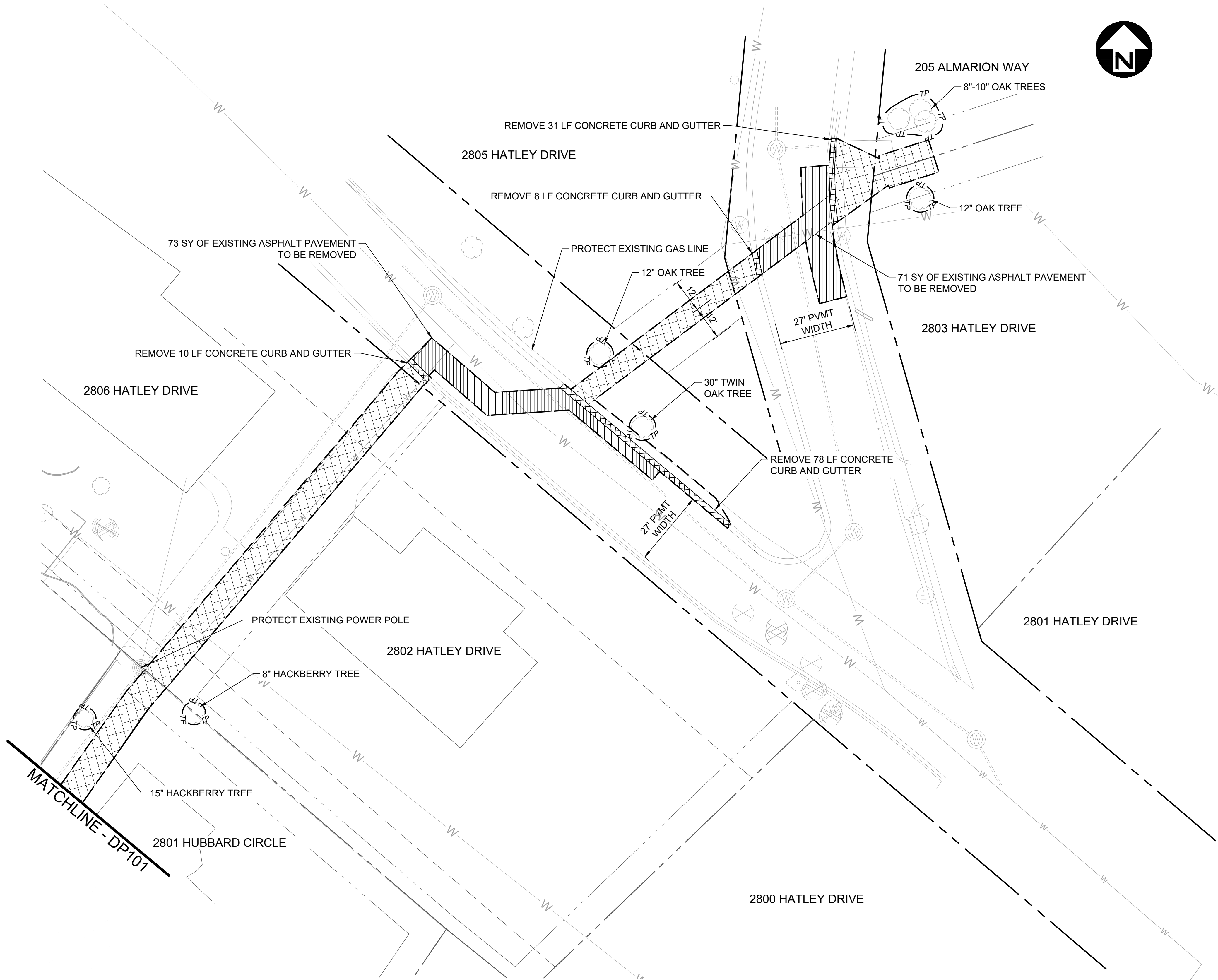
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P - 512.338.1704 F - 512.338.1784  
TBE Firm #6535  
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NOTES	NAME	DATE



X:\PROJECTS\0803\_ROLLINGWOOD\_HUBBARD-HATLEY\_DRAINAGE\_IMPROVEMENTS\DESIGN\SHEETS\0803-CDDP-PLAN\DWG\_001\_COA\_ESD.SBT

GEOFFREY ELFERS



**NOTES:**

1. CONTRACTOR TO PROVIDE TREE PROTECTION FOR ANY TREE WITHIN 10' OF LIMITS OF CONSTRUCTION.
2. ALL PVIOUS AREAS DISTURBED SHALL BE RESTORED AND REVEGETATED AS REQUIRED AND TO THE SATISFACTION OF THE CITY FOLLOWING CONSTRUCTION.
3. CONTRACTOR SHALL ONLY CLEAR BRUSH AND SMALL TREES NECESSARY TO PERFORM THE WORK SHOWN.

**EXISTING FEATURES**

	CENTERLINE
	RIGHT OF WAY LINE
	PROPERTY LINE
	EASEMENT LINE
	BUILDING SETBACK LINE
	BACK OF CURB
	EDGE OF ASPHALT
	EDGE OF CONCRETE
	GUTTER
	CONCRETE PAVEMENT
	DRAINAGE FLOW LINE
	DITCH EDGE
	WOOD FENCE
	MAJOR CONTOURS
	MINOR CONTOURS
	GRADE BREAK
	PAVED PARKING / DRIVEWAY
	SLOPE TOP
	SLOPE BOTTOM
	WASTEWATER LINE
	WATER LINE
	ROCK WALL
	EXISTING RCP PIPE
	NATURAL GAS LINE
	ELECTRIC OVERHEAD
	ELECTRIC UNDERGROUND
	GUY WIRE
	WATER METER
	WATER VALVE
	SPRINKLER VALVE
	WASTEWATER MANHOLE
	CLEANOUT
	FIRE HYDRANT
	POWER POLE
	ELECTRIC JUNCTION BOX
	STOP SIGN
	MAILBOX
	TREE
	TREE WELL

**LEGEND**

	LIMITS OF CONSTRUCTION
	ASPHALT/CONCRETE REMOVAL
	DEMOLISH CURB & GUTTER
	CLEAR & GRUB VEGETATION
	TREE PROTECTION

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CITY OF ROLLINGWOOD, TEXAS  
PUBLIC WORKS DEPARTMENT  
CITY OF ROLLINGWOOD  
PROPOSED DRAINAGE IMPROVEMENTS  
DEMOLITION AND PROTECTION PLAN

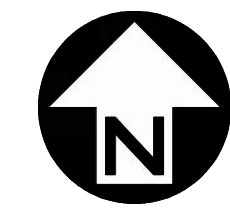
**ROLLINGWOOD TEXAS**  
**K-FRIESE + ASSOCIATES**  
PUBLIC PROJECT ENGINEERING  
1120 S. Capital of Texas Highway  
CityView 2, Suite 100  
Austin, Texas 78746  
P - 512.338.1704 F - 512.338.1784  
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SURVEY BY		
DRAWN BY	KT	07/21
DESIGNED BY	AF	07/21
CHECKED BY	GE	07/21
REVIEWED BY		



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GEOFFREY ELFERS

RATIONAL METHOD FLOW CALCULATION								
AREA ID	AREA (AC)	C <sub>25</sub>	C <sub>100</sub>	T <sub>c</sub>	I <sub>25</sub>	I <sub>100</sub>	Q <sub>25</sub> (cfs)	Q <sub>100</sub> (cfs)
DA 1	1.81	0.58	0.65	10	9.48	12.36	9.9	14.6
DA 2	0.90	0.56	0.64	5	11.80	15.43	6.0	8.9
DA 3	0.45	0.51	0.59	5	11.80	15.43	2.7	4.1
DA 4	0.41	0.65	0.73	5	11.80	15.43	3.2	4.6
DA 5	0.99	0.59	0.67	5	11.80	15.43	7.0	10.3
DA 6	0.37	0.50	0.57	5	11.80	15.43	2.2	3.3
DA 7	0.98	0.54	0.61	5	11.80	15.43	6.3	9.3
DA 8	1.89	0.61	0.69	5	11.80	15.43	13.7	20.2
DA 9	2.50	0.61	0.69	5	11.80	15.43	18.1	26.7



**NOTES:**

1. THE PEAK FLOWS WERE COMPUTED USING THE RATIONAL METHOD AS DESCRIBED IN SECTION 2.4.0 OF THE DRAINAGE CRITERIA MANUAL (DCM) OF AUSTIN, TX.
2. THE RUNOFF COEFFICIENT WAS DEVELOPED BASED FROM TABLE 2-3 OF THE DCM. PERVIOUS LAND COVER WAS ASSUMED TO BE UNDEVELOPED LAND OVER STEEP TERRAIN.
2. RAINFALL INTENSITIES WERE DETERMINED FROM THE IDF COEFFICIENTS SHOWN IN TABLE 2-2A OF THE DCM.

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PUBLIC WORKS DEPARTMENT

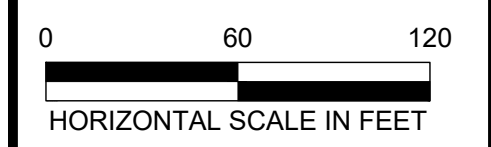
CITY OF ROLLINGWOOD  
PROPOSED DRAINAGE IMPROVEMENTS  
DRAINAGE AREA MAP

**ROLLINGWOOD** TEXAS

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SURVEY BY		
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DESIGNED BY	AF	07/21
CHECKED BY	GE	07/21
REVIEWED BY		



**LEGEND**

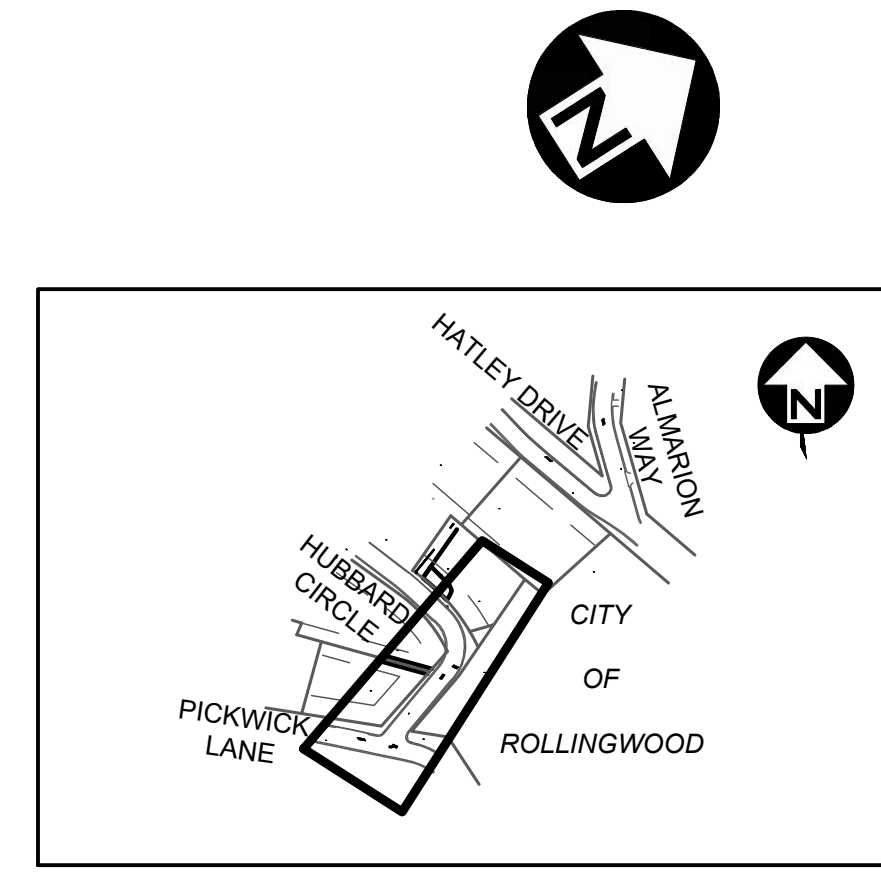
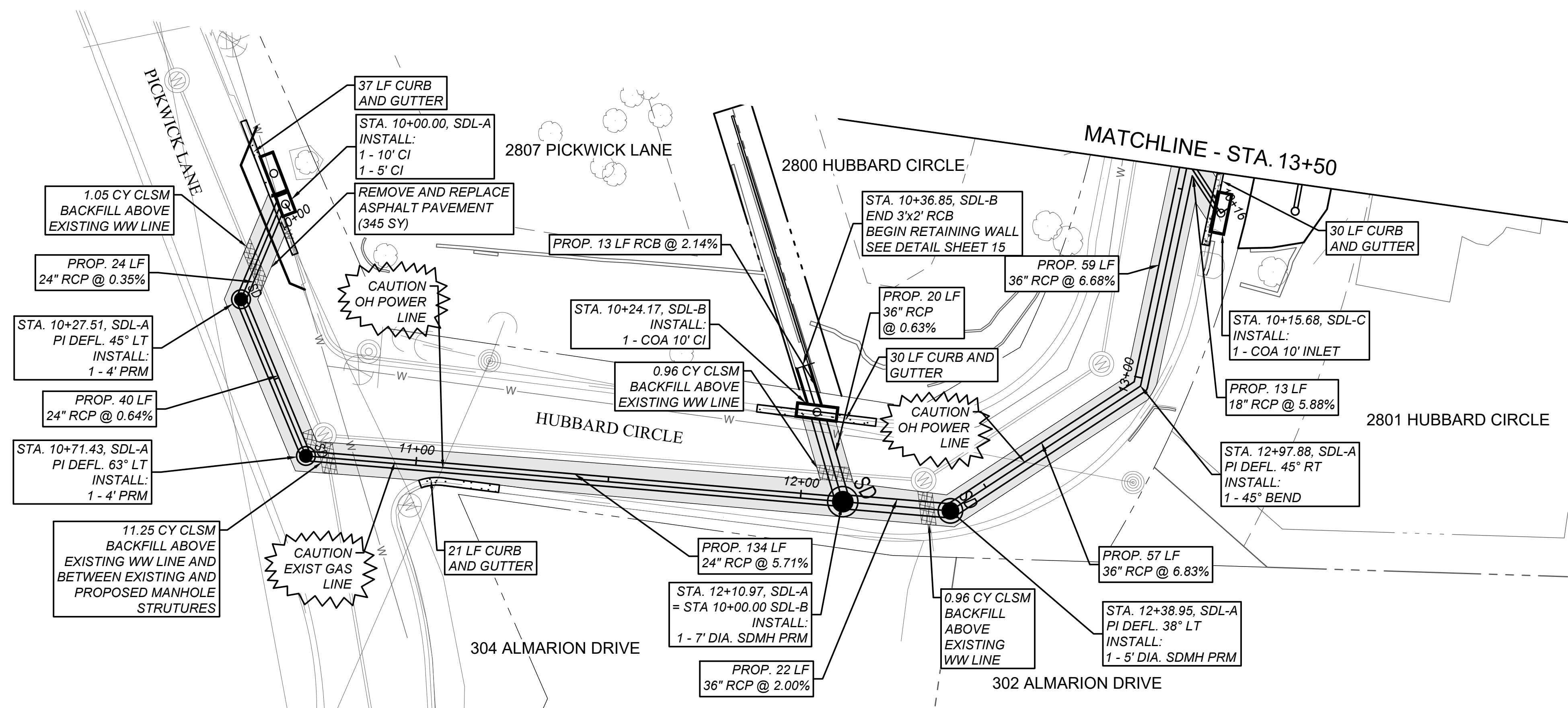
- ▶— FLOW ARROW
- - - FLOWPATH

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GEOFFREY ELFERS





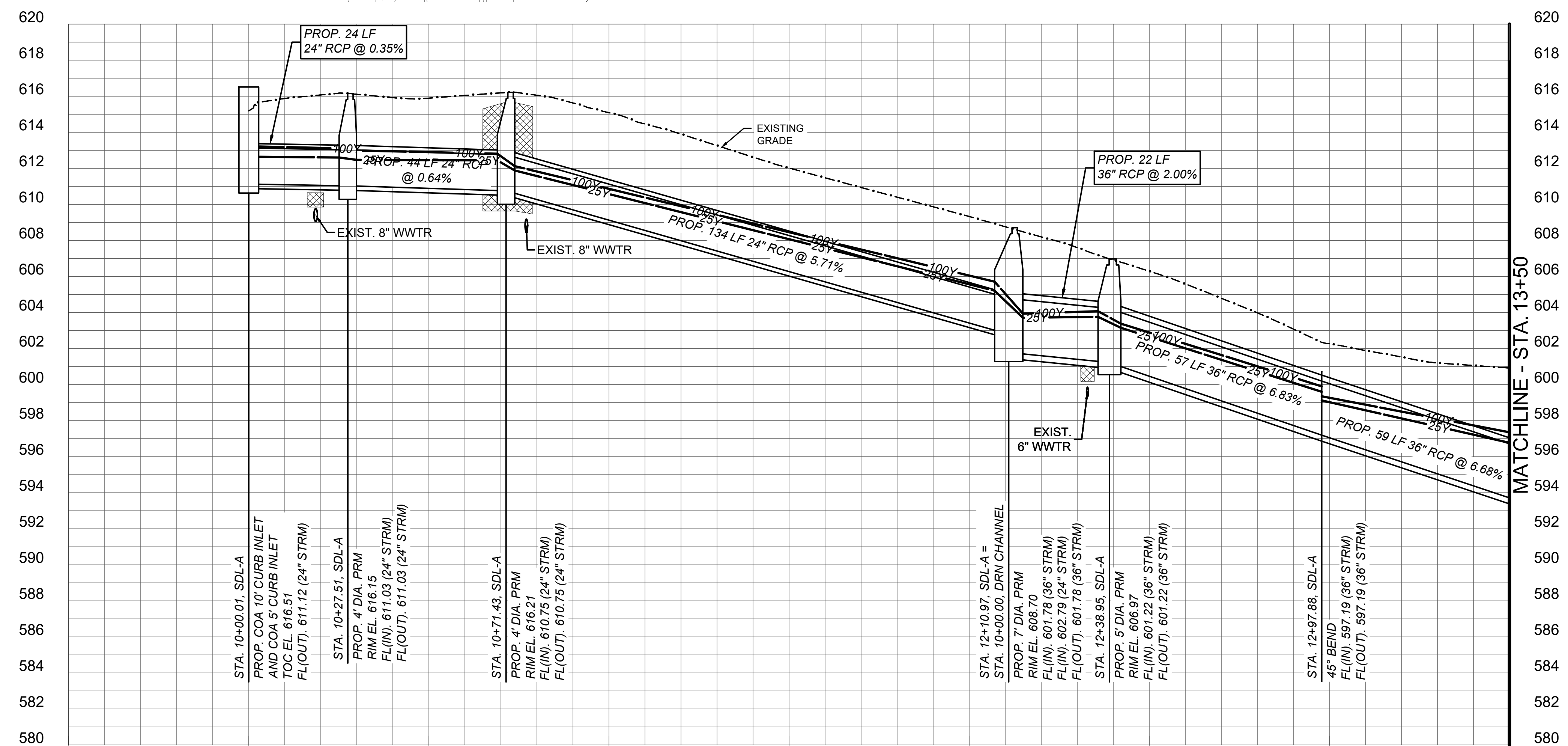


ABBREVIATIONS

PRM - PRECAST ROUND MANHOLE	TY - TYPE
CI - CURB INLET	SDL - STORM DRAIN LINE
PSL - PRECAST SLAB LID	PROP - PROPOSED

LEGEND

	CENTERLINE
	RIGHT OF WAY LINE
	PROPERTY LINE
	EASEMENT LINE
	BUILDING SETBACK LINE
	BACK OF CURB
	EDGE OF ASPHALT
	EDGE OF CONCRETE
	GUTTER
	CONCRETE PAVEMENT
	DRAINAGE FLOW LINE
	WOOD FENCE
	PAVED PARKING / DRIVEWAY
	WASTEWATER LINE
	WATER LINE
	ROCK WALL
	EXISTING RCP PIPE
	NATURAL GAS LINE
	ELECTRIC OVERHEAD
	ELECTRIC UNDERGROUND
	GUY WIRE
	WATER METER
	WATER VALVE
	SPRINKLER VALVE
	WASTEWATER MANHOLE
	CLEANOUT
	FIRE HYDRANT
	POWER POLE
	ELECTRIC JUNCTION BOX
	SIGN
	MAILBOX
	TREE WELL
	25 YEAR HGL
	100 YEAR HGL



REVISION DESCRIPTION

REV. NO.	DATE	DESCRIPTION

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CITY OF ROLLINGWOOD, TEXAS  
PUBLIC WORKS DEPARTMENT

CITY OF ROLLINGWOOD  
PROPOSED DRAINAGE IMPROVEMENTS  
STORM SEWER PLAN & PROFILE STA. 10+00.00-13+50.00

**ROLLINGWOOD TEXAS**

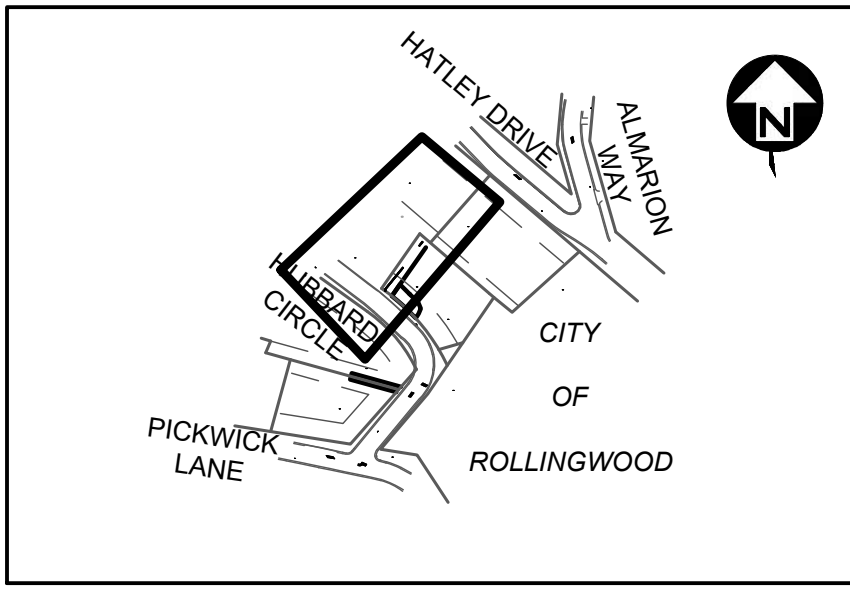
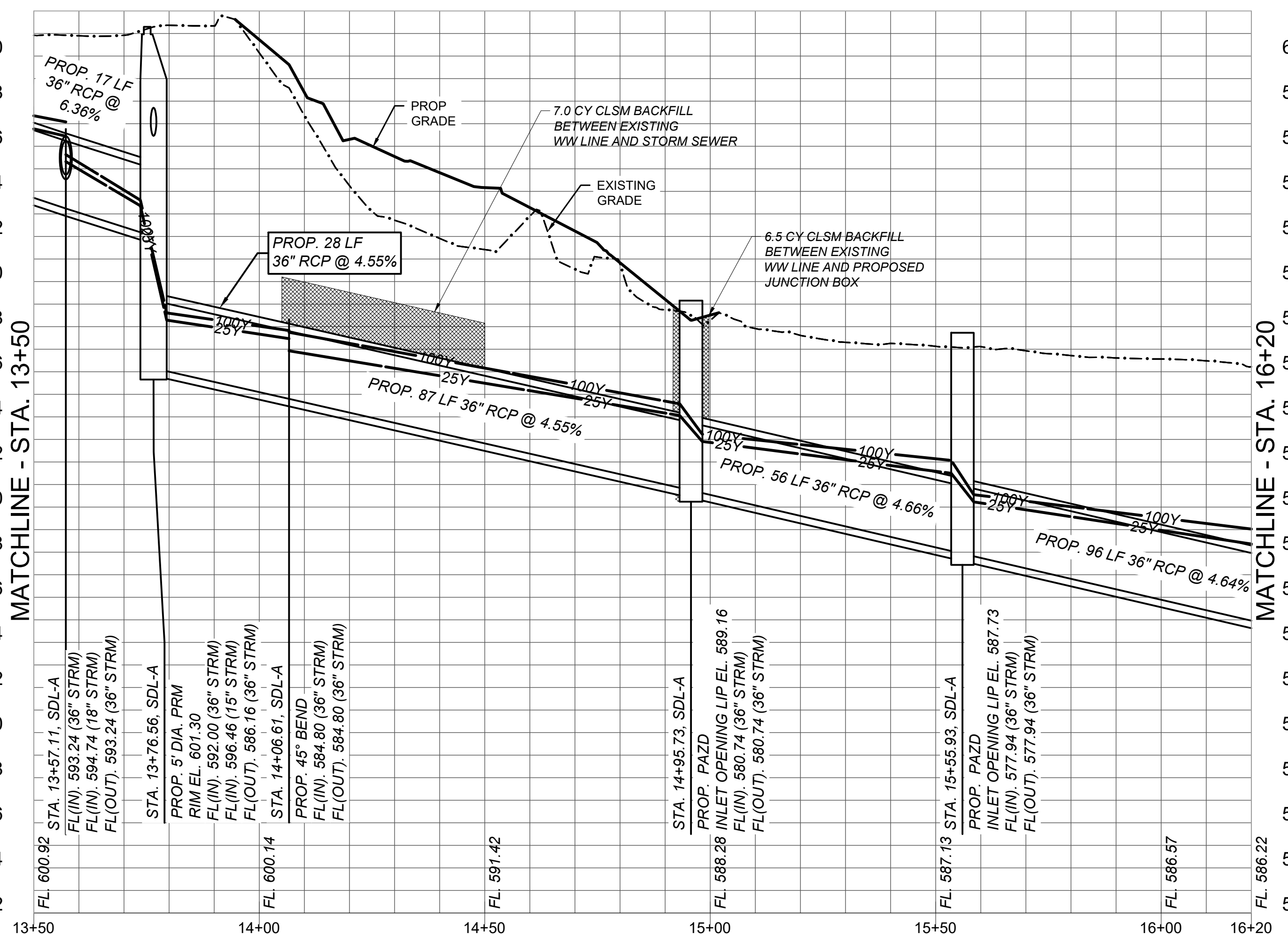
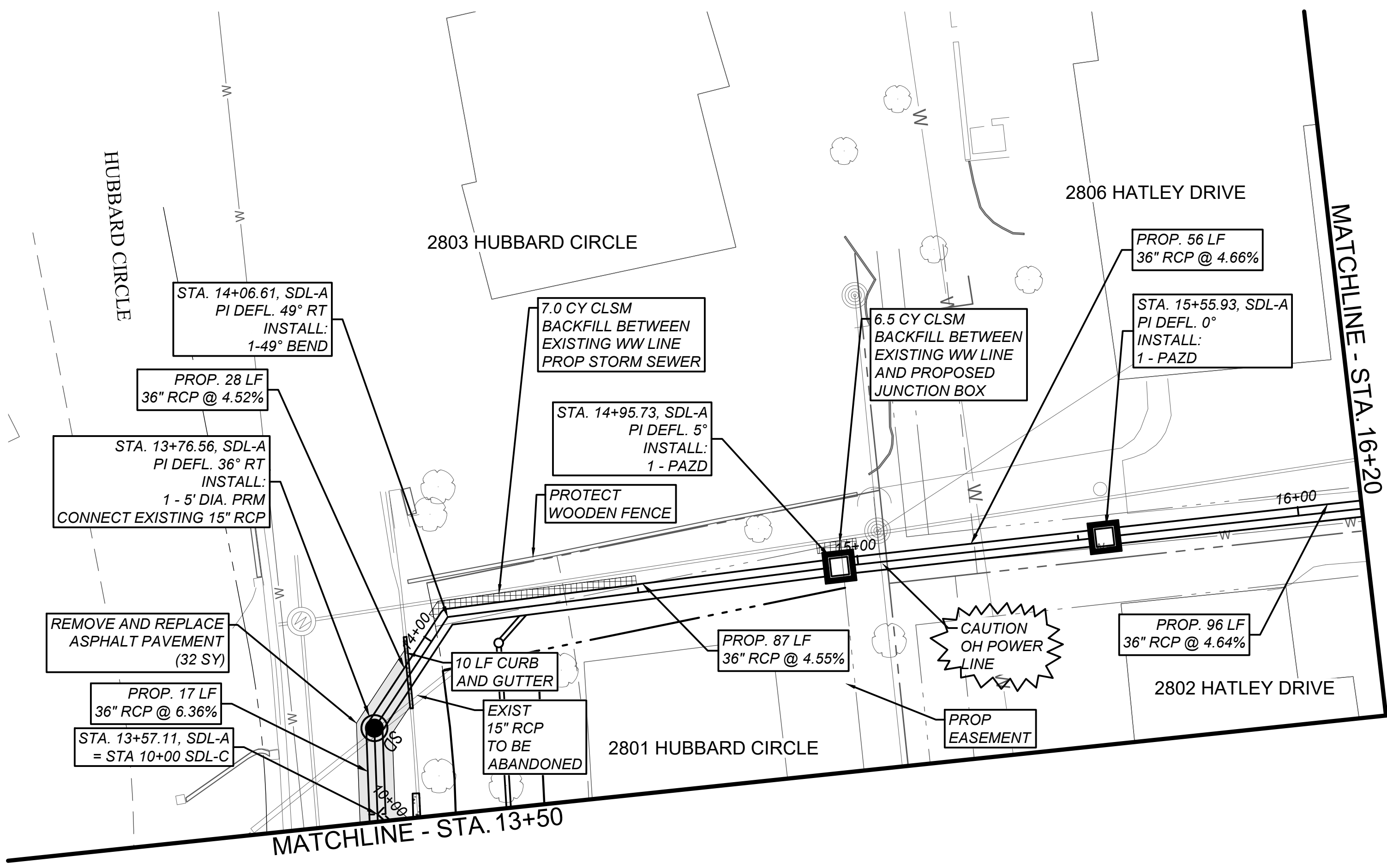
**K-FRIESE + ASSOCIATES**

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SURVEY BY	
DRAWN BY	KT 07/21
DESIGNED BY	AF 07/21
CHECKED BY	GE 07/21
REVIEWED BY	

0 20 40  
HORIZONTAL SCALE IN FEET  
0 4 8  
VERTICAL SCALE IN FEET



NOTES:  
EXISTING 15" RCP IS TO REMAIN CLEAR UNTIL THE END OF CONSTRUCTION.

ABBREVIATIONS	
PRM - PRECAST ROUND MANHOLE	TY - TYPE
CI - CURB INLET	SDL - STORM DRAIN LINE
PSL - PRECAST SLAB LID	PROP - PROPOSED

LEGEND

- CENTERLINE
- RIGHT OF WAY LINE
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- EASEMENT LINE
- BUILDING SETBACK LINE
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- GUTTER
- CONCRETE PAVEMENT
- DRAINAGE FLOW LINE
- WOOD FENCE
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- WATER LINE
- ROCK WALL
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- WATER METER
- WATER VALVE
- SPRINKLER VALVE
- WASTEWATER MANHOLE
- CLEANOUT
- FIRE HYDRANT
- POWER POLE
- ELECTRIC JUNCTION BOX
- SIGN
- MAILBOX
- TREE
- TREE WELL
- 25Y --- 25 YEAR HGL
- 100Y --- 100 YEAR HGL

REV. NO.	DATE	REVISION DESCRIPTION

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CITY OF ROLLINGWOOD, TEXAS  
PUBLIC WORKS DEPARTMENT

CITY OF ROLLINGWOOD  
PROPOSED DRAINAGE IMPROVEMENTS

STORM SEWER PLAN & PROFILE STA. 13+50.00-16+20.00

**ROLLINGWOOD TEXAS**

**K-FRIESE + ASSOCIATES**

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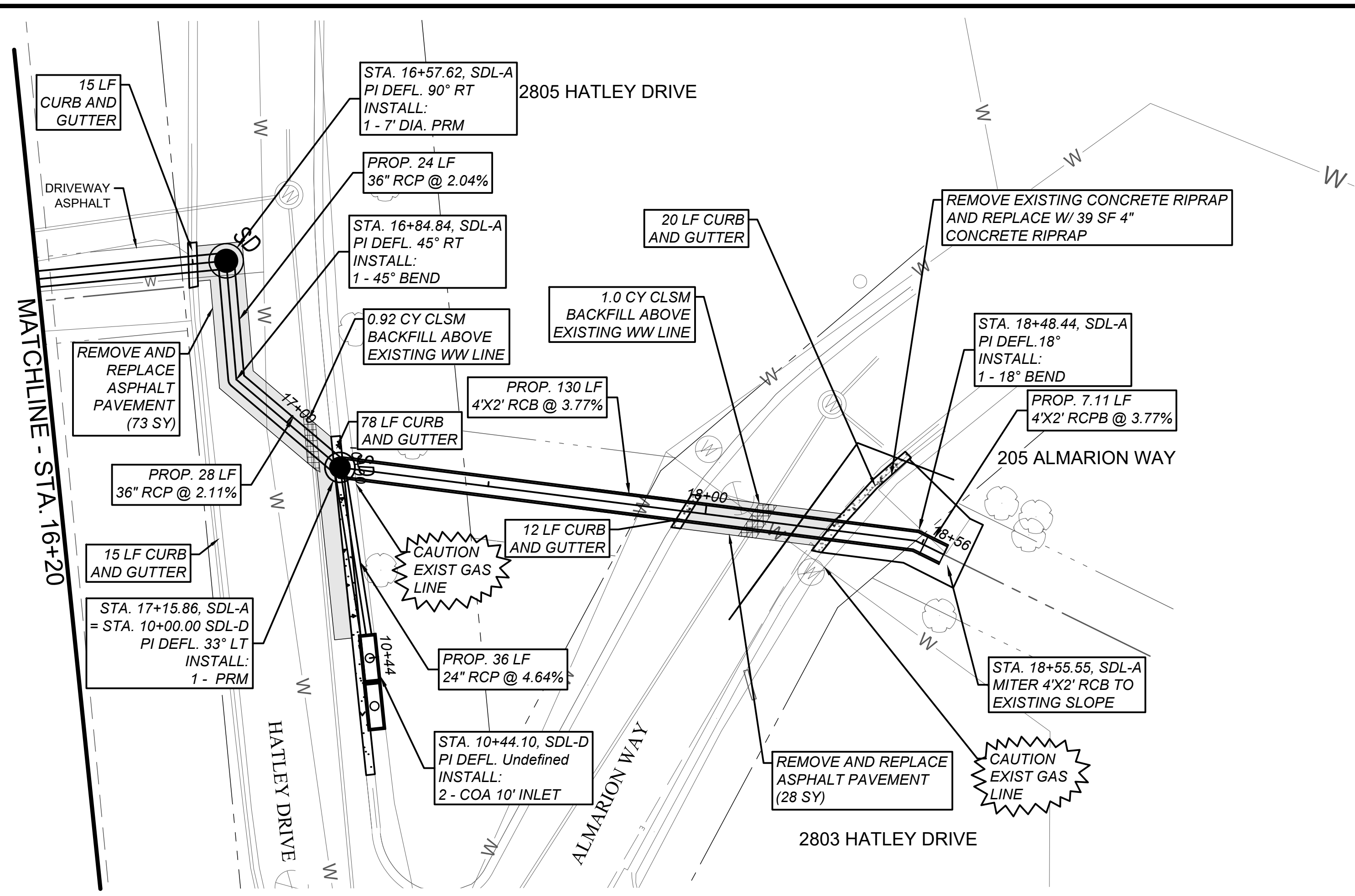
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DESIGNED BY AF 07/21

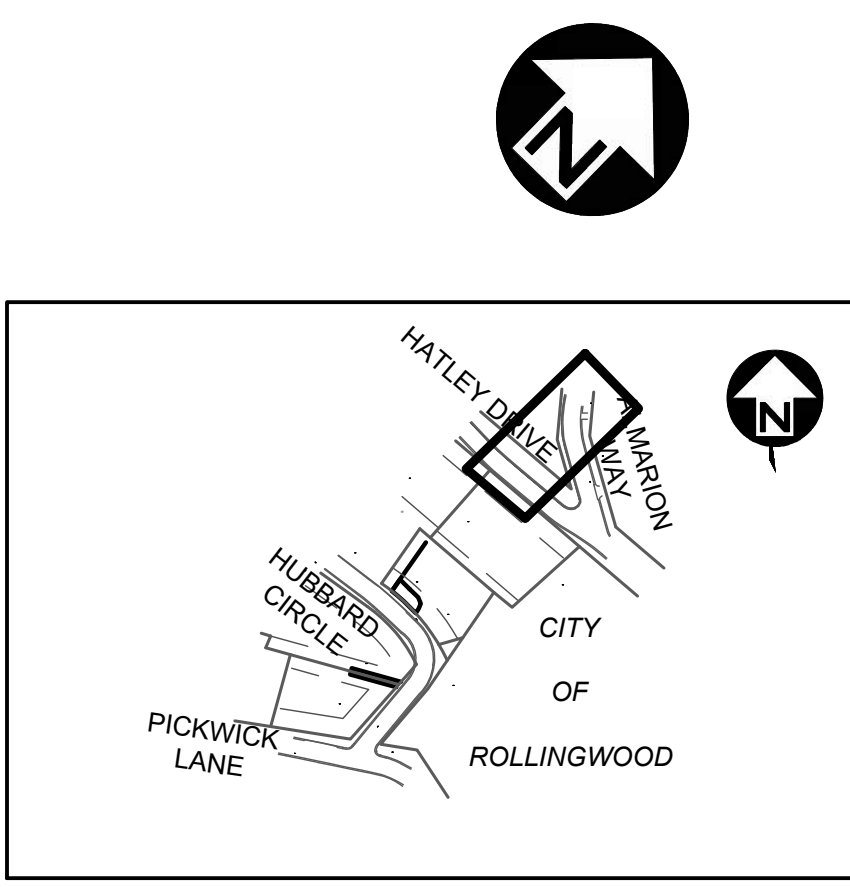
CHECKED BY GE 07/21

REVIEWED BY

0 20 40  
HORIZONTAL SCALE IN FEET  
0 4 8  
VERTICAL SCALE IN FEET



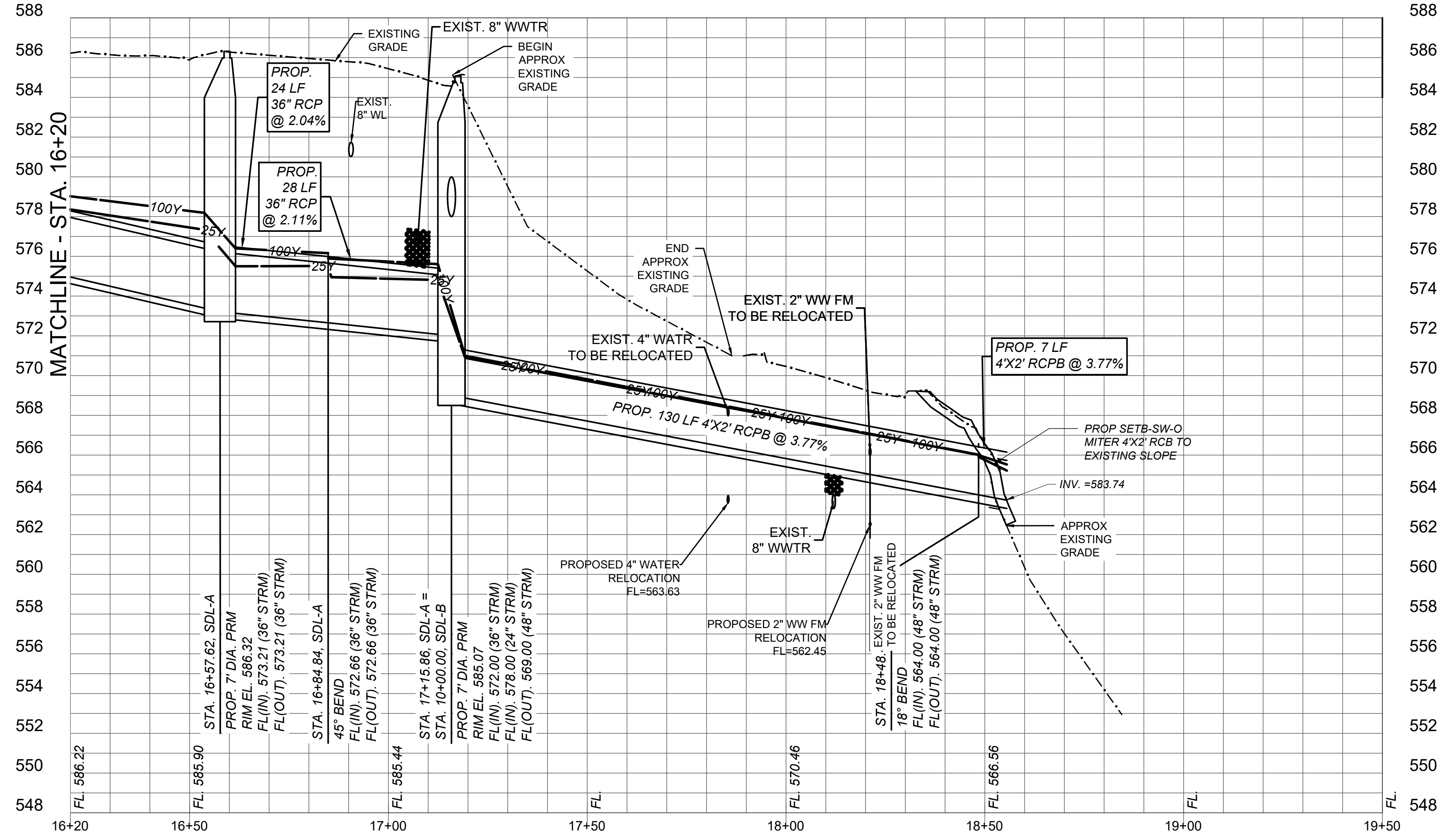
- FORCE MAIN RELOCATION NOTES:
- FORCE MAIN AND LIFT STATION OWNED AND OPERATED BY [OWNER, TELEPHONE NUMBER]. CONTRACTOR TO COORDINATE ALL WORK ON AND IN PROXIMITY OF FORCE MAIN WITH OWNER/OPERATOR NO LESS THAN 48 HOURS IN ADVANCE OF WORK.
  - LIFT STATION SHALL BE TURNED OFF AND WET WELL SHALL BE PUMPED AND HAULED FOR DURATION OF FORCE MAIN RELOCATION WORK. CONTRACTOR SHALL PREVENT WASTEWATER LEVEL IN WET WELL FROM SURCHARGING EXISTING GRAVITY INFLUENT LINE.
  - FORCE MAIN CONTENTS SHALL BE DRAINED AND HANDLED IN ACCORDANCE WITH TCEQ AND OWNERS REQUIREMENTS.
  - PROPOSED FORCE MAIN RELOCATION SHALL BE INSPECTED AND HYDROTESTED IN PRESENCE OF OWNER AND ENGINEER PRIOR TO LIFT STATION BEING TURNED BACK ON.



ABBREVIATIONS	
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CI - CURB INLET	SDL - STORM DRAIN LINE
PSL - PRECAST SLAB LID	PROP - PROPOSED

LEGEND

	CENTERLINE
	RIGHT OF WAY LINE
	PROPERTY LINE
	EASEMENT LINE
	BUILDING SETBACK LINE
	BACK OF CURB
	EDGE OF ASPHALT
	EDGE OF CONCRETE
	GUTTER
	CONCRETE PAVEMENT
	DRAINAGE FLOW LINE
	WOOD FENCE
	PAVED PARKING / DRIVEWAY
	WASTEWATER LINE
	WATER LINE
	ROCK WALL
	EXISTING RCP PIPE
	NATURAL GAS LINE
	ELECTRIC OVERHEAD
	ELECTRIC UNDERGROUND
	GUY WIRE
	WATER METER
	WATER VALVE
	SPRINKLER VALVE
	WASTEWATER MANHOLE
	CLEANOUT
	FIRE HYDRANT
	POWER POLE
	ELECTRIC JUNCTION BOX
	SIGN
	MAILBOX
	TREE
	TREE WELL
	25 YEAR HGL
	100 YEAR HGL



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CITY OF ROLLINGWOOD PROPOSED DRAINAGE IMPROVEMENTS STORM SEWER PLAN & PROFILE STA. 16+20.00-19+00.42		

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NOTES	NAME	DATE

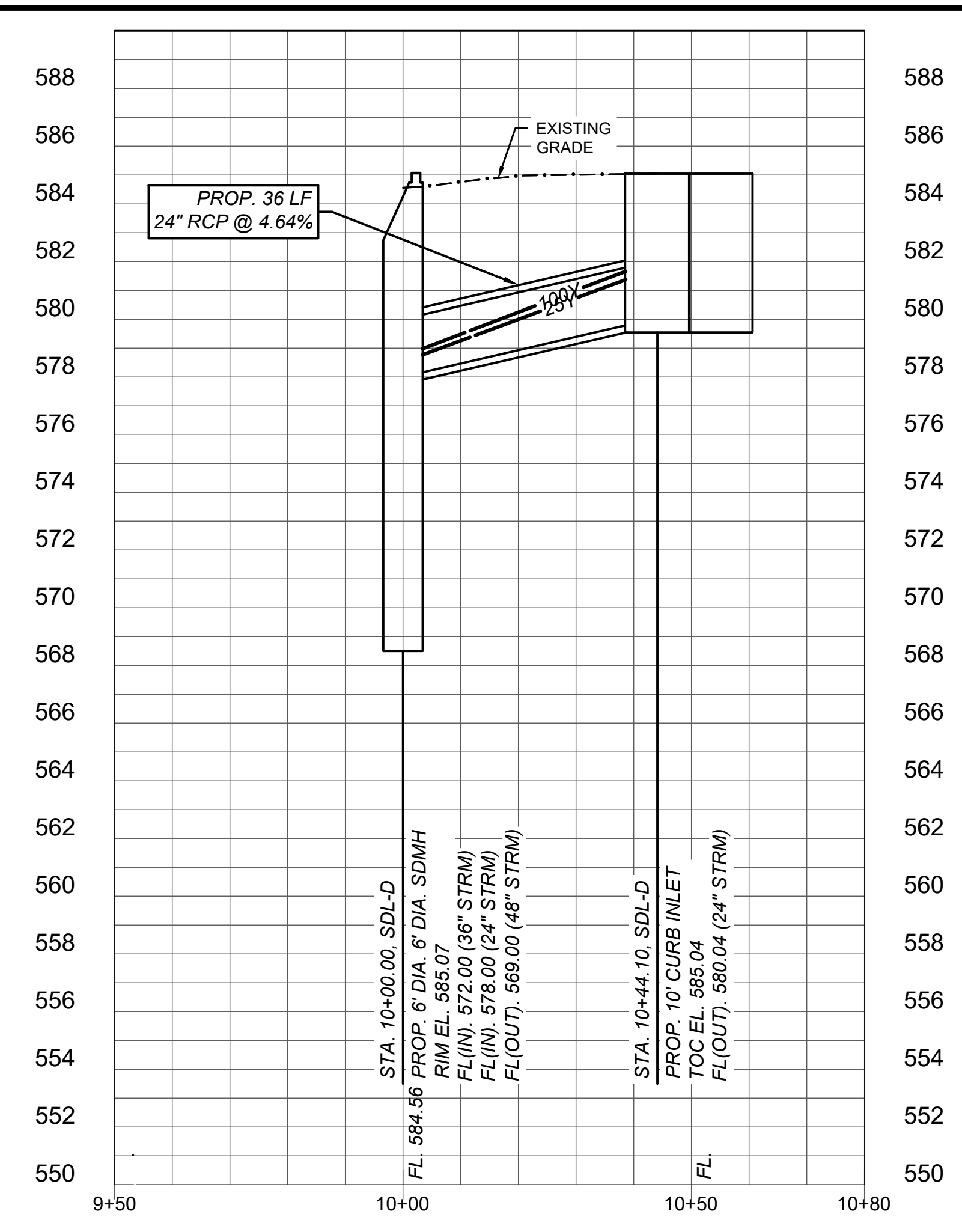
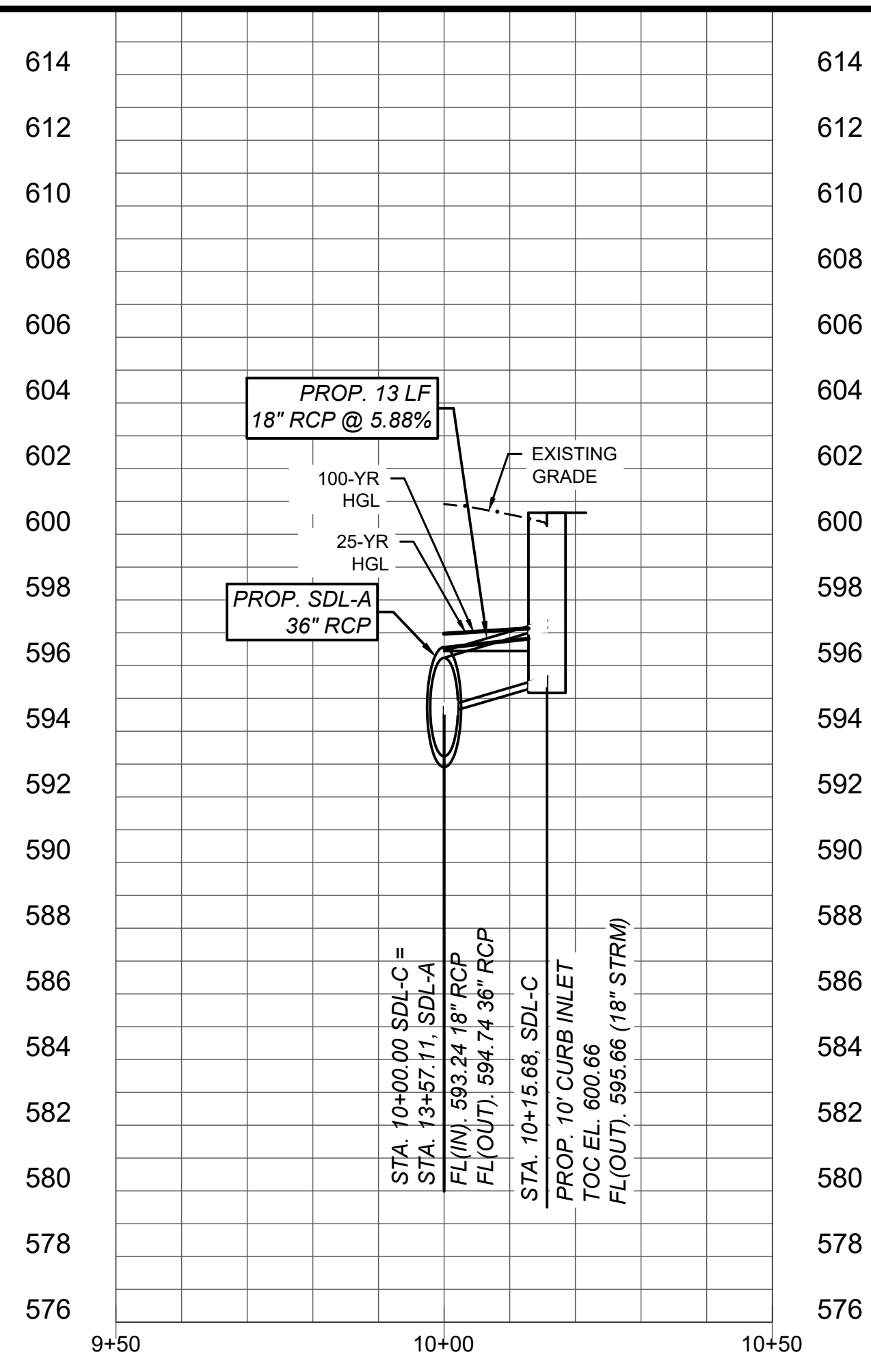
SURVEY BY		
DRAWN BY	KT	07/21
DESIGNED BY	AF	07/21
CHECKED BY	GE	07/21
REVIEWED BY		

HORIZONTAL SCALE IN FEET  
 0 20 40  
 0 4 8

VERTICAL SCALE IN FEET

PLPR03 12 OF 32

X:\PROJECTS\03003\_ROLLINGWOOD\_HUBBARD-HATLEY\_DRAINAGE\_IMPROVEMENTS\DESIGN\SHEETS\03003-SSD-PL-PROT.DWG - CCA\_ESD.S18  
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ABBREVIATIONS	
PRM	- PRECAST ROUND MANHOLE
CI	- CURB INLET
PSL	- PRECAST SLAB LID
TY	- TYPE
SDL	- STORM DRAIN LINE
PROP	- PROPOSED

LEGEND	
25 YEAR HGL	——— 25Y ———
100 YEAR HGL	——— 100Y ———

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CITY OF ROLLINGWOOD, TEXAS  
PUBLIC WORKS DEPARTMENT

CITY OF ROLLINGWOOD  
PROPOSED DRAINAGE IMPROVEMENTS

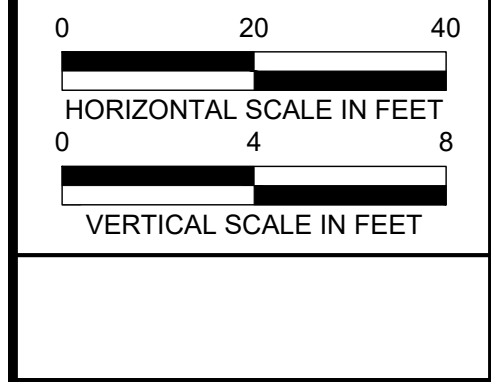
SDL-B, SDL-C & SDL-D LATERAL PLAN & PROFILES

**ROLLINGWOOD TEXAS**

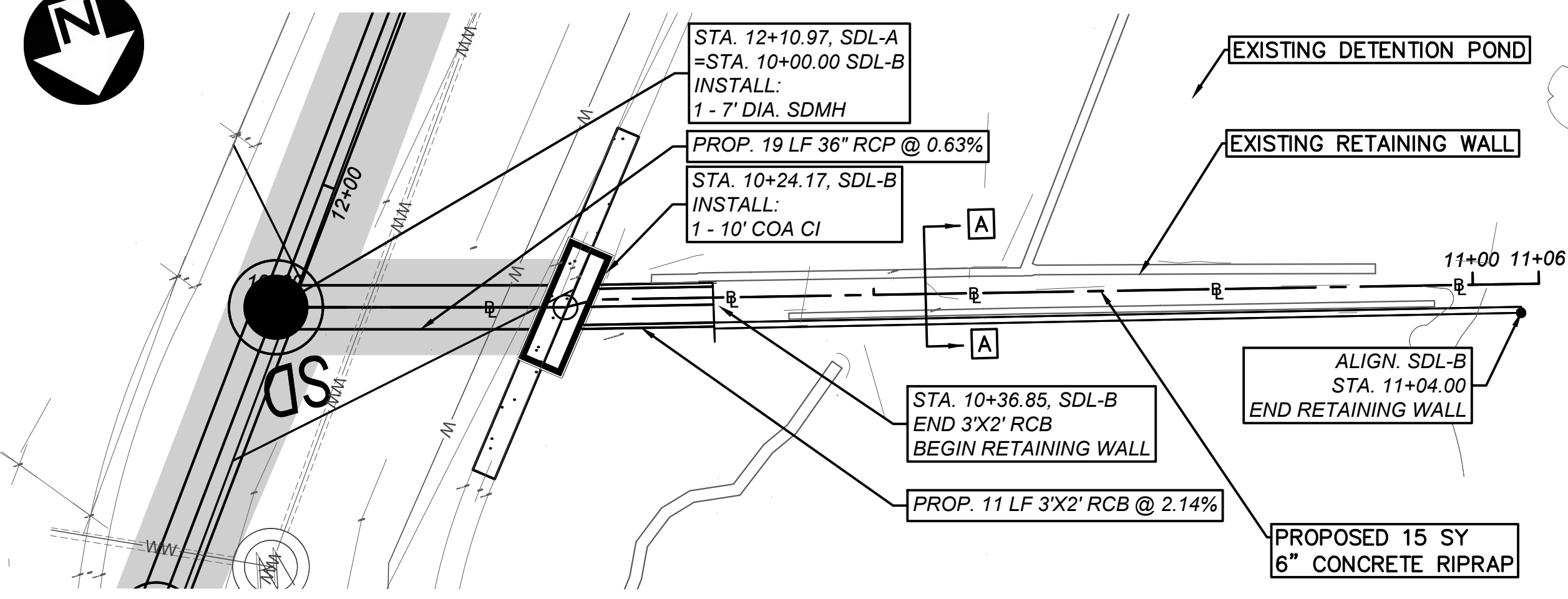
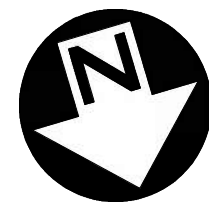
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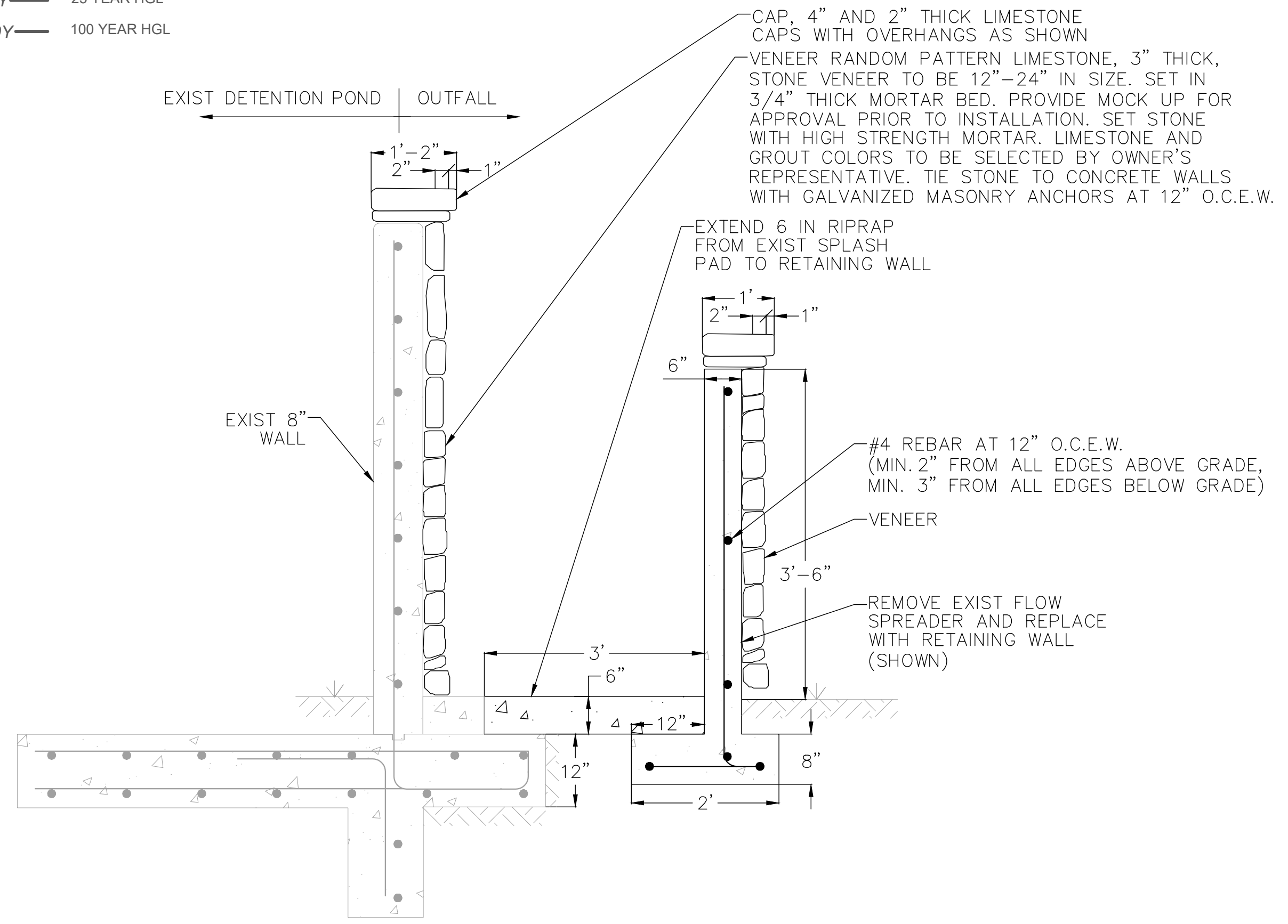
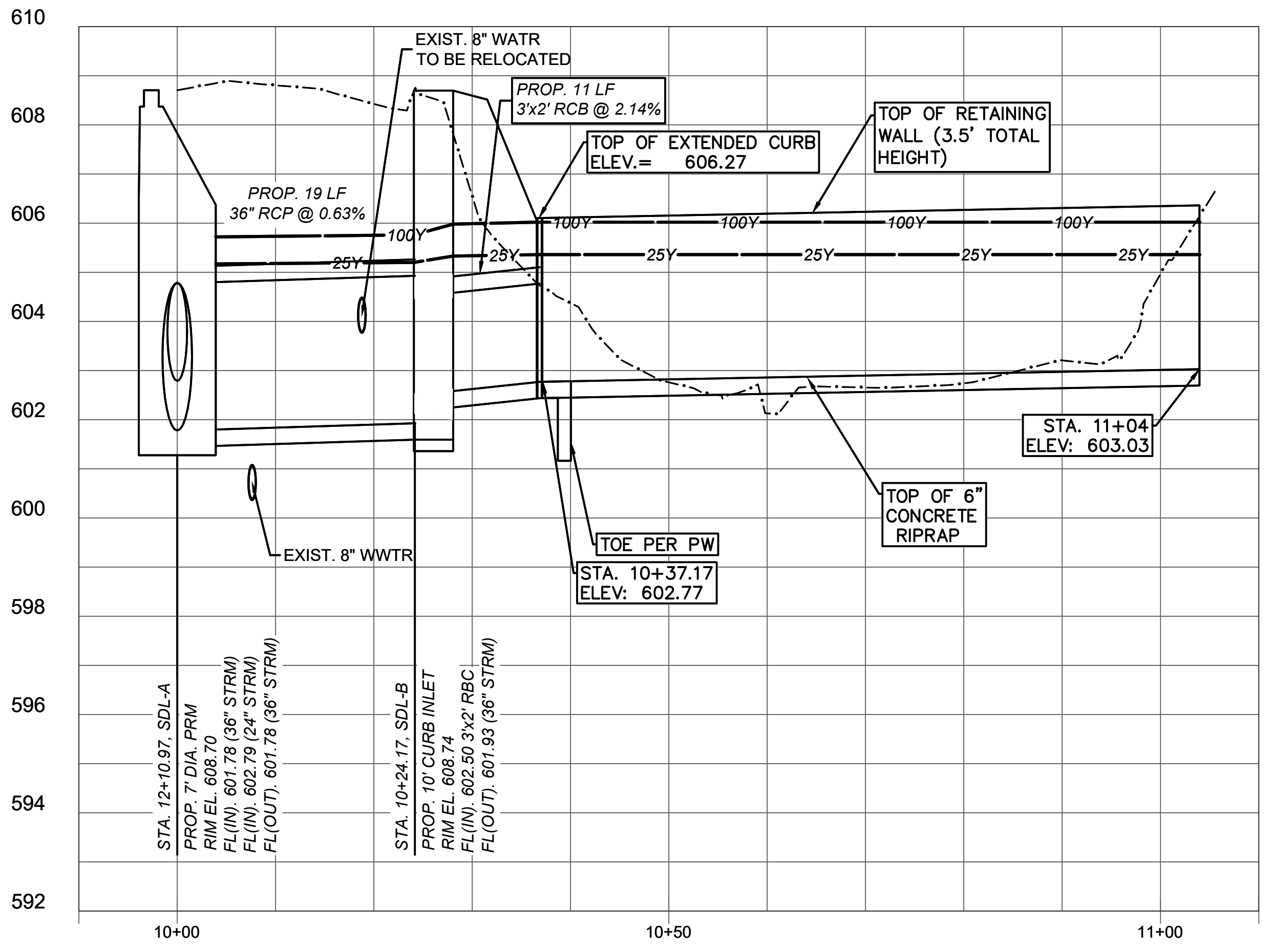


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**LEGEND**

- CENTERLINE
- RIGHT OF WAY LINE
- PROPERTY LINE
- EASEMENT LINE
- BUILDING SETBACK LINE
- BACK OF CURB
- EDGE OF ASPHALT
- EDGE OF CONCRETE
- GUTTER
- CONCRETE PAVEMENT
- DRAINAGE FLOW LINE
- WOOD FENCE
- PAVED PARKING / DRIVEWAY
- WASTEWATER LINE
- WATER LINE
- WASTEWATER MANHOLE
- TREE
- 25Y 25 YEAR HGL
- 100Y 100 YEAR HGL



POND OUTFALL SECTION A-A  
N.T.S.

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PUBLIC WORKS DEPARTMENT

**CITY OF ROLLINGWOOD  
PROPOSED DRAINAGE IMPROVEMENTS**

**SDL-B AND DETENTION POND OUTFALL**

**ROLLINGWOOD** TEXAS

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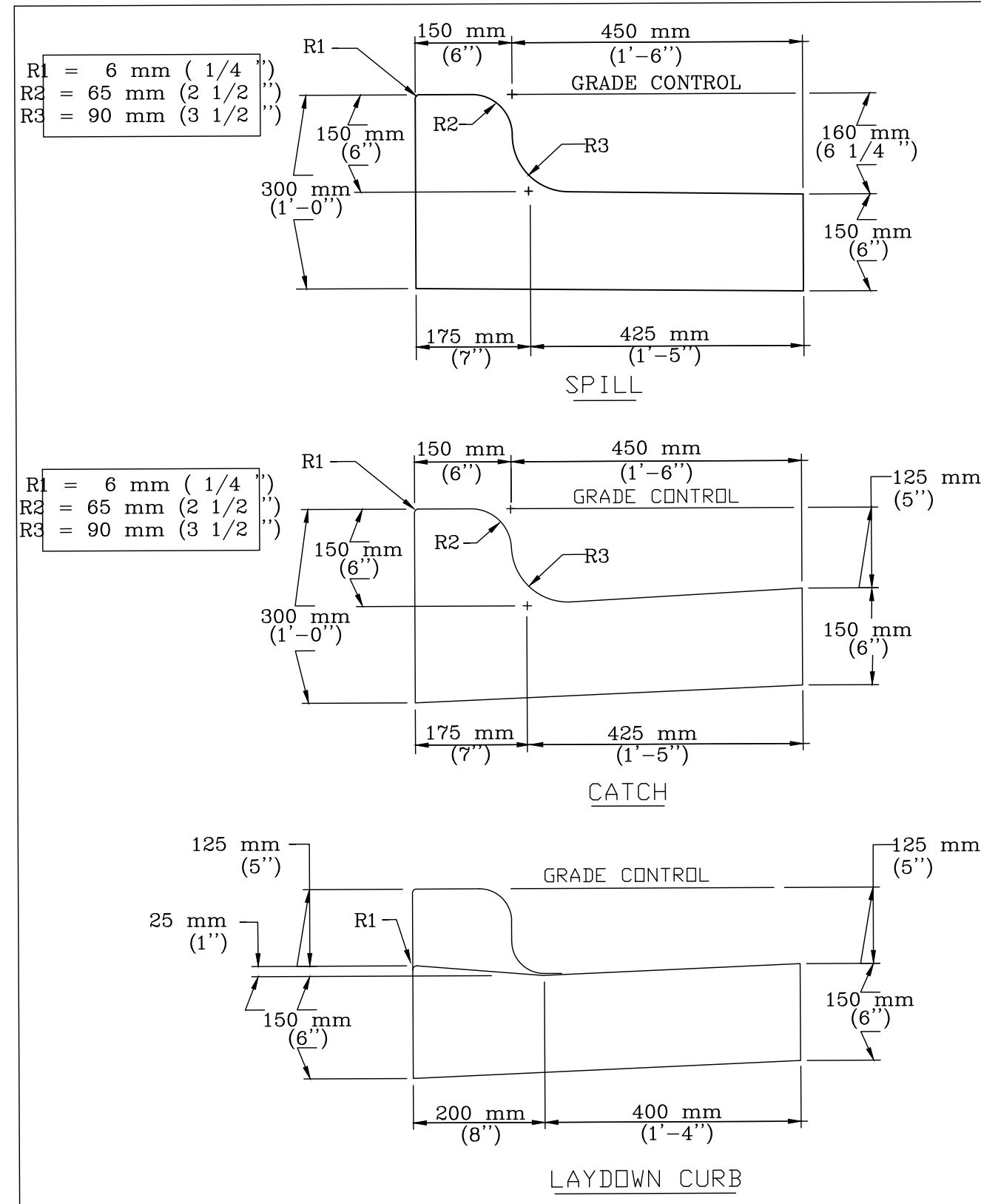
SURVEY BY	
DRAWN BY	KT 07/21
DESIGNED BY	AF 07/21
CHECKED BY	GE 07/21
REVIEWED BY	

0 5 10  
HORIZONTAL SCALE IN FEET

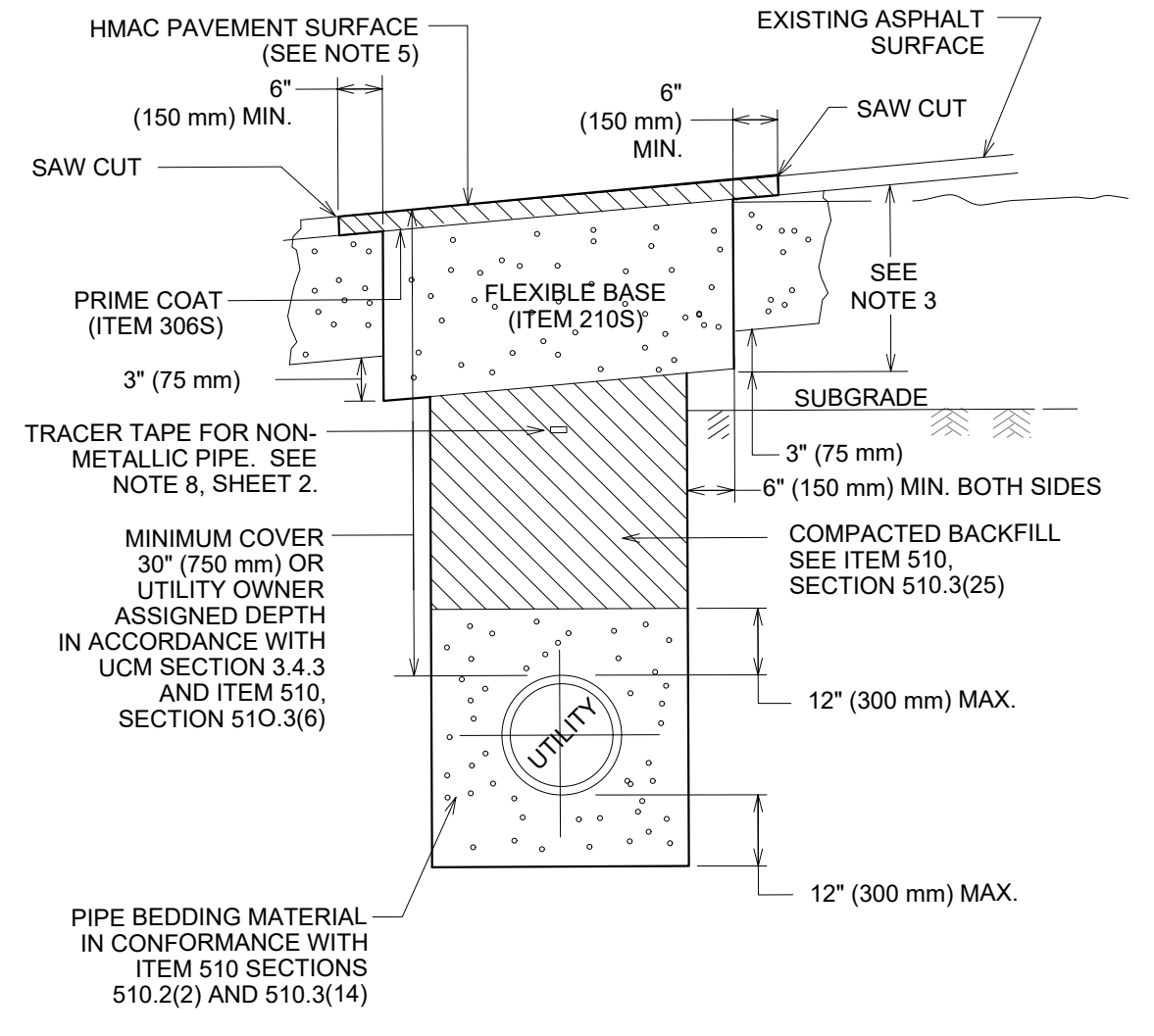
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VERTICAL SCALE IN FEET

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<b>CITY OF AUSTIN</b> DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION		<b>CURB AND GUTTER SECTION</b>	STANDARD NO. <b>430S-1</b>
RECORD COPY SIGNED BY LINO RIVERA	9/29/99 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	

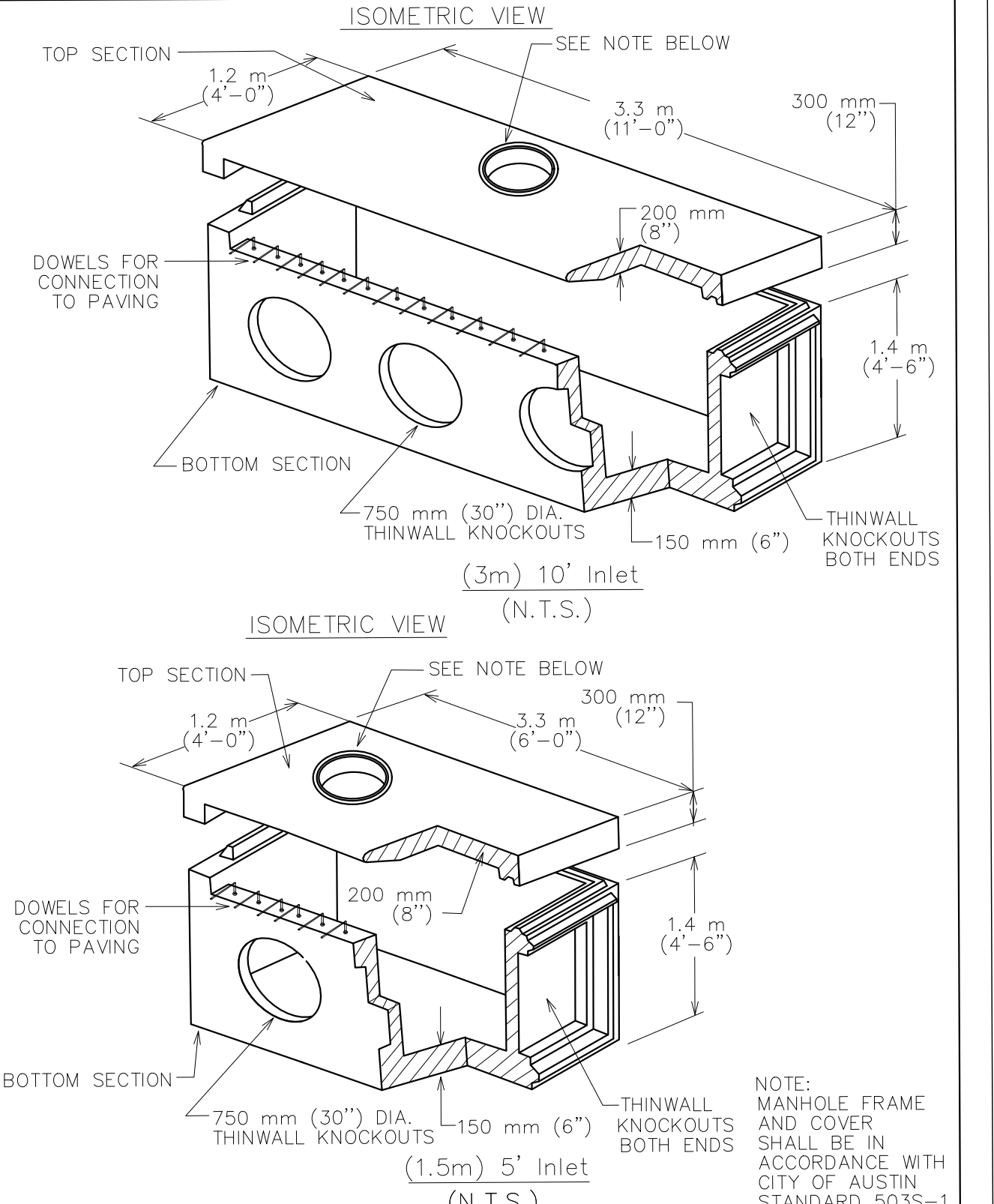
**TRENCH REPAIR IN ASPHALTIC SURFACE OVER FLEXIBLE BASE  
(UCM SECTION 5.8.0)**



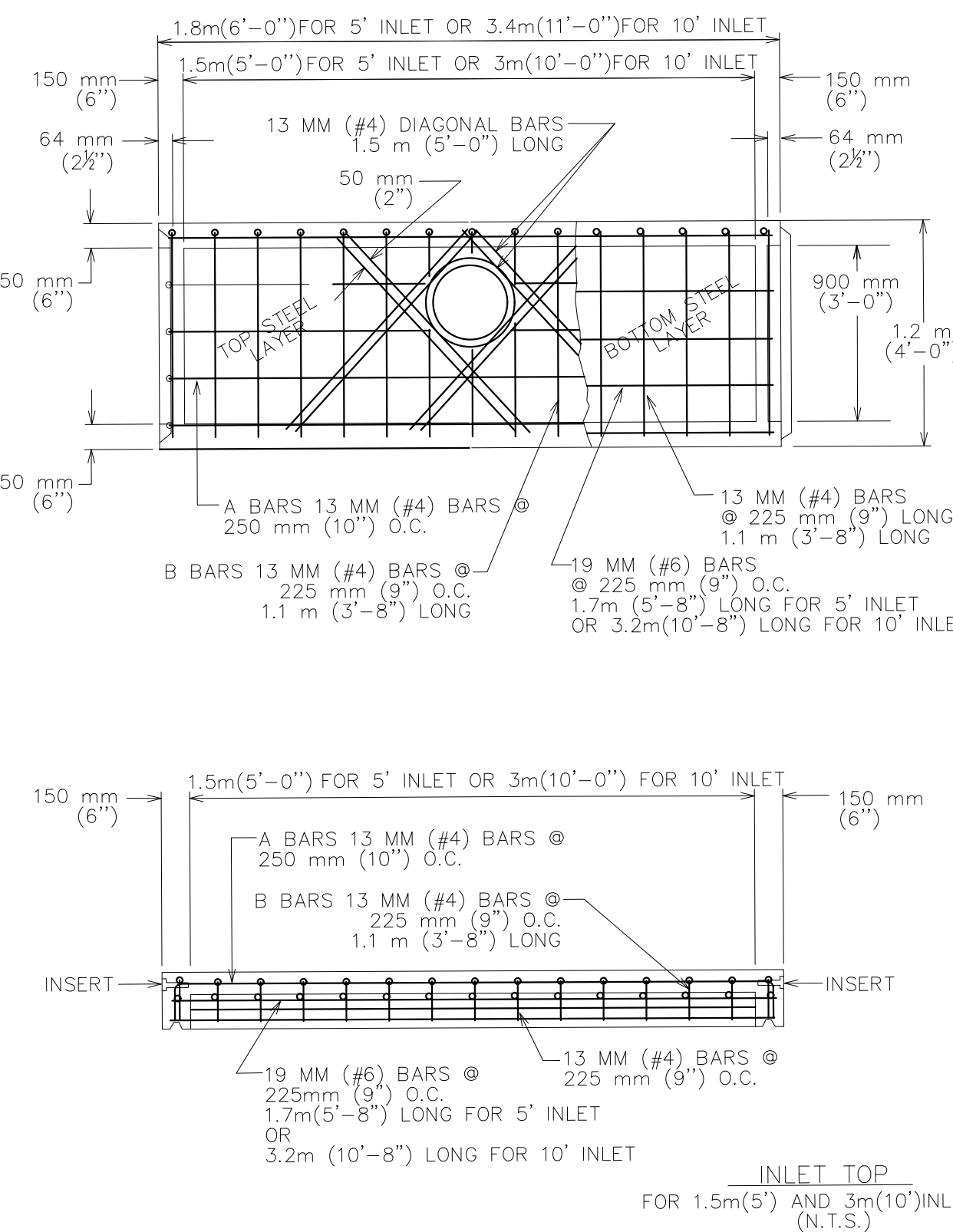
<b>CITY OF AUSTIN</b> DEPARTMENT OF PUBLIC WORKS		<b>FLEXIBLE BASE WITH ASPHALT SURFACE TRENCH REPAIR-EXISTING PAVEMENT</b>	STANDARD NO. <b>1100S-2</b>
RECORD COPY SIGNED BY KERI JUAREZ	01/04/11 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	1 OF 2

- NOTES:**
- THE EXISTING PAVING SURFACE SHALL BE SAW CUT IN A STRAIGHT LINE, A MINIMUM OF 12" (300 mm) WIDER THAN UNDISTURBED SIDES OF THE TRENCH AND SYMMETRICAL ABOUT THE CENTER LINE OF THE EXCAVATION.
  - IF EXCAVATION AREA IS OPEN FOR TEMPORARY PUBLIC USE, THE SURFACE SHALL BE MAINTAINED LEVEL WITH ADJACENT RIDING SURFACE WITH COLD MIX AC OR TEMPORARY HMAC. TEMPORARY MIX SHALL BE PLACED OVER FLEXIBLE BASE.
  - ROAD BASE SHALL BE REPLACED IN KIND WITH BASE THICKNESS EQUAL TO EXISTING BASE THICKNESS PLUS 3" (75 mm), BUT IN NO CASE LESS THAN 12" (300 mm).
  - DAMAGED PAVEMENT OUTSIDE THE TRENCH CUT SHALL BE REMOVED AND REPLACED WITH A BASE THICKNESS OF 10" (250 mm) OR A THICKNESS MATCHING EXISTING, WHICHEVER IS GREATER.
  - REPLACEMENT AC SURFACE LAYER SHALL BE OF THE TYPE AND THICKNESS BASED ON FUNCTIONAL CLASSIFICATION.
    - MIN. 2" (50 mm) HMAC TYPE "D" FOR TRENCH REPAIR IN LOCAL/RESIDENTIAL STREETS.
    - MIN. 3" (75 mm) HMAC TYPE "C" FOR TRENCH REPAIR IN COLLECTOR/ARTERIAL STREETS.
 SEE ITEM 340S, SECTION 340S.4.
  - CLASS "J" PC CONCRETE (ITEM 403S) OR CONTROLLED LOW STRENGTH MATERIAL (CLSM) MAY BE SUBSTITUTED IN THESE REPAIRS FOR THE FLEXIBLE BASE AND COMPACTED BACKFILL. PC CONCRETE GREATER THAN A 2 SACK MIX WILL NOT BE ALLOWED.
  - TACK COAT ALL EXPOSED EDGES AND SURFACES (SPEC ITEM 307S).
  - AS PER CITY OF AUSTIN STANDARD SPECIFICATION 510, SECTION 510.2(B)(6), FOR ALL NON-METALLIC PIPE DIRECTLY ABOVE THE CENTERLINE OF THE PIPE AND A MINIMUM OF 12" (300 mm) BELOW THE SUBGRADE, OR A MINIMUM OF 18" (450 mm) BELOW FINISHED GRADE ON AREAS OUTSIDE THE LIMITS OF PAVEMENT, SHALL BE PLACED INDUCTIVE TRACER TAPE IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS. THE TAPE SHALL BE ENCASED IN A PROTECTIVE INERT, PLASTIC JACKET AND COLOR CODED IN ACCORDANCE WITH APWA UNIFORM COLOR CODE.

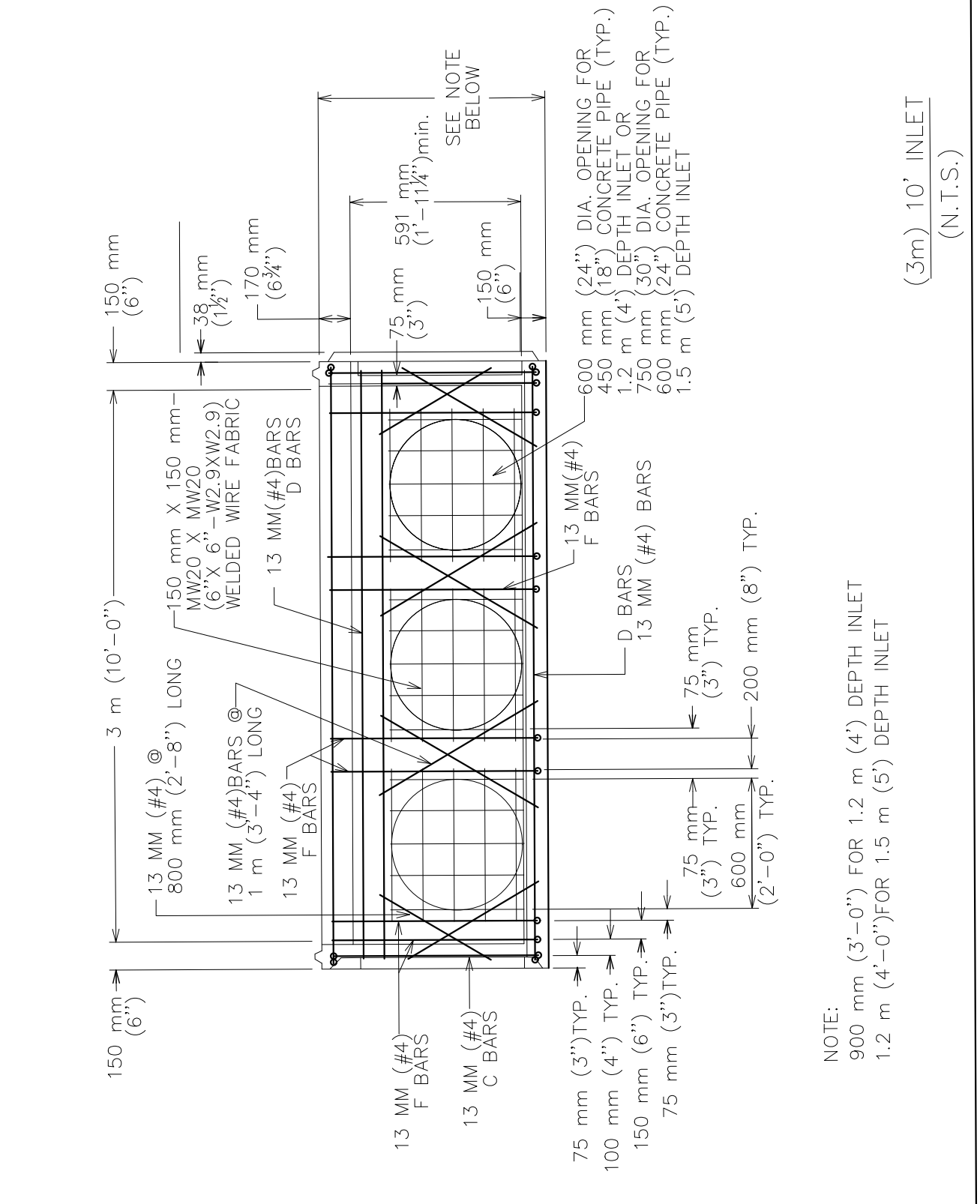
<b>CITY OF AUSTIN</b> DEPARTMENT OF PUBLIC WORKS		<b>FLEXIBLE BASE WITH ASPHALT SURFACE TRENCH REPAIR-EXISTING PAVEMENT</b>	STANDARD NO. <b>1100S-2</b>
RECORD COPY SIGNED BY KERI JUAREZ	01/04/11 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	2 OF 2



<b>CITY OF AUSTIN</b> WATERSHED PROTECTION DEPARTMENT		<b>CURB INLET 1.5m(5') AND 3m(10') PRECAST TYPE 1 OR TYPE 1-R</b>	STANDARD NO. <b>508S-4</b>
ADOPTED		THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	1 OF 7



<b>CITY OF AUSTIN</b> WATERSHED PROTECTION DEPARTMENT		<b>CURB INLET 1.5m(5') AND 3m(10') PRECAST TYPE 1 OR TYPE 1-R</b>	STANDARD NO. <b>508S-4</b>
ADOPTED		THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	2 OF 7



<b>CITY OF AUSTIN</b> WATERSHED PROTECTION DEPARTMENT		<b>CURB INLET 1.5m(5') AND 3m(10') PRECAST TYPE 1 OR TYPE 1-R</b>	STANDARD NO. <b>508S-4</b>
ADOPTED		THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	3 OF 7

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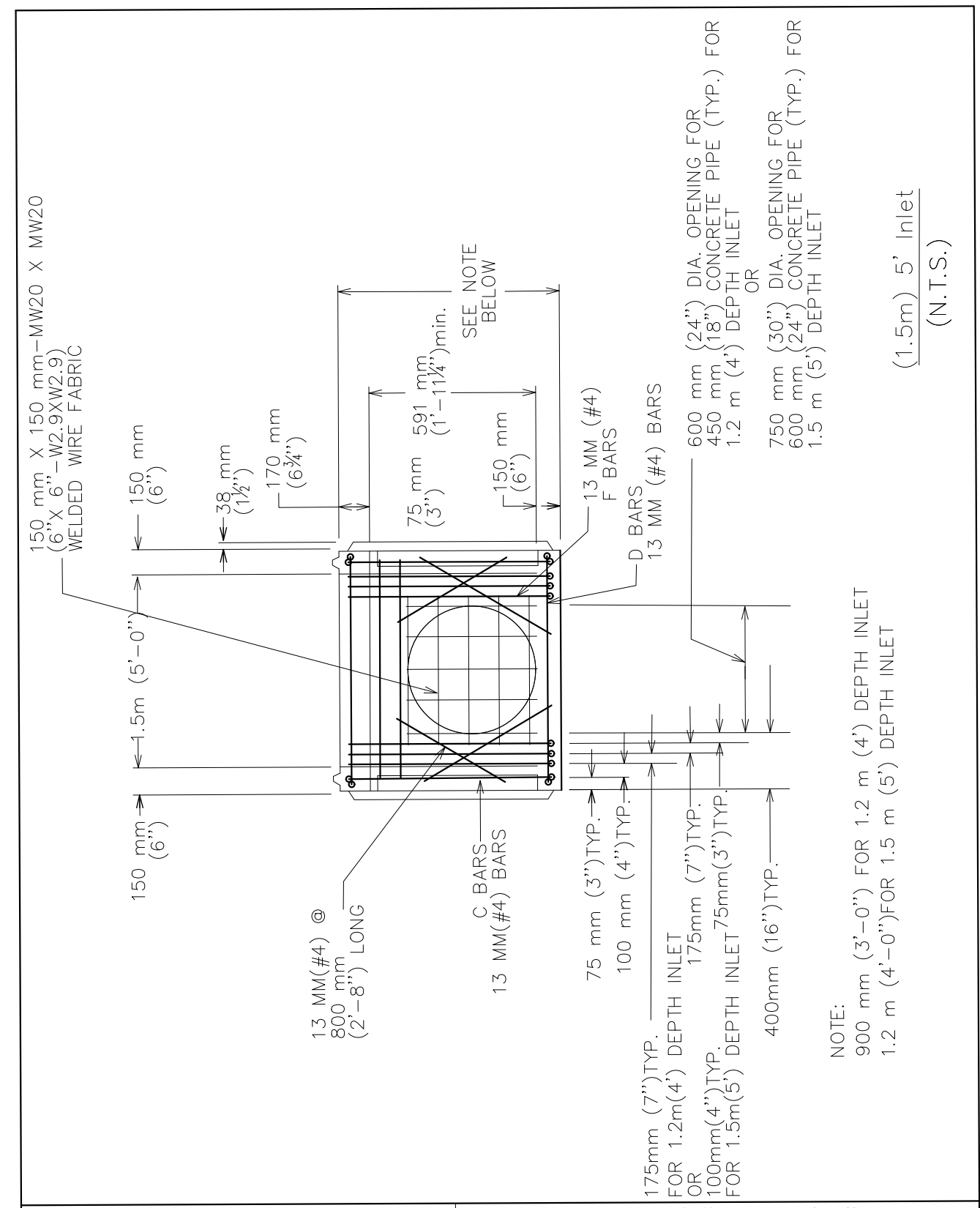
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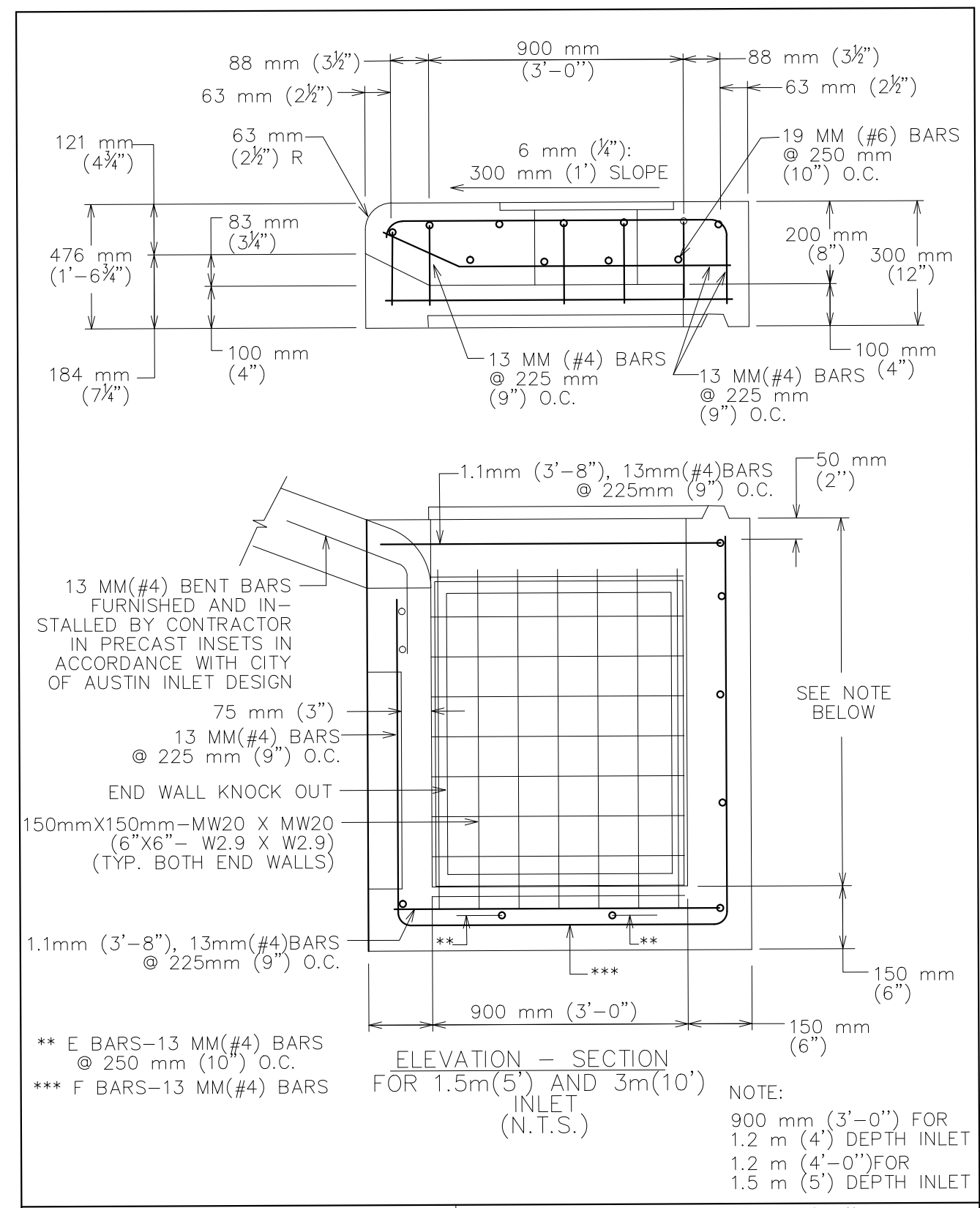
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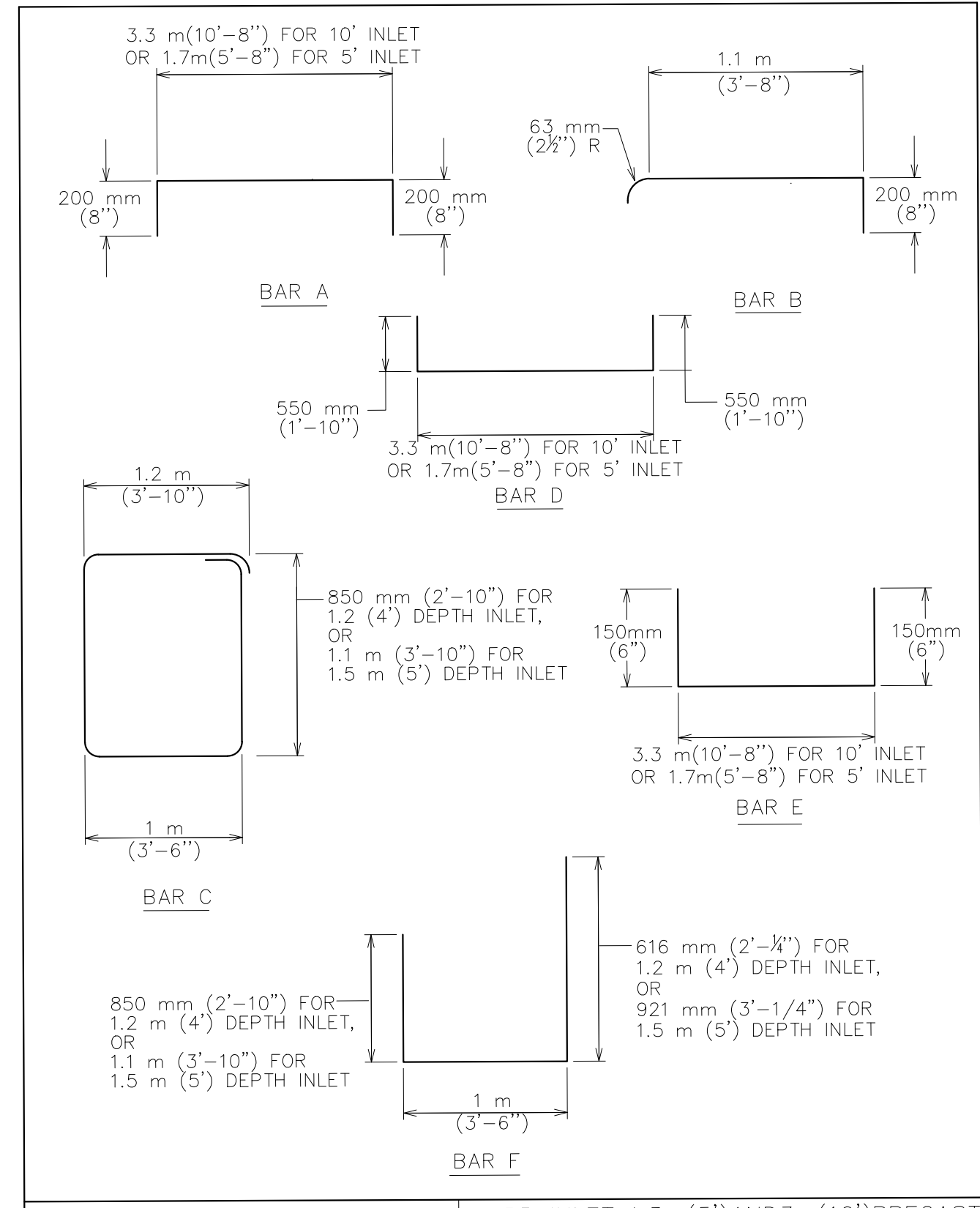
NOTES	NAME	DATE
SURVEY BY		
DRAWN BY	KT	07/21
DESIGNED BY	AF	07/21
CHECKED BY	GE	07/21
REVIEWED BY		



CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	CURB INLET 1.5m(5') AND 3m(10') PRECAST TYPE 1 OR TYPE 1-R	STANDARD NO. 508S-4 4 OF 7
ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	



CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	CURB INLET 1.5m(5') AND 3m(10') PRECAST TYPE 1 OR TYPE 1-R	STANDARD NO. 508S-4 5 OF 7
ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	



CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	CURB INLET 1.5m(5') AND 3m(10') PRECAST TYPE 1 OR TYPE 1-R	STANDARD NO. 508S-4 6 OF 7
ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	

- NOTES:
- ALL CONCRETE SHALL BE CLASS "A" AS PER ITEM 403S.
  - ALL REINFORCING STEEL SHALL BE GRADE 60
  - DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTERS OF BARS.
  - IN AREAS OF CONFLICT BETWEEN REINFORCING STEEL, PIPES AND MANHOLE FRAME, THE REINFORCEMENT SHALL BE BENT OR ADJUSTED TO CLEAR AS DIRECTED BY THE ENGINEER.
  - PAYMENT FOR INLET AT THE CONTRACT PRICE SHALL INCLUDE THE TRANSITION CURB, IN ACCORDANCE WITH CITY OF AUSTIN STANDARD INLET DESIGN.
  - INVERT OF INLET SHALL BE SLOPED 1:20 WITH FILL CONCRETE BY CONTRACTOR, SHAPED AS "V" SECTION.
  - THIS STANDARD COMPLIES WITH THE CITY OF AUSTIN STANDARD SPECIFICATIONS ITEM NO. 508S.
  - WHEN PLACING PRECAST INLETS IN SERIES TO CREATE A 15'-0" OR 20'-0" CURB INLET, THE CONNECTION BETWEEN INLET BOXES SHALL BE SOIL TIGHT AND FULLY CONVEY THE PEAK DESIGN FLOW FROM THE UPSTREAM INLET(S). THE 1:20 INVERT SLOPE DESCRIBED IN NOTE 6 OF THIS DETAIL SHALL EXTEND FROM THE MOST DOWNSTREAM POINT TO THE MOST UPSTREAM OF THE CONNECTED INLET BOXES. AT NO TIME CAN MORE THAN 20'-LF OF CURB OPENING BE CONNECTED TO A MAIN STORM DRAIN LINE WITH ONE LATERAL STORM DRAIN CONNECTION.

CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	CURB INLET 1.5m(5') AND 3m(10') PRECAST TYPE 1 OR TYPE 1-R	STANDARD NO. 508S-4 7 OF 7
ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	

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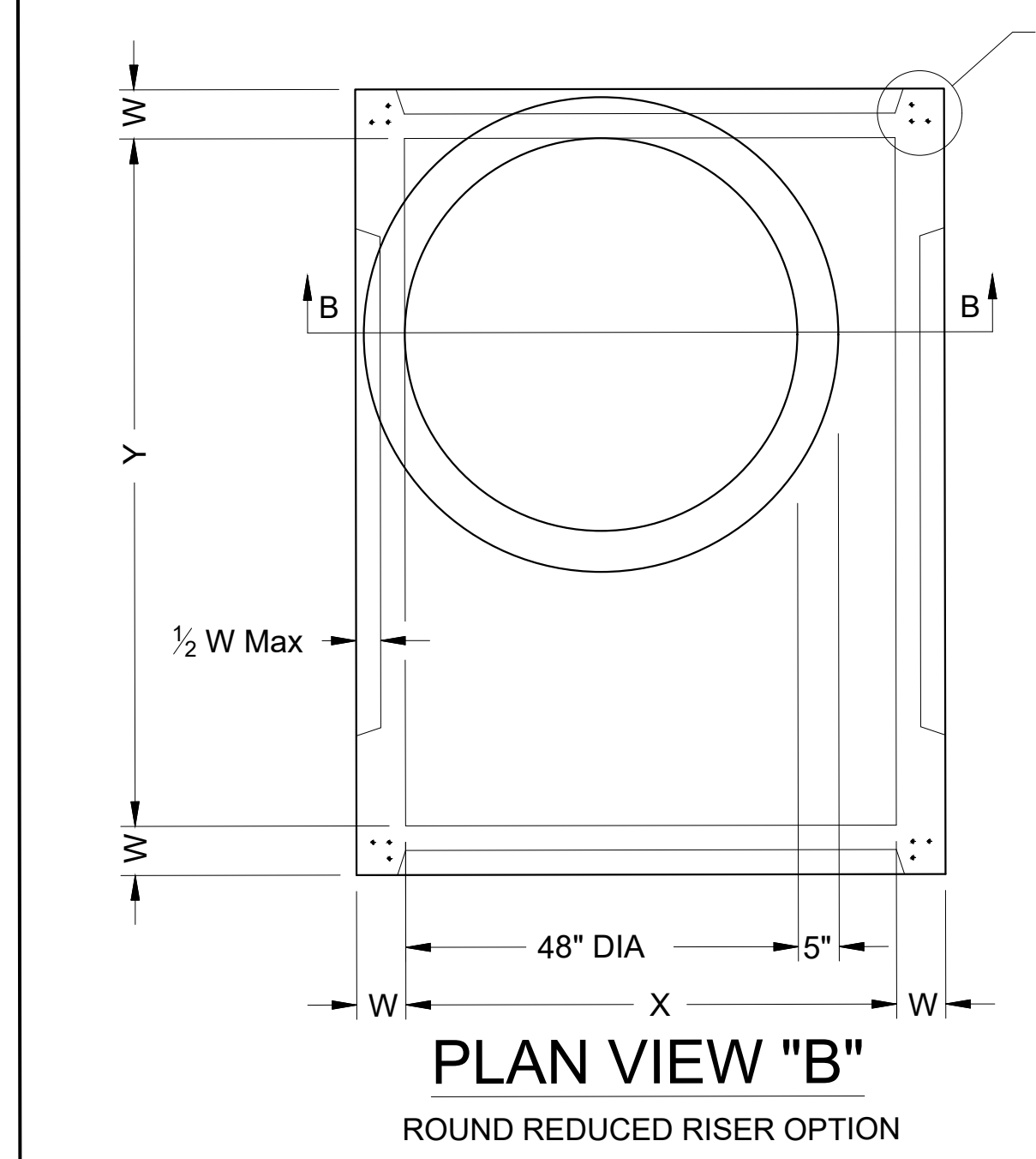
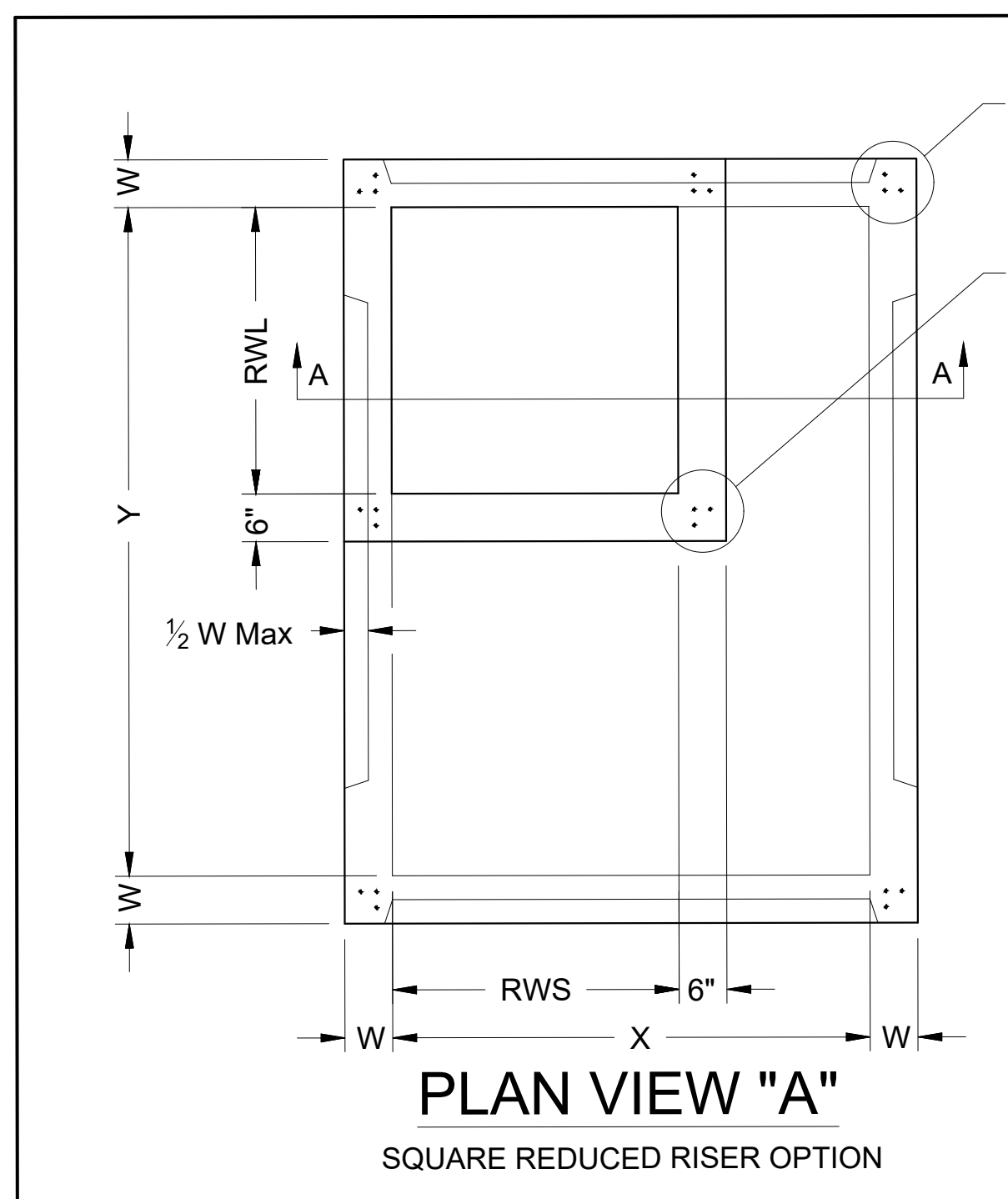
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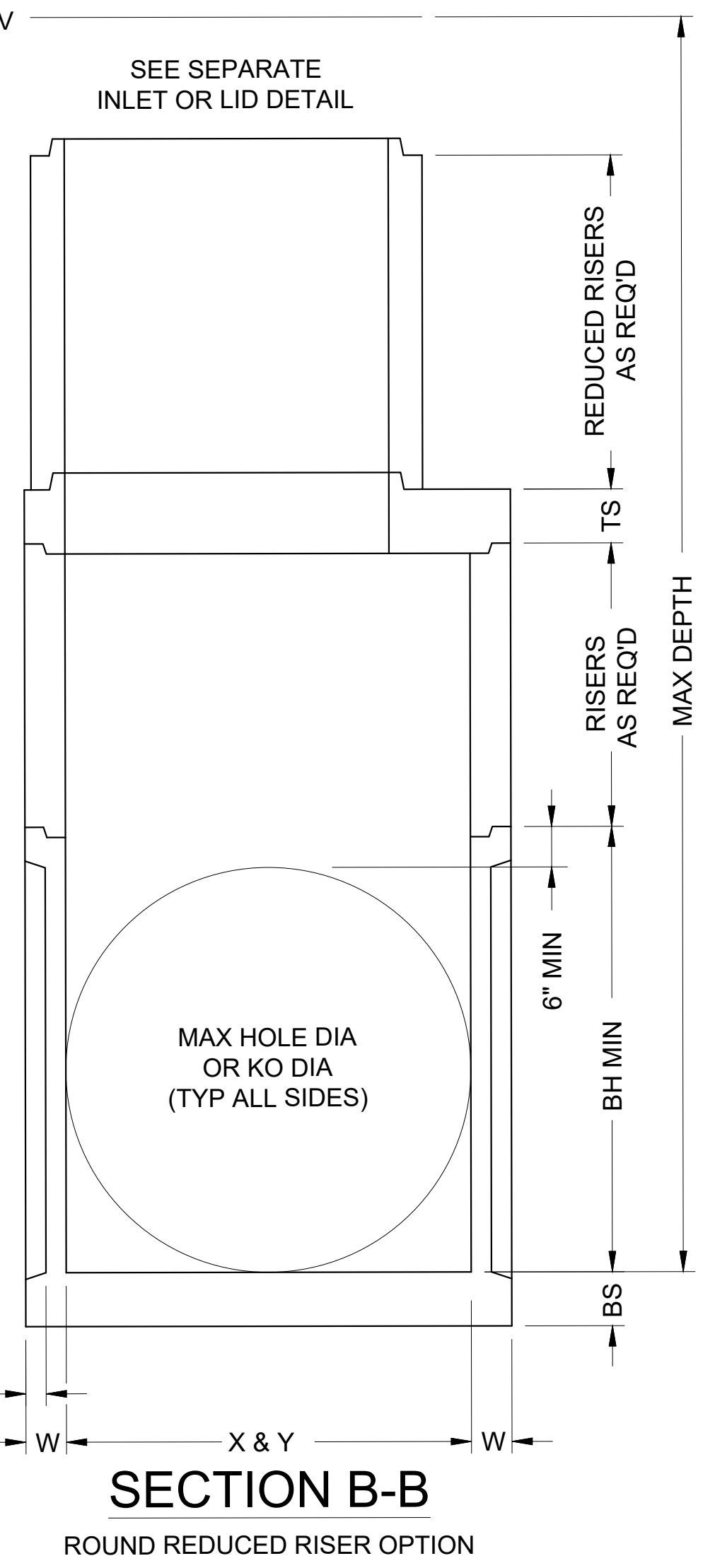
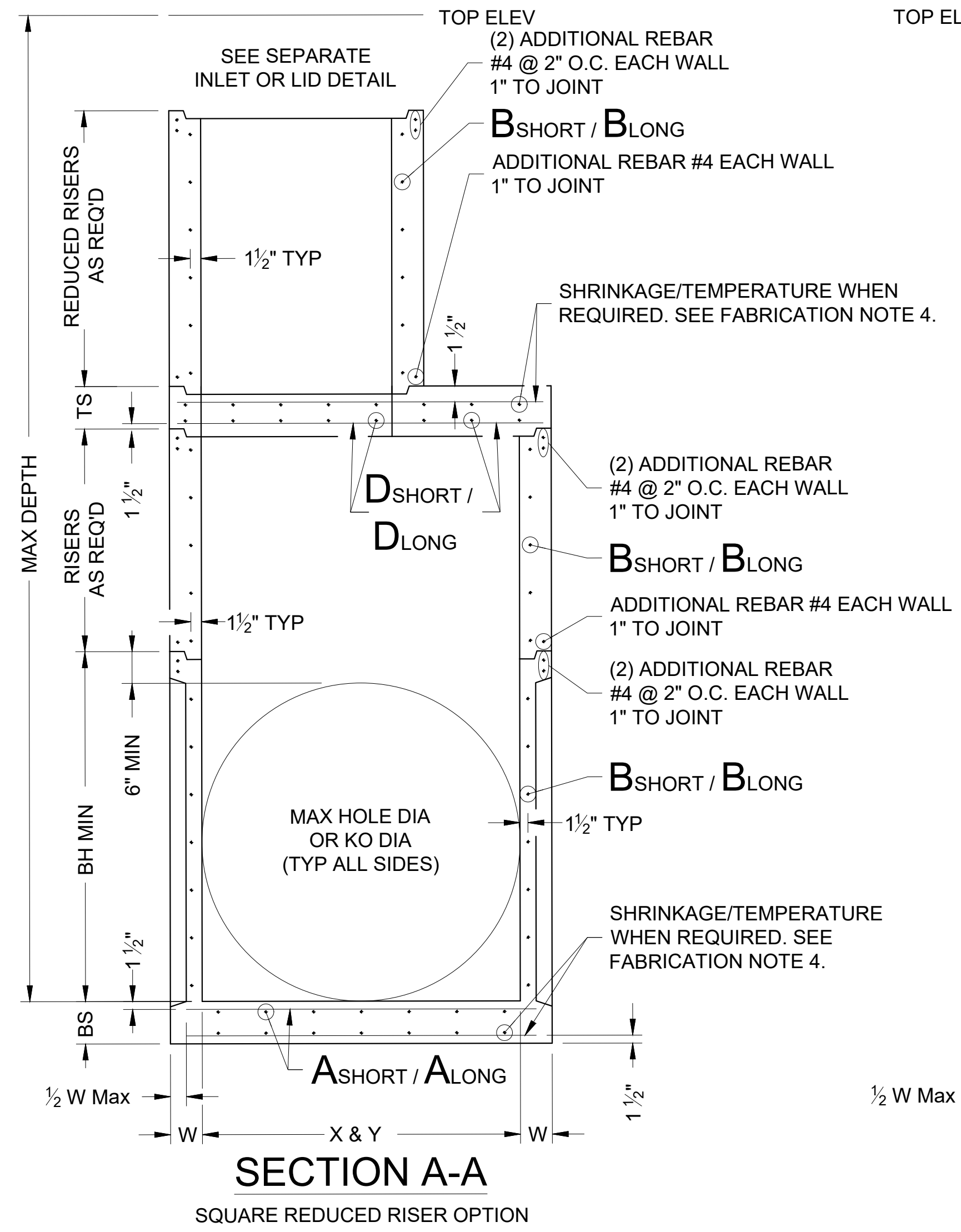
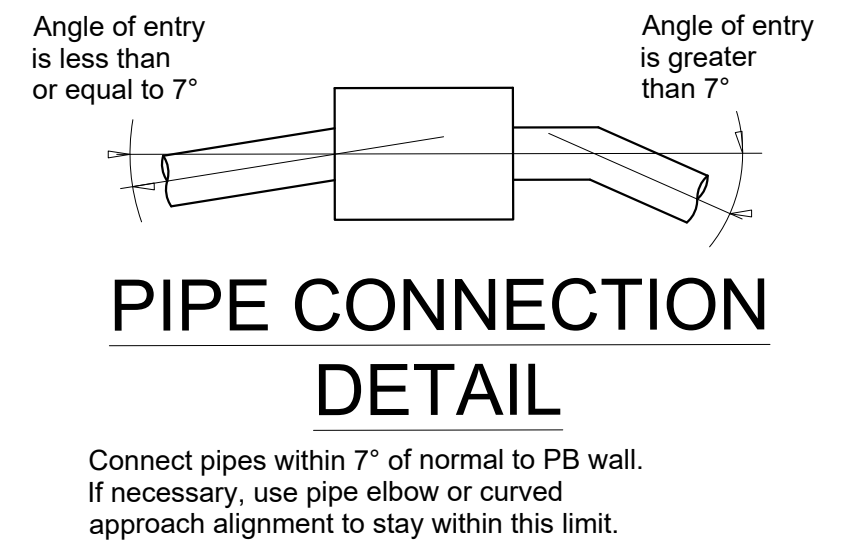
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(3) VERTICAL REBAR IN BASE & RISERS  
#4 @ 2" O.C. EACH CORNER  
2" TO CORNER

(3) VERTICAL REBAR IN REDUCED RISERS  
#4 @ 2" O.C. EACH CORNER  
2" TO CORNER



- FABRICATION NOTES:**
1. Provide Class "H" concrete in accordance with Item 421 and having a minimum compressive strength of 5,000 psi.
  2. Provide Grade 60 reinforcing steel or equivalent area of VWR.
  3. Provide typical clear cover of 1 1/2" to reinforcing steel at interior or exterior walls.
  4. Walls or slabs with a thickness of 8" or greater require shrinkage and temperature reinforcing steel. Provide steel area = 0.11 in<sup>2</sup>/ft each way.
  5. No substitution is allowed for vertical and horizontal #4 bars in corners.
  6. Manufacture base and risers to nearest 3" increment.
  7. Design tongue and groove joints for full closure on both shoulders. Minimum spigot depth is 3/4".
  8. Provide lifting devices in conformance with Manufacturer's recommendations.
  9. See sheet PDD for sizes, dimensions, and reinforcing steel not shown.
- INSTALLATION NOTES:**
1. If required elsewhere. Inverts (benching) to be provided by Contractor. Concrete or mortar used for invert is subsidiary to specified inlet or manhole.
  2. Seal tongue and groove joints with preformed or bulk mastic in conformance with Manufacturer's recommendations. Tongue and groove joints may be grouted no more than 1" between each section, or 1/2 the joint depth, whichever is greater.
  3. Do not grout rubber gasket joints without Manufacturer's recommendation.
  4. For rigid pipe, cut hole in thin wall panel (KO) 4" Max, 2" Min larger than pipe OD.
  5. For flexible pipe, consult boot/seal Manufacturer's specification for placement tolerance and hole size. Center pipe in hole and install boot/seal per Manufacturer's specification.
- GENERAL NOTES:**
1. Precast Base consists of base slab, base unit, risers (as required), reducing slab (as required), and reduced risers (as required). See sheet PDD for sizes.
  2. Designed according to ASTM C913.
  3. Payment for precast base is subsidiary to the specified inlet, per Item 465, "Junction Boxes, Manholes, and Inlets."

Cover dimensions are clear dimensions, unless noted otherwise.

HL93 LOADING

**PRECAST BASE**

PB

FILE: prestd01-20.dgn    DN: TxDOT    CK: TxDOT    DW: TxDOT    CK: TxDOT

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DIST COUNTY SHEET NO.

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Size	MAX DEPTH = 15 ft. to top of BASE SLAB												MAX DEPTH = 25 ft. to top of BASE SLAB												Min Height (See Gen Note 3)	Max HOLE DIA (See Fab Note 2)	Max KO DIA (See Fab Note 2)
	Base Slab			Base Unit or Riser Walls			Below Grade Slab (w/PJB) Reducing Slab (w/PB)						Base Slab			Base Unit or Riser Walls			Below Grade Slab (w/PJB) Reducing Slab (w/PB)								
	Short SpanReinf SteelArea	Long SpanReinf SteelArea	Thickness	Short SpanReinf SteelArea	Long SpanReinf SteelArea	Thickness	Reduced Riser Size	Short SpanReinf SteelArea	Long SpanReinf SteelArea	Thickness	Short SpanReinf SteelArea	Long SpanReinf SteelArea	Thickness	Short SpanReinf SteelArea	Long SpanReinf SteelArea	Thickness	Reduced Riser Size	Short SpanReinf SteelArea	Long SpanReinf SteelArea	Thickness	Reduced Riser Size	Short SpanReinf SteelArea	Long SpanReinf SteelArea	Thickness			
	X x Y	Ashort	Along	BS	Bshort	Blong	W	RWSxRWLor ID	Dshort	Dlong	TS	Ashort	Along	BS	Bshort	Blong	W	RWSxRWLor ID	Dshort	Dlong	TS	BH MIN	HOLE DIA	KO DIA			
ft.	in./ft	in./ft	in.	in./ft	in./ft	in.	ft. **	in./ft	in./ft	in.	in./ft	in./ft	in.	in./ft	in./ft	in.	ft. **	in./ft	in./ft	in.	ft.	in.	in.				
Precast Junction Box (PJB)	3x3	0.23	0.23	6	0.19	0.19	6	N/A	0.37	0.37	9	0.29	0.29	6	0.24	0.24	6	N/A	0.37	0.37	9	3.5	36	36			
	4x4	0.29	0.29	6	0.24	0.24	6	N/A	0.41	0.41	9	0.47	0.47	6	0.38	0.38	6	N/A	0.41	0.41	9	4.5	48	48			
	3x5	0.29	0.18	6	0.19	0.35	6	N/A	0.48	0.48	9	0.39	0.18	6	0.23	0.59	6	N/A	0.48	0.48	9	3.5	36/60	36/60			
	4x5	0.36	0.18	6	0.22	0.34	6	N/A	0.42	0.42	9	0.53	0.26	6	0.39	0.59	6	N/A	0.42	0.42	9	4.5	48/60	48/60			
	5x5	0.36	0.36	6	0.34	0.34	6	N/A	0.43	0.43	9	0.62	0.62	6	0.59	0.59	6	N/A	0.43	0.43	9	5.5	60	60			
	5x6	0.27	0.27	9	0.34	0.45	6	N/A	0.48	0.48	9	0.47	0.45	9	0.38	0.54	8	N/A	0.48	0.48	9	5.5	60/72	60/72			
	6x6	0.27	0.27	9	0.45	0.45	6	N/A	0.56	0.56	9	0.52	0.52	9	0.54	0.54	8	N/A	0.56	0.56	9	6.5	72	72			
	8x8	0.46	0.46	9	0.51	0.51	8	N/A	0.45	0.45	12	0.87	0.87	9	0.59	0.59	10	N/A	0.45	0.45	12	8.5	96	72			
Precast Base (PB)	3x3	0.23	0.23	6	0.19	0.19	6	N/A	N/A	N/A	N/A	0.29	0.29	6	0.24	0.24	6	N/A	N/A	N/A	N/A	3.5	36	36			
	4x4	0.29	0.29	6	0.24	0.24	6	N/A	N/A	N/A	N/A	0.47	0.47	6	0.38	0.38	6	N/A	N/A	N/A	N/A	4.5	48	48			
	3x5	0.29	0.18	6	0.19	0.35	6	3x3	0.30	0.34	9	0.39	0.18	6	0.23	0.59	6	3x3	0.40	0.40	9	3.5	36/60	36/60			
	4x5	0.36	0.18	6	0.22	0.34	6	3x3	0.30	0.30	9	0.53	0.26	6	0.39	0.59	6	3x3	0.46	0.37	9	4.5	48/60	48/60			
	4x5	0.36	0.18	6	0.22	0.34	6	4x4	0.30	0.30	9	0.53	0.26	6	0.39	0.59	6	4x4	0.39	0.39	9	4.5	48/60	48/60			
	4x5	0.36	0.18	6	0.22	0.34	6	48"	0.39	0.39	9	0.53	0.26	6	0.39	0.59	6	48"	0.47	0.47	9	4.5	48/60	48/60			
	4x5	0.36	0.18	6	0.22	0.34	6	3x5	0.33	0.40	9	0.53	0.26	6	0.39	0.59	6	3x5	0.48	0.48	9	4.5	48/60	48/60			
	5x5	0.36	0.36	6	0.34	0.34	6	3x3	0.34	0.34	9	0.62	0.62	6	0.59	0.59	6	3x3	0.53	0.53	9	5.5	60	60			
	5x5	0.36	0.36	6	0.34	0.34	6	4x4	0.36	0.36	9	0.62	0.62	6	0.59	0.59	6	4x4	0.64	0.64	9	5.5	60	60			
	5x5	0.38	0.38	6	0.34	0.34	6	48"	0.36	0.36	9	0.62	0.62	6	0.59	0.59	6	48"	0.64	0.64	9	5.5	60	60			
	5x5	0.36	0.36	6	0.34	0.34	6	3x5	0.34	0.40	9	0.62	0.62	6	0.59	0.59	6	3x5	0.53	0.53	9	5.5	60	60			
	5x6	0.31	0.31	9	0.34	0.45	6	3x3	0.34	0.34	9	0.47	0.45	9	0.38	0.54	8	3x3	0.61	0.50	9	5.5	60/72	60/72			
	5x6	0.27	0.27	9	0.34	0.45	6	4x4	0.36	0.45	9	0.47	0.45	9	0.38	0.54	8	4x4	0.74	0.57	9	5.5	60/72	60/72			
	5x6	0.29	0.29	9	0.34	0.45	6	48"	0.36	0.45	9	0.47	0.45	9	0.38	0.54	8	48"	0.74	0.57	9	5.5	60/72	60/72			
	5x6	0.29	0.29	9	0.34	0.45	6	3x5	0.45	0.45	9	0.47	0.45	9	0.38	0.54	8	3x5	0.61	0.61	9	5.5	60/72	60/72			
	6x6	0.29	0.29	9	0.45	0.45	6	3x3	0.41	0.41	9	0.52	0.52	9	0.54	0.54	8	3x3	0.74	0.74	9	6.5	72	72			
	6x6	0.27	0.27	9	0.45	0.45	6	4x4	0.45	0.45	9	0.52	0.52	9	0.54	0.54	8	4x4	0.87	0.87	9	6.5	72	72			
	6x6	0.29	0.29	9	0.45	0.45	6	48"	0.45	0.45	9	0.52	0.52	9	0.54	0.54	8	48"	0.87	0.87	9	6.5	72	72			
	6x6	0.29	0.29	9	0.45	0.45	6	3x5	0.45	0.45	9	0.52	0.52	9	0.54	0.54	8	3x5	0.87	0.87	9	6.5	72	72			
	8x8	0.52	0.52	9	0.51	0.51	8	3x3	0.61	0.61	12	0.91	0.91	9	0.70	0.70	10	3x3	0.85	0.85	12	8.5	96	72			
8x8	0.52	0.52	9	0.51	0.51	8	4x4	0.70	0.70	12	0.87	0.87	9	0.70	0.70	10	4x4	1.01	1.01	12	8.5	96	72				
8x8	0.52	0.52	9	0.51	0.51	8	48"	0.70	0.70	12	0.87	0.87	9	0.70	0.70	10	48"	1.01	1.01	12	8.5	96	72				
8x8	0.52	0.52	9	0.51	0.51	8	3x5	0.70	0.85	12	0.87	0.87	9	0.70	0.70	10	3x5	1.01	1.01	12	8.5	96	72				

\*\* Unless otherwise indicated.


**FABRICATION NOTES:**

- Maximum spacing of reinforcement is 8".
- At manufacturer's option, provide cast or cored holes or thin wall panels (KO) to the maximum diameter shown for each. When no penetration is required, it is acceptable to provide a wall with no sectional reduction.


**GENERAL NOTES:**

- Precast Junction Box consists of base slab, base unit, risers (as required), and below grade slab. See sheet PJB for details.
- Precast Base consists of base slab, base unit, risers (as required), reducing slab (as required), and reduced risers (as required). See sheet PB for details.
- Min Height shown is for stock base units. Use stock base units whenever practical. Smaller height base units can be used in special installation circumstances, when noted elsewhere in the plans. Absolute minimum height of base units is 2'-6".

HL93 LOADING



DESIGN DATA FOR  
PRECAST BASE AND  
JUNCTION BOX



PDD

FILE: prest10-20.dgn	DN: TxDOT	OK: TxDOT	DW: TxDOT	OK: TxDOT
CONT	SECT	JOB	HIGHWAY	
REVISIONS				
DIST	COUNTY	SHEET NO.		

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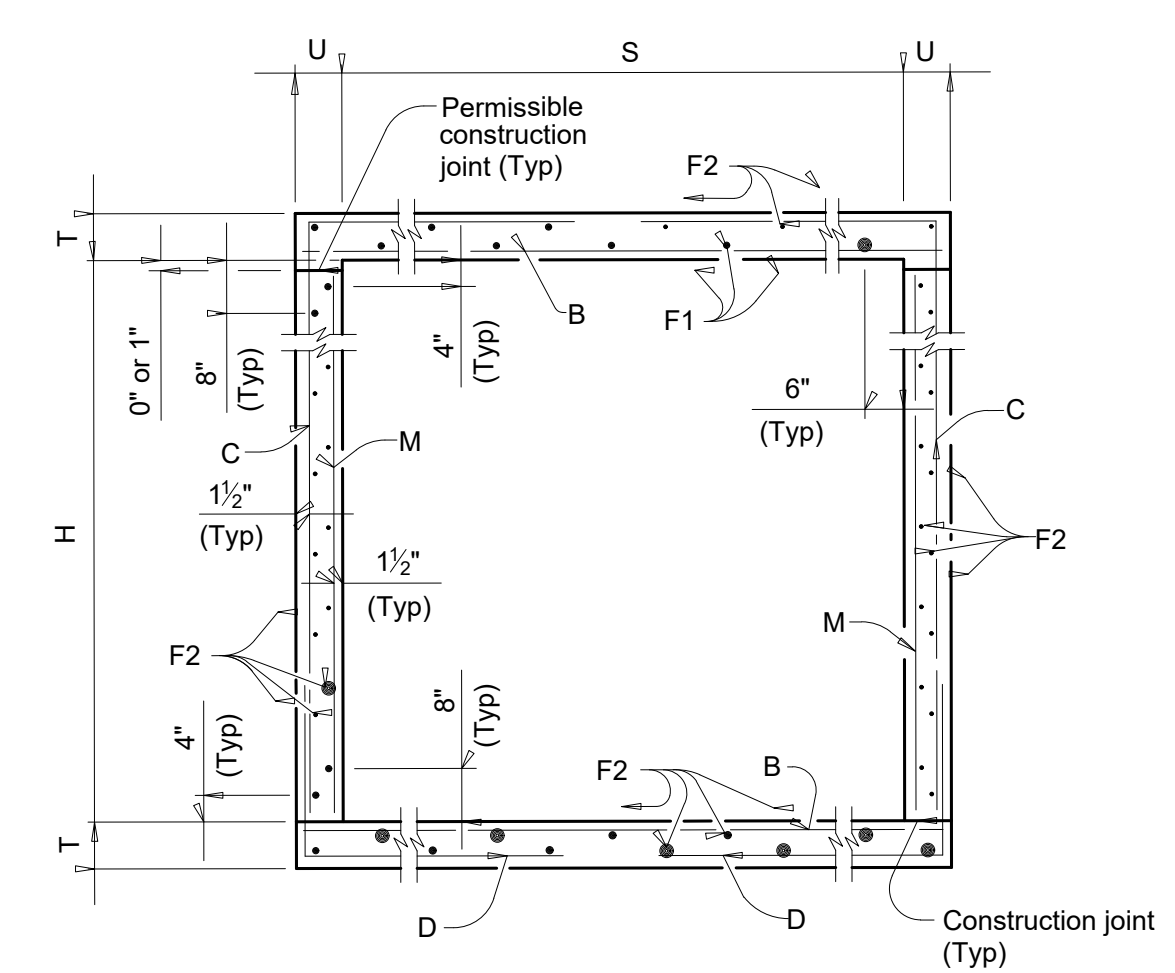
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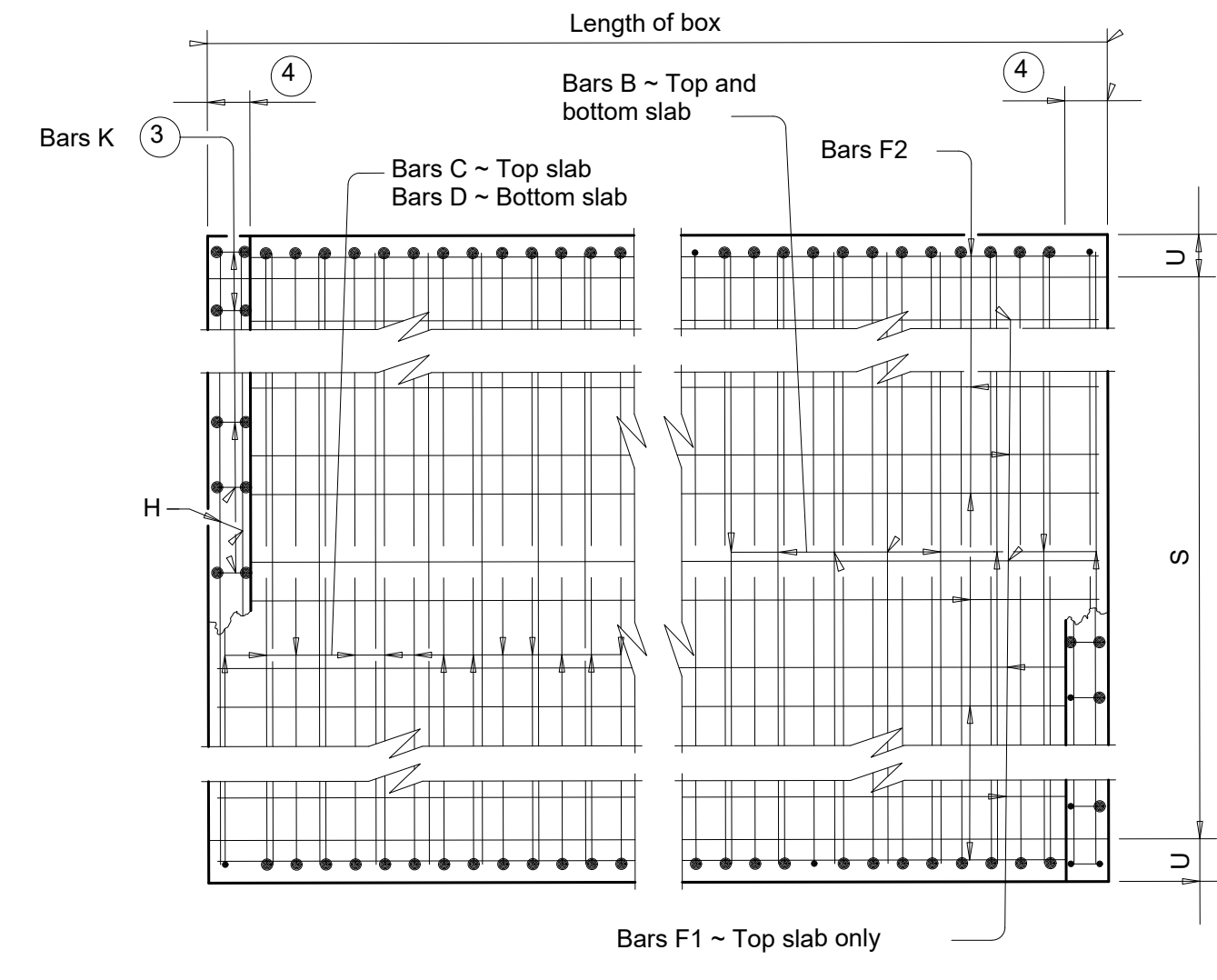
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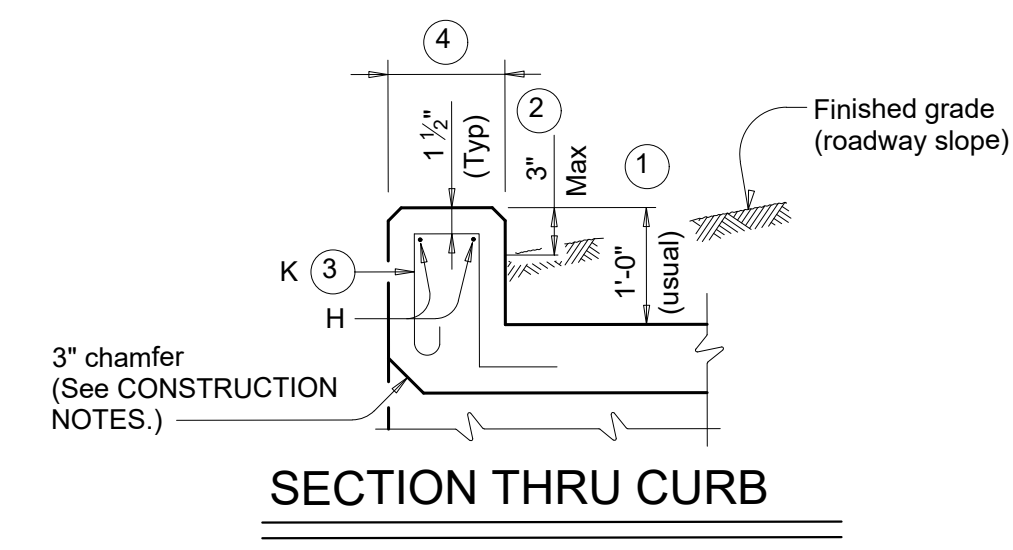
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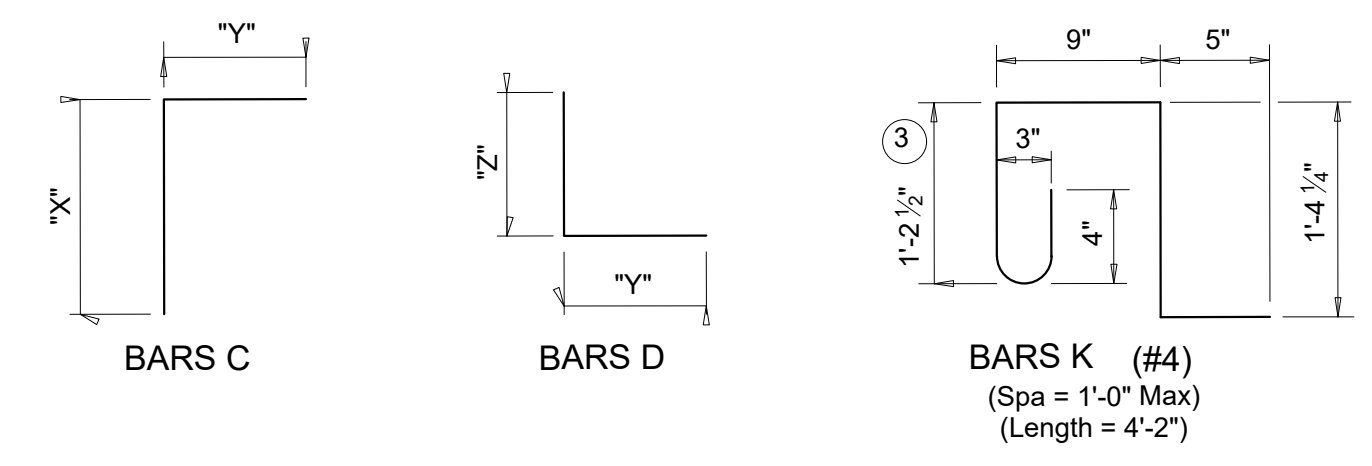
TYPICAL SECTION



PLAN OF REINF STEEL



SECTION THRU CURB



- 1 0" Min to 5'-0" Max. Estimated curb heights are shown elsewhere in the plans. For structures with pedestrian rail or curbs taller than 1'-0", refer to the Extended Curb Details (ECD) standard sheet. For structures with T631 or T631LS bridge rail, refer to the Mounting Details for T631 & T631LS Rails (T631-CM) standard sheet. Refer to the Rail Anchorage Curb (RAC) standard sheet for structures with bridge rail other than T631 or T631LS.
- 2 For vehicle safety, the following requirements must be met:
  - For structures without bridge rail, construct curbs no more than 3" above finished grade.
  - For structures with bridge rail, construct curbs flush with finished grade.
 Reduce curb heights, if necessary, to meet the above requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.
- 3 For curbs less than 1'-0" high, tilt Bars K or reduce bar height as necessary to maintain cover. For curbs less than 3" high, Bars K may be omitted.
- 4 1'-0" typical. 2'-3" when the Rail Anchorage Curb (RAC) standard sheet is referred to elsewhere in the plans.

The Contractor may replace Bars B, C, D, E, F1, F2, M, Y, and/or Z with deformed welded wire reinforcement (WWR) meeting the requirements of ASTM A1064. The area of required reinforcement may be reduced by the ratio of 60 ksi / 70 ksi. Spacing of WWR is limited to 4" Min and 18" Max. When required, provide lap splices in the WWR of the same length required for the equivalent bar size, rounded up for wire sizes between conventional bar sizes. The lap length required for WWR is never less than the lap length required for uncoated #4 bars.

Example conversion: Replacing No. 6 Gr 60 at 6" Spacing with WWR.  
 Required WWR = (0.44 sq. in. per 0.5 ft.) x (60 ksi / 70 ksi) = 0.755 sq. in. per ft.  
 If D30.6 wire is used to meet the 0.755 sq. in. per ft. requirement in this example, the required spacing = (0.306 sq. in.) / (0.755 sq. in. per ft.) x (12 in. per ft.) = 4.86"  
 Max spacing. Required lap length for the provided D30.6 wire is 2'-1" (the same minimum lap length required for uncoated #5 bars, as listed under MATERIAL NOTES).

- CONSTRUCTION NOTES:**
- Do not use permanent forms.
  - Chamfer the bottom edge of the top slab 3" at the entrance.
  - Optionally, raise construction joints shown at the flow line by a maximum of 6". If this option is taken, Bars M may be cut off or raised, Bars C and D may be reversed.
- MATERIAL NOTES:**
- Provide Grade 60 reinforcing steel.
  - Provide galvanized reinforcing steel if required elsewhere in the plans.
  - Provide Class C concrete ( $f_c = 3,600$  psi) for culvert barrel and curb, with the following exceptions: provide Class S concrete ( $f_c = 4,000$  psi) for top slabs of:
    - culverts with overlay,
    - culverts with 1-to-2 course surface treatment, or
    - culverts with the top slab as the final riding surface.
  - Provide bar laps, where required, as follows:
    - Uncoated or galvanized ~ #4 = 1'-8" Min
    - Uncoated or galvanized ~ #5 = 2'-1" Min
- GENERAL NOTES:**
- Designed according to AASHTO LRFD Bridge Design Specifications for the range of fill heights shown.
  - See the Single Box Culverts Cast-In-Place Miscellaneous Detail (SCC-MD) standard sheet for details pertaining to skewed ends, angle sections, and lengthening.
- Cover dimensions are clear dimensions, unless noted otherwise.  
 Reinforcing bar dimensions shown are out-to-out of bar.

HL93 LOADING SHEET 1 OF 2

**Texas Department of Transportation** Bridge Division Standard

**SINGLE BOX CULVERTS CAST-IN-PLACE 0' TO 30' FILL**

**SCC-3 & 4**

FILE: scc34ste-21.dgn	DN: TBE	CK: BMP	DW: TxDOT	CK: TxDOT
TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS				
04/2021 Updated X values.	DIST	COUNTY	SHEET NO.	

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SECTION DIMENSIONS				FILL HEIGHT	BILLS OF REINFORCING STEEL (For Box Length = 40 feet)																					QUANTITIES																	
					Bars B					Bars C					Bars D					Bars M - #4			Bars F1 ~ #4 at 18" Spa			Bars F2 ~ #4 at 18" Spa			Bars H 4 ~ #4		Bars K		Per Foot of Barrel		Curb		Total						
S	H	T	U	FILL HEIGHT	No.	Size	Spa	Length	Weight	No.	Size	Spa	Length	Weight	" X "	" Y "	No.	Size	Spa	Length	Weight	" Y "	" Z "	No.	Spa	Length	Weight	No.	Length	Wt	No.	Length	Weight	Length	Wt	No.	Wt	Conc (CY)	Reinf (Lb)	Conc (CY)	Reinf (Lb)	Conc (CY)	Reinf (Lb)
3' - 0"	2' - 0"	8"	7"	30'	108	#5	9"	3' - 11"	441	108	#4	9"	5' - 4"	385	2' - 6"	2' - 10"	108	#4	9"	5' - 1"	367	2' - 10"	2' - 3"	108	9"	2' - 0"	144	3	39' - 9"	80	19	39' - 9"	505	3' - 11"	10	10	28	0.292	48.1	0.3	38	12.0	1,960
3' - 0"	3' - 0"	8"	7"	30'	108	#5	9"	3' - 11"	441	108	#4	9"	6' - 4"	457	3' - 6"	2' - 10"	108	#4	9"	5' - 1"	367	2' - 10"	2' - 3"	108	9"	3' - 0"	216	3	39' - 9"	80	23	39' - 9"	611	3' - 11"	10	10	28	0.335	54.3	0.3	38	13.7	2,210
4' - 0"	2' - 0"	8"	7"	30'	108	#5	9"	4' - 11"	554	162	#4	6"	5' - 8"	613	2' - 6"	3' - 2"	162	#4	6"	5' - 5"	586	3' - 2"	2' - 3"	108	9"	2' - 0"	144	3	39' - 9"	80	21	39' - 9"	558	4' - 11"	13	12	33	0.342	63.4	0.4	46	14.1	2,581
4' - 0"	3' - 0"	8"	7"	30'	108	#5	9"	4' - 11"	554	162	#4	6"	6' - 8"	721	3' - 6"	3' - 2"	162	#4	6"	5' - 5"	586	3' - 2"	2' - 3"	108	9"	3' - 0"	216	3	39' - 9"	80	25	39' - 9"	664	4' - 11"	13	12	33	0.385	70.5	0.4	46	15.8	2,867
4' - 0"	4' - 0"	8"	7"	30'	108	#5	9"	4' - 11"	554	162	#4	6"	7' - 8"	830	4' - 6"	3' - 2"	162	#4	6"	5' - 5"	586	3' - 2"	2' - 3"	108	9"	4' - 0"	289	3	39' - 9"	80	25	39' - 9"	664	4' - 11"	13	12	33	0.428	75.1	0.4	46	17.5	3,049

5 For direct traffic culverts (fill height ≤ 2 ft.), identify the required box size and select the option with the minimum fill height.

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HL93 LOADING SHEET 2 OF 2



**SINGLE BOX CULVERTS  
CAST-IN-PLACE  
0' TO 30' FILL**

**SCC-3 & 4**

FILE: soc34stb-21.dgn    DN: TBE    CK: BMP    DW: TxDOT    CK: TxDOT

CONT	SECT	JOB	HIGHWAY

REVISIONS

04/2021	Updated X values.	DIST	COUNTY	SHEET NO.



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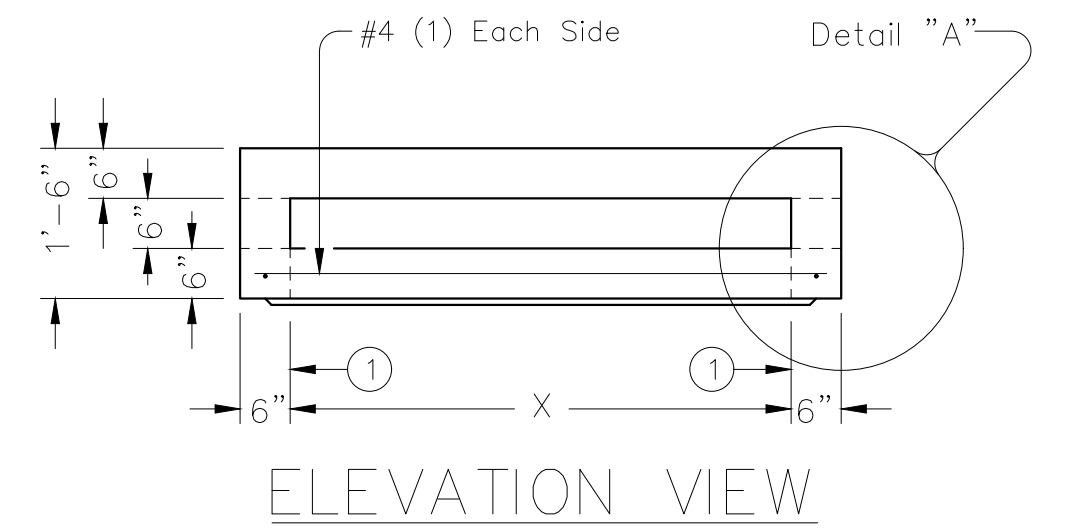
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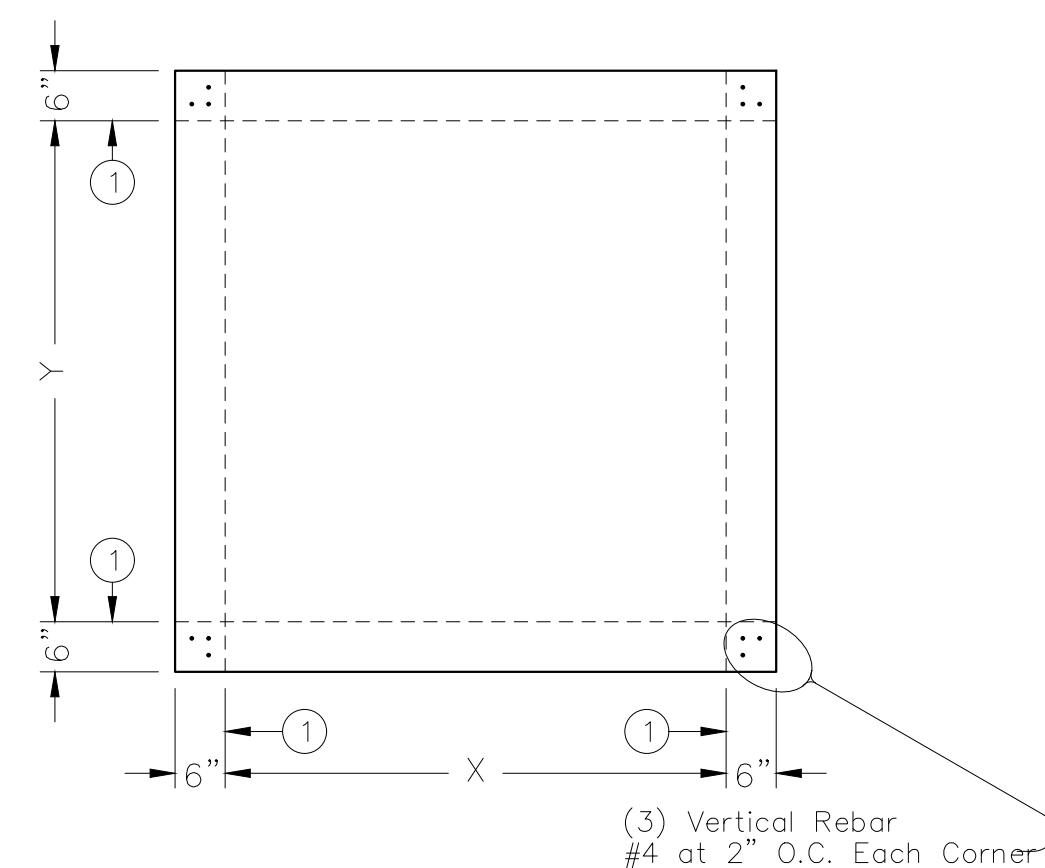
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ELEVATION VIEW



PLAN VIEW  
NO OPENINGS

STYLE 'SL'

① Matches inside face of wall of precast base or riser below inlet.

**FABRICATION NOTES:**

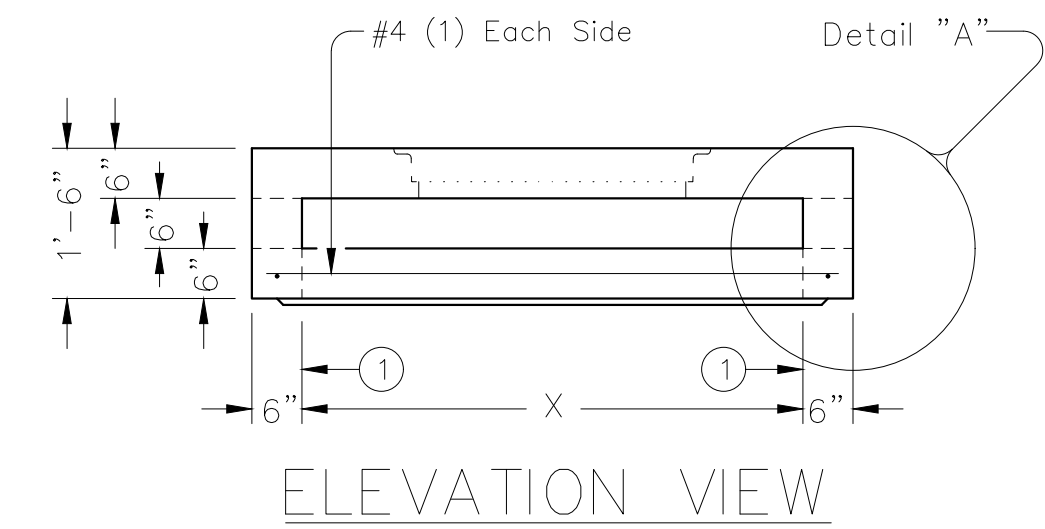
1. Provide Class "H" concrete in accordance with Item 421 and having a minimum compressive strength of 5,000 psi.
2. Provide Grade 60 reinforcing steel or equivalent area of WWR.
3. Provide clear cover of 3/4" to reinforcing from bottom of slab for structural reinforcement. Place short span reinforcing closest to surface.
4. No substitution is allowed for diagonal #4 bars around openings.
5. Design tongue and groove joints for full closure on both shoulders. Minimum spigot depth is 3/4".
6. Provide lifting devices in conformance with Manufacturer's recommendations.

**INSTALLATION NOTES:**

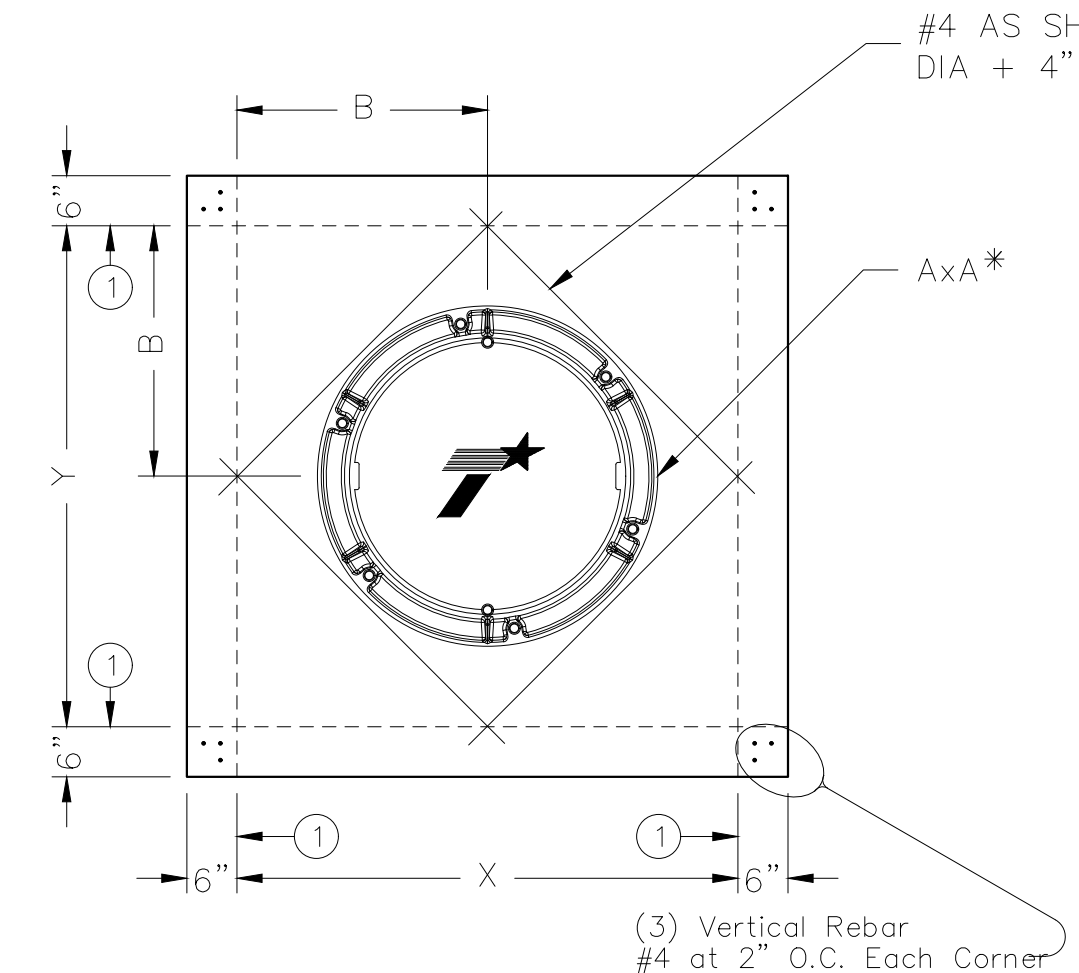
1. PAZD is for use in ditches and medians outside of the horizontal clearance (clear zone). Precast Area Zone Drain is not intended for direct traffic and may not be placed in roadway.
2. Seal tongue and groove joints with preformed or bulk mastic in conformance with Manufacturer's recommendations. Tongue and groove joints may be grouted no more than 1" between each section, or 1/2 the joint depth, whichever is greater.
3. Do not grout rubber gasket joints without Manufacturer's recommendation.

**GENERAL NOTES:**

1. Designed according to ASTM C913.
2. Payment for inlet is per Item 465, "Junction Boxes, Manholes, and Inlets" by type, style, size, and opening size (when applicable).

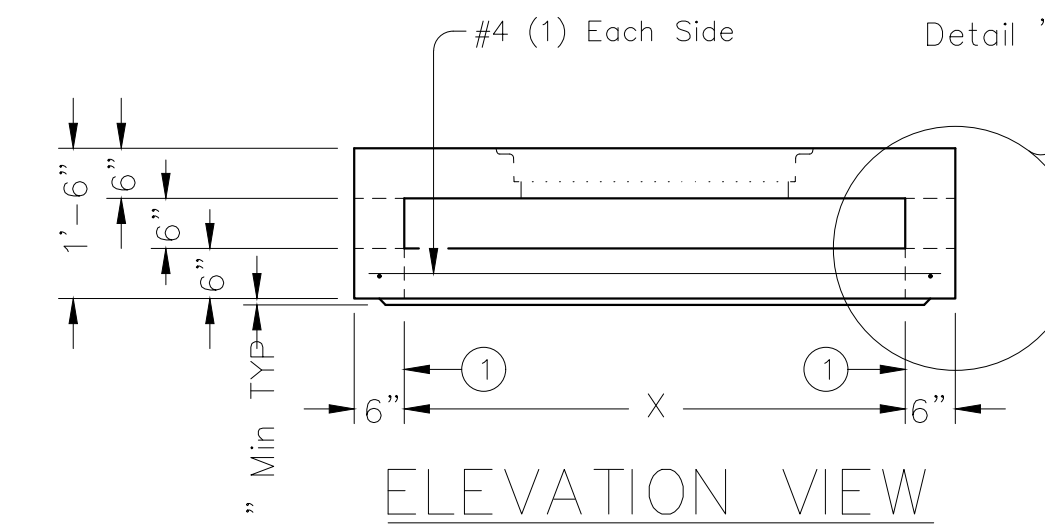


ELEVATION VIEW

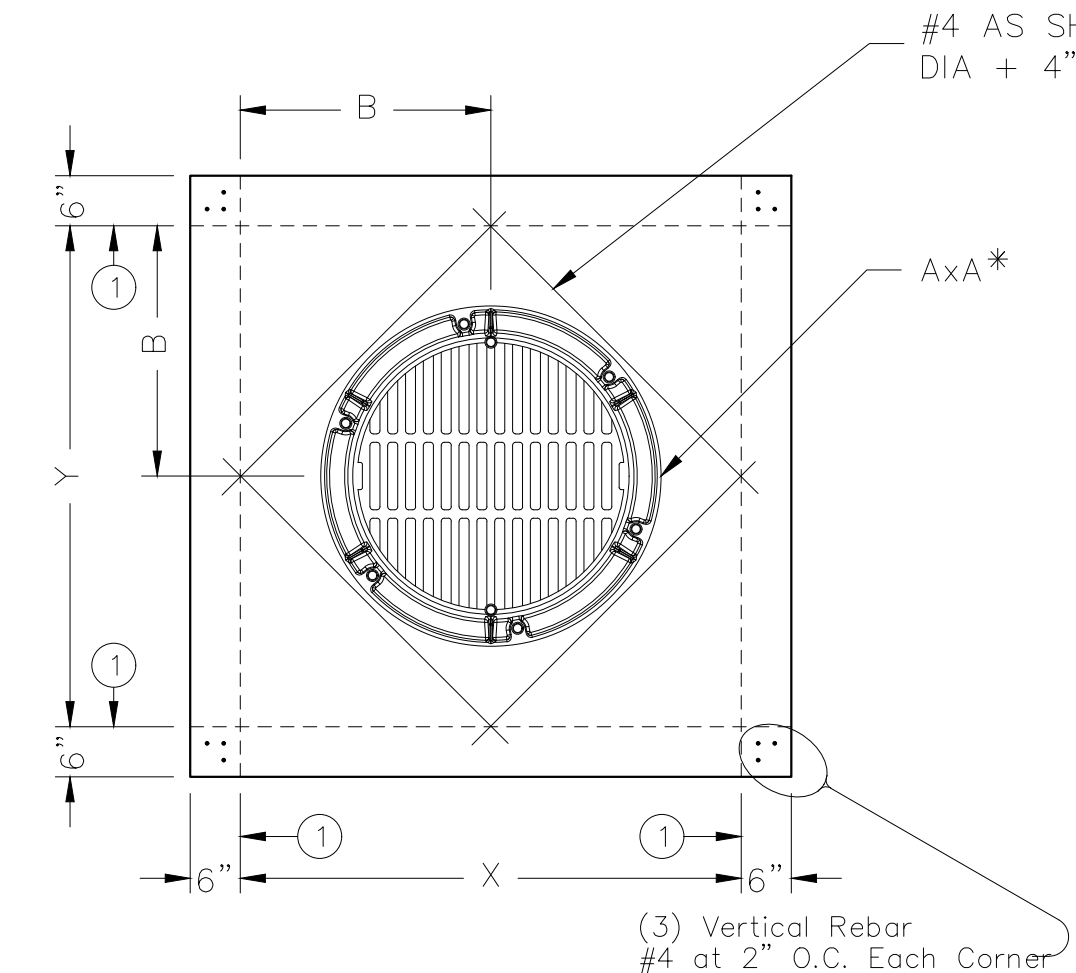


PLAN VIEW  
32" DIA CAST-IN RING & COVER

STYLE 'RC'

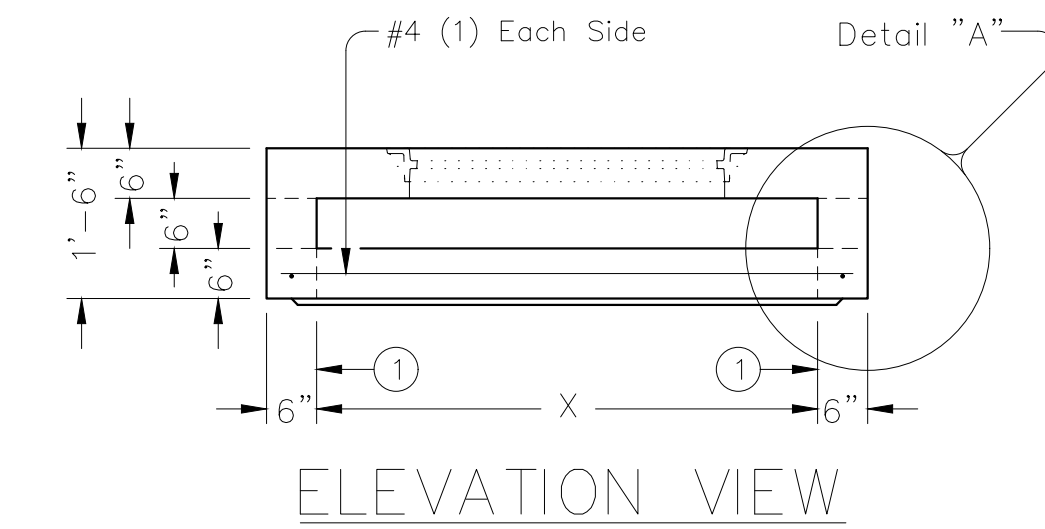


ELEVATION VIEW

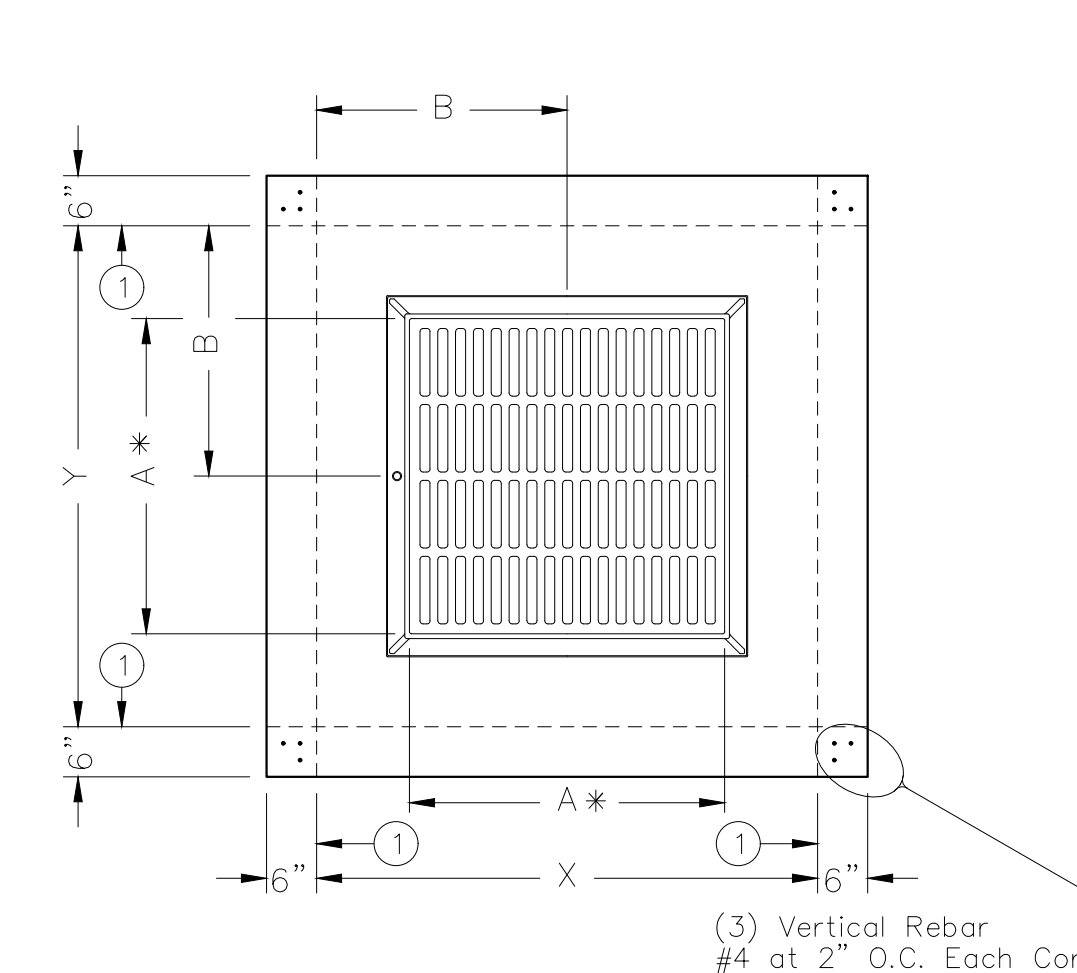


PLAN VIEW  
32" DIA CAST-IN RING & GRATE

STYLE 'RG'



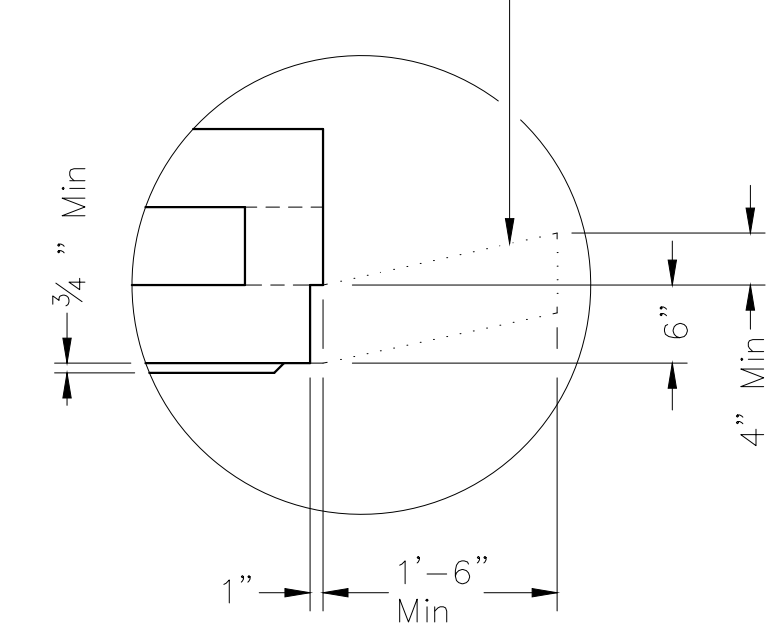
ELEVATION VIEW



PLAN VIEW  
CAST-IN FRAME & GRATE

STYLE 'FG'

Construct cast-in-place reinforced concrete apron when shown elsewhere in plans. Use Class "A" concrete. Apron is subsidiary to PAZD. Apron is 1'-6" Min width around precast zone drain.



DETAIL "A"

(Reinforcing not shown for clarity)  
 When an apron is to be cast around PAZD, use detail above to create an apron ledge on all 4 sides.

Style	Size (X x Y)	A x A*	B x B	Short Span Reinf Steel Area	Long Span Reinf Steel Area
SL	3'x3'	n/a	n/a	0.37 in <sup>2</sup> /ft	0.37 in <sup>2</sup> /ft
RC, RG	3'x3'	32" Dia	1.5'x1.5'	0.37 in <sup>2</sup> /ft	0.37 in <sup>2</sup> /ft
FG	3'x3'	3'x3'	1.5'x1.5'	0.37 in <sup>2</sup> /ft	0.37 in <sup>2</sup> /ft
SL	4'x4'	n/a	n/a	0.34 in <sup>2</sup> /ft	0.34 in <sup>2</sup> /ft
RC, RG	4'x4'	32" Dia	2'x2'	0.34 in <sup>2</sup> /ft	0.34 in <sup>2</sup> /ft
FG	4'x4'	3'x3'	2'x2'	0.34 in <sup>2</sup> /ft	0.34 in <sup>2</sup> /ft
FG	4'x4'	4'x4'	2'x2'	0.34 in <sup>2</sup> /ft	0.34 in <sup>2</sup> /ft
SL	5'x5'	n/a	n/a	0.43 in <sup>2</sup> /ft	0.43 in <sup>2</sup> /ft
RC, RG	5'x5'	32" Dia	2.5'x2.5'	0.68 in <sup>2</sup> /ft	0.68 in <sup>2</sup> /ft
FG	5'x5'	3'x3'	2.5'x2.5'	0.43 in <sup>2</sup> /ft	0.43 in <sup>2</sup> /ft
FG	5'x5'	4'x4'	2.5'x2.5'	0.43 in <sup>2</sup> /ft	0.43 in <sup>2</sup> /ft

\*Nominal frame/grate or ring/cover size.

**Texas Department of Transportation**

**Bridge Division Standard**

## PRECAST AREA ZONE DRAIN

### PAZD

FILE: prestd08-20.dgn	DN: _TxDOT_	OK: TxDOT	EW: _TxDOT_	OK: TxDOT
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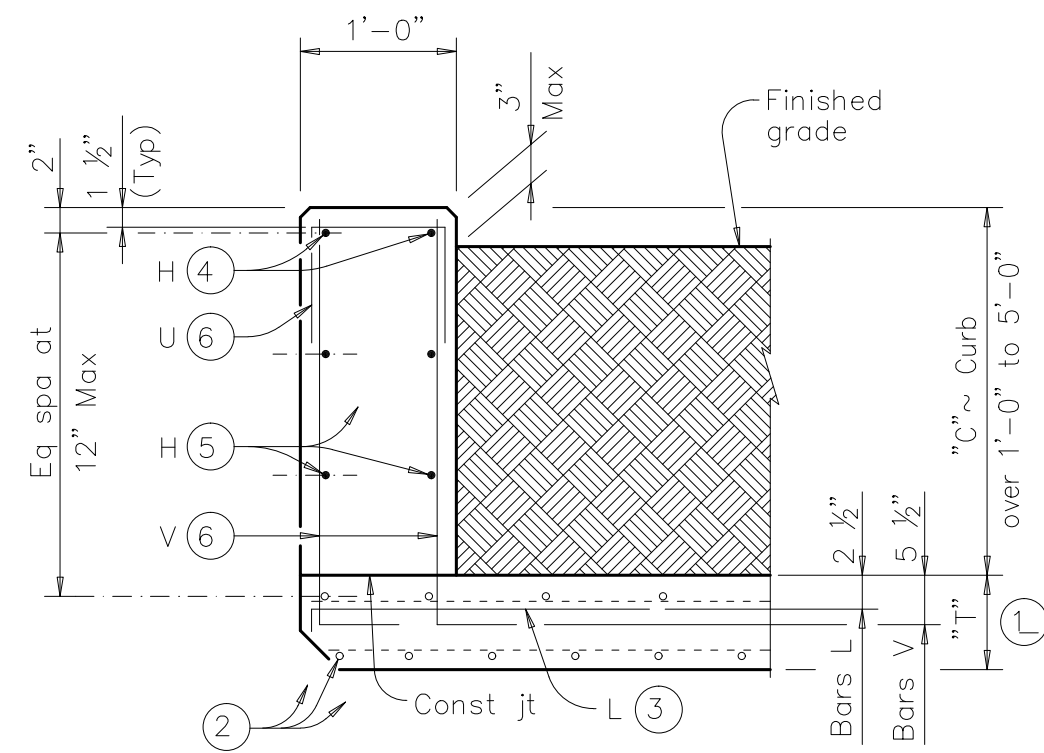
DET07

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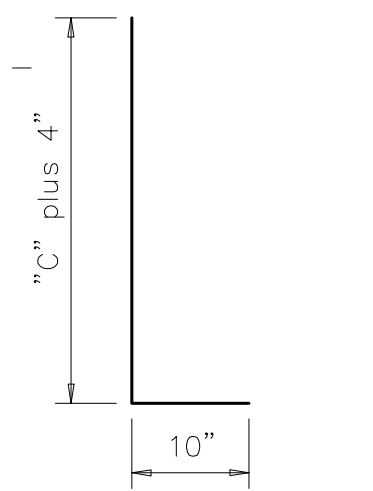
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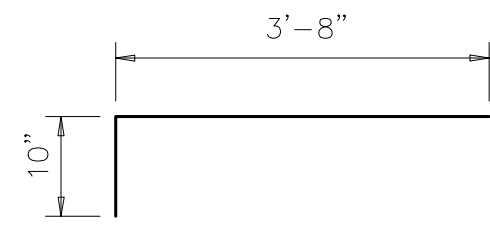


**TYPICAL SECTION**

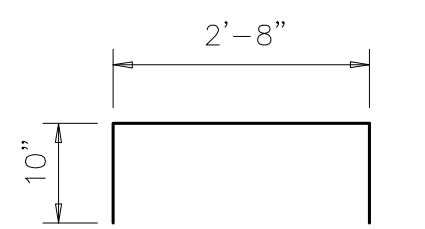
Used for curbs over 1'-0" to 5'-0"



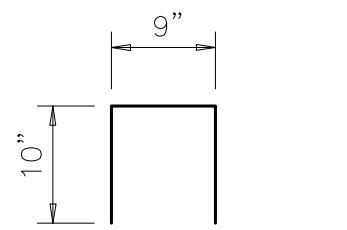
**BARS V (#5)**  
Spaced at 12" Max



**BARS L (#5)**  
Spaced at 12" Max



**OPTIONAL BARS L (#5)**  
Spaced at 12" Max



**BARS U (#4)**  
Spaced at 12" Max

- ① "C" is equal to the culvert top slab thickness. For precast boxes with slabs less than 8" thick, see SCP-MD standard for additional details.
- ② Adjust normal culvert slab bars as necessary to clear obstructions.
- ③ Place bars L as shown. Tilt hook as necessary to maintain cover.
- ④ Place normal culvert curb bars H(#4) as shown. Adjust as necessary to clear obstructions.
- ⑤ Additional bars H(#4) as required to maintain 12" Max spacing.
- ⑥ Replace normal culvert curb bars K with one bar U and two bars V as shown spaced at 12" Max. Adjust length of bars V as necessary to maintain clear cover.
- ⑦ Optional bars L are to be used only for precast box culverts with 3'-0" closure pour.
- ⑧ Quantities shown are for Contractor's information only. Quantities are per linear foot of curb length. The value in table can be interpolated for intermediate values of curb height, "C". Quantity includes bars K (when applicable).

— TABLE OF ESTIMATED CURB QUANTITIES ⑧

Curb Height "C"	Conc (CY/LF)	Reinf Steel (Lb/LF)
1'-0"	0.037	10.4
1'-6"	0.056	14.5
2'-0"	0.074	15.6
2'-6"	0.093	18.0
3'-0"	0.111	19.0
3'-6"	0.130	21.3
4'-0"	0.148	22.4
4'-6"	0.167	24.8
5'-0"	0.185	25.9

**CONSTRUCTION NOTES:**  
Adjust reinforcing steel as necessary to provide 1 1/4" cover.  
For vehicle safety, top of the curb must not project more than 3" above the finished grade.

**MATERIAL NOTES:**  
Provide Grade 60 reinforcing steel.  
Provide galvanized reinforcing steel if required elsewhere in the plans.  
Provide Class "C" concrete (f'c = 3,600 psi) minimum for curbs.  
Provide bar laps, where required, as follows:  
Uncoated or galvanized ~ #4 = 1'-8" Min

**GENERAL NOTES:**  
Designed according to AASHTO LRFD Bridge Design Specifications.  
These extended curb details have sufficient strength to allow for future retrofit of Type T631 or T631LS railing. These details are suitable for use with PR11, PR22 and PR3 type rails. These details are not suitable for the mounting of other rail types. For new construction using T631 or T631LS railing, use the T631-CM standard.  
This Curb is considered as part of the Box Culvert for payment.

Cover dimensions are clear dimensions, unless noted otherwise.  
Reinforcing bar dimensions shown are out-to-out of bar.

**EXTENDED CURB DETAILS**  
FOR BOX CULVERTS WITH CURBS OVER 1'-0" TO 5'-0" TALL

**ECD**

FILE: ecdstdel-20.dgn	DN: GAF	OK: TxDOT	DW: TxDOT	OK: GAF
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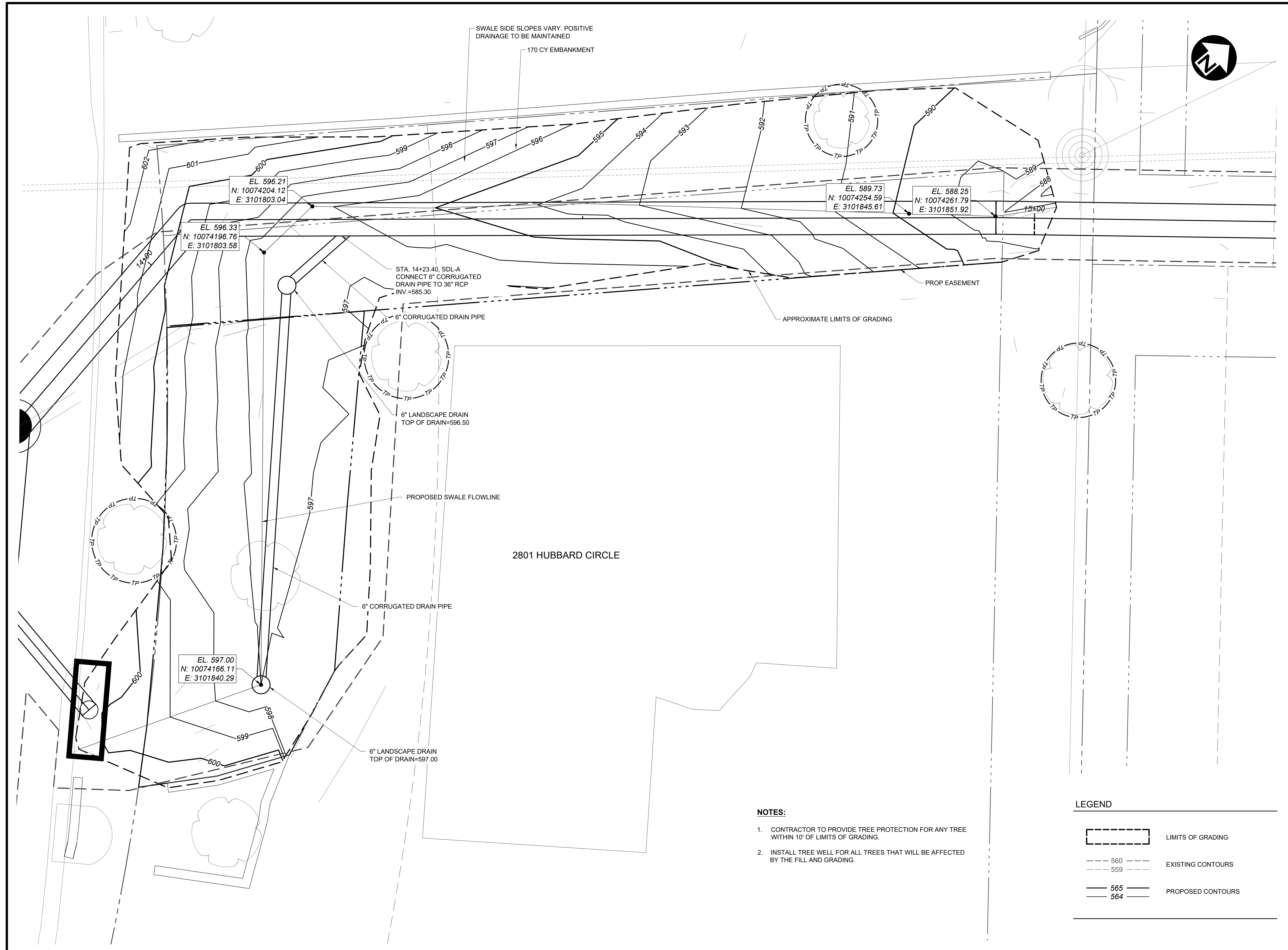
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SWALE SIDE SLOPES VARY. POSITIVE DRAINAGE TO BE MAINTAINED

170 CY EMBANKMENT

EL. 596.21  
N: 10074204.12  
E: 3101803.04

EL. 596.33  
N: 10074196.76  
E: 3101803.58

EL. 597.00  
N: 10074166.11  
E: 3101840.29

EL. 589.73  
N: 10074254.59  
E: 3101845.61

EL. 588.25  
N: 10074261.79  
E: 3101851.92

STA. 14+23.40, SDL-A  
CONNECT 6" CORRUGATED  
DRAIN PIPE TO 36" RCP  
INV.=585.30

6" CORRUGATED DRAIN PIPE

6" LANDSCAPE DRAIN  
TOP OF DRAIN=596.50

PROPOSED SWALE FLOWLINE

6" CORRUGATED DRAIN PIPE

6" LANDSCAPE DRAIN  
TOP OF DRAIN=597.00

2801 HUBBARD CIRCLE

PROP EASEMENT

APPROXIMATE LIMITS OF GRADING

**NOTES:**

1. CONTRACTOR TO PROVIDE TREE PROTECTION FOR ANY TREE WITHIN 10' OF LIMITS OF GRADING.
2. INSTALL TREE WELL FOR ALL TREES THAT WILL BE AFFECTED BY THE FILL AND GRADING.

**LEGEND**

- LIMITS OF GRADING
- 560 EXISTING CONTOURS
- 559 EXISTING CONTOURS
- 565 PROPOSED CONTOURS
- 564 PROPOSED CONTOURS

REV. NO.	DATE	REVISION DESCRIPTION

**100% SUBMITTAL**

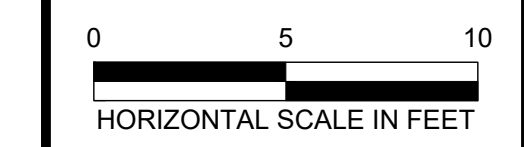
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CITY OF ROLLINGWOOD, TEXAS  
PUBLIC WORKS DEPARTMENT  
CITY OF ROLLINGWOOD  
PROPOSED DRAINAGE IMPROVEMENTS  
GRADING PLAN

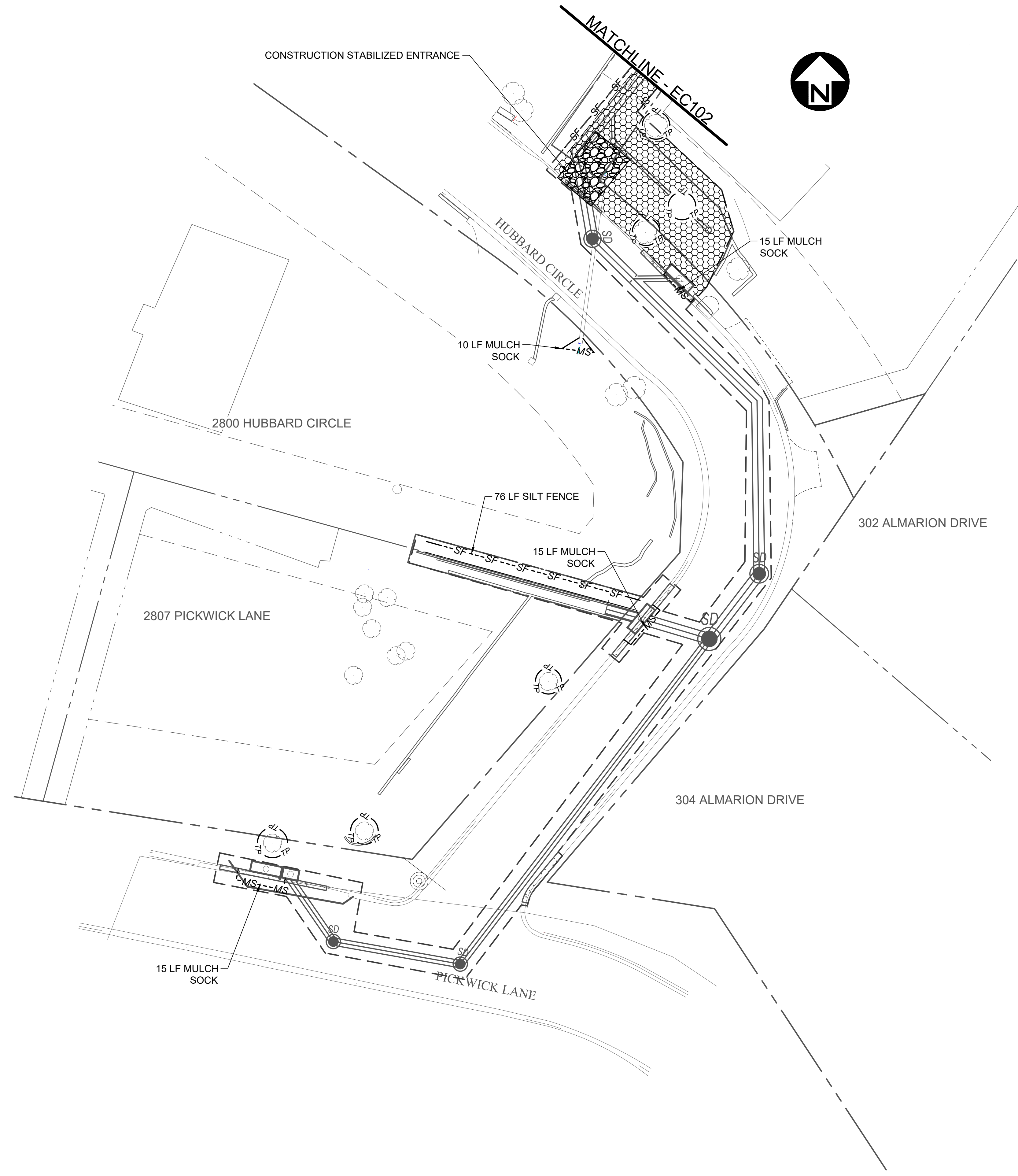
**ROLLINGWOOD TEXAS**  
**K-FRIESE + ASSOCIATES**  
PUBLIC PROJECT ENGINEERING  
1120 S. Capital of Texas Highway  
CityView 2, Suite 100  
Austin, Texas 78746  
P - 512.338.1704 F - 512.338.1784  
TBE Firm #6535  
www.kfriese.com

NOTES	NAME	DATE
SURVEY BY		
DRAWN BY	KT	07/21
DESIGNED BY	AF	07/21
CHECKED BY	GE	07/21
REVIEWED BY		



X:\PROJECTS\0603\_ROLLINGWOOD\_HUBBARD-HATLEY\_DRAINAGE\_IMPROVEMENTS\DESIGN\SHEETS\0603-CGP-PLAN\DWG-...\_COA\_ESO\$1B  
GEOFFREY ELFERS





- NOTES:**
1. CONTRACTOR TO PROVIDE ACCESS TO DRIVEWAYS AT ALL TIMES.
  2. CONSTRUCTION ACTIVITIES SHALL PROGRESS FROM DOWNSTREAM TO UPSTREAM.
  3. CONSTRUCTION WILL BE SEQUENCED IN A MANNER THAT WILL NOT DISTURB OR DAMAGE PREVIOUSLY CONSTRUCTED WORK.

**EXISTING FEATURES**

	CENTERLINE
	RIGHT OF WAY LINE
	PROPERTY LINE
	EASEMENT LINE
	BUILDING SETBACK LINE
	BACK OF CURB
	EDGE OF ASPHALT
	EDGE OF CONCRETE
	GUTTER
	CONCRETE PAVEMENT
	DRAINAGE FLOW LINE
	DITCH EDGE
	WOOD FENCE
	MAJOR CONTOURS
	MINOR CONTOURS
	GRADE BREAK
	PAVED PARKING / DRIVEWAY
	SLOPE TOP
	SLOPE BOTTOM
	WASTEWATER LINE
	WATER LINE
	ROCK WALL
	EXISTING RCP PIPE
	NATURAL GAS LINE
	ELECTRIC OVERHEAD
	ELECTRIC UNDERGROUND
	GUY WIRE
	WATER METER
	WATER VALVE
	SPRINKLER VALVE
	WASTEWATER MANHOLE
	CLEANOUT
	FIRE HYDRANT
	POWER POLE
	ELECTRIC JUNCTION BOX
	STOP SIGN
	MAILBOX
	TREE
	TREE WELL

**LEGEND**

	LIMITS OF CONSTRUCTION
	MULCH SOCK
	SILT FENCE
	TREE PROTECTION
	STABILIZED CONSTRUCTION ENTRANCE
	REVEGETATE

REV. NO.	REV. BY	DATE	REVISION DESCRIPTION

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CITY OF ROLLINGWOOD, TEXAS  
PUBLIC WORKS DEPARTMENT

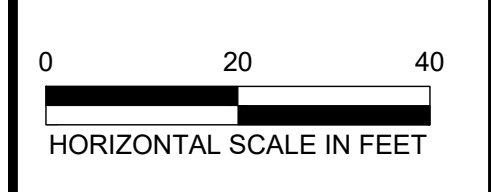
CITY OF ROLLINGWOOD  
PROPOSED DRAINAGE IMPROVEMENTS

EROSION CONTROL PLAN

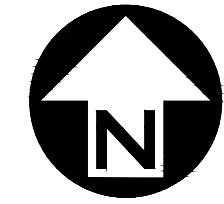
**ROLLINGWOOD TEXAS**

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CityView 2, Suite 100  
Austin, Texas 78746  
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NOTES	NAME	DATE



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GEOFFREY ELFERS



**NOTES:**

1. CONTRACTOR TO PROVIDE ACCESS TO DRIVEWAYS AT ALL TIMES.
2. CONSTRUCTION ACTIVITIES SHALL PROGRESS FROM DOWNSTREAM TO UPSTREAM.
3. CONSTRUCTION WILL BE SEQUENCED IN A MANNER THAT WILL NOT DISTURB OR DAMAGE PREVIOUSLY CONSTRUCTED WORK.

**EXISTING FEATURES**

	CENTERLINE
	RIGHT OF WAY LINE
	PROPERTY LINE
	EASEMENT LINE
	BUILDING SETBACK LINE
	BACK OF CURB
	EDGE OF ASPHALT
	EDGE OF CONCRETE
	GUTTER
	CONCRETE PAVEMENT
	DRAINAGE FLOW LINE
	DITCH EDGE
	WOOD FENCE
	MAJOR CONTOURS
	MINOR CONTOURS
	GRADE BREAK
	PAVED PARKING / DRIVEWAY
	SLOPE TOP
	SLOPE BOTTOM
	WASTEWATER LINE
	WATER LINE
	ROCK WALL
	EXISTING RCP PIPE
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	ELECTRIC OVERHEAD
	ELECTRIC UNDERGROUND
	GUY WIRE
	WATER METER
	WATER VALVE
	SPRINKLER VALVE
	WASTEWATER MANHOLE
	CLEANOUT
	FIRE HYDRANT
	POWER POLE
	ELECTRIC JUNCTION BOX
	STOP SIGN
	MAILBOX
	TREE
	TREE WELL

**LEGEND**

	LIMITS OF CONSTRUCTION
	MULCH SOCK
	SILT FENCE
	TREE PROTECTION
	STABILIZED CONSTRUCTION ENTRANCE
	REVEGETATE

REV. NO.	BY	DATE	REVISION DESCRIPTION

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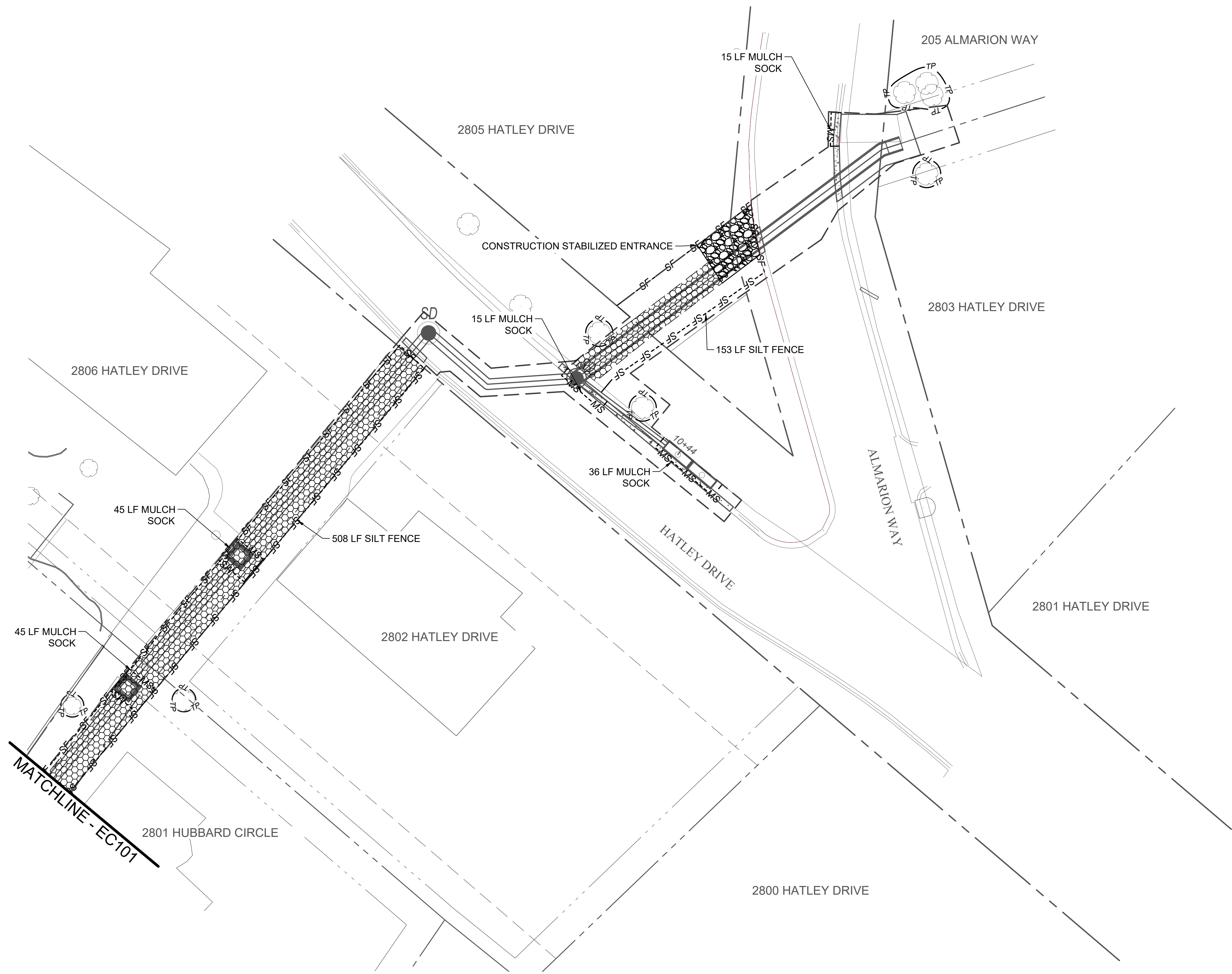
CITY OF ROLLINGWOOD, TEXAS  
PUBLIC WORKS DEPARTMENT  
CITY OF ROLLINGWOOD  
PROPOSED DRAINAGE IMPROVEMENTS  
EROSION CONTROL PLAN

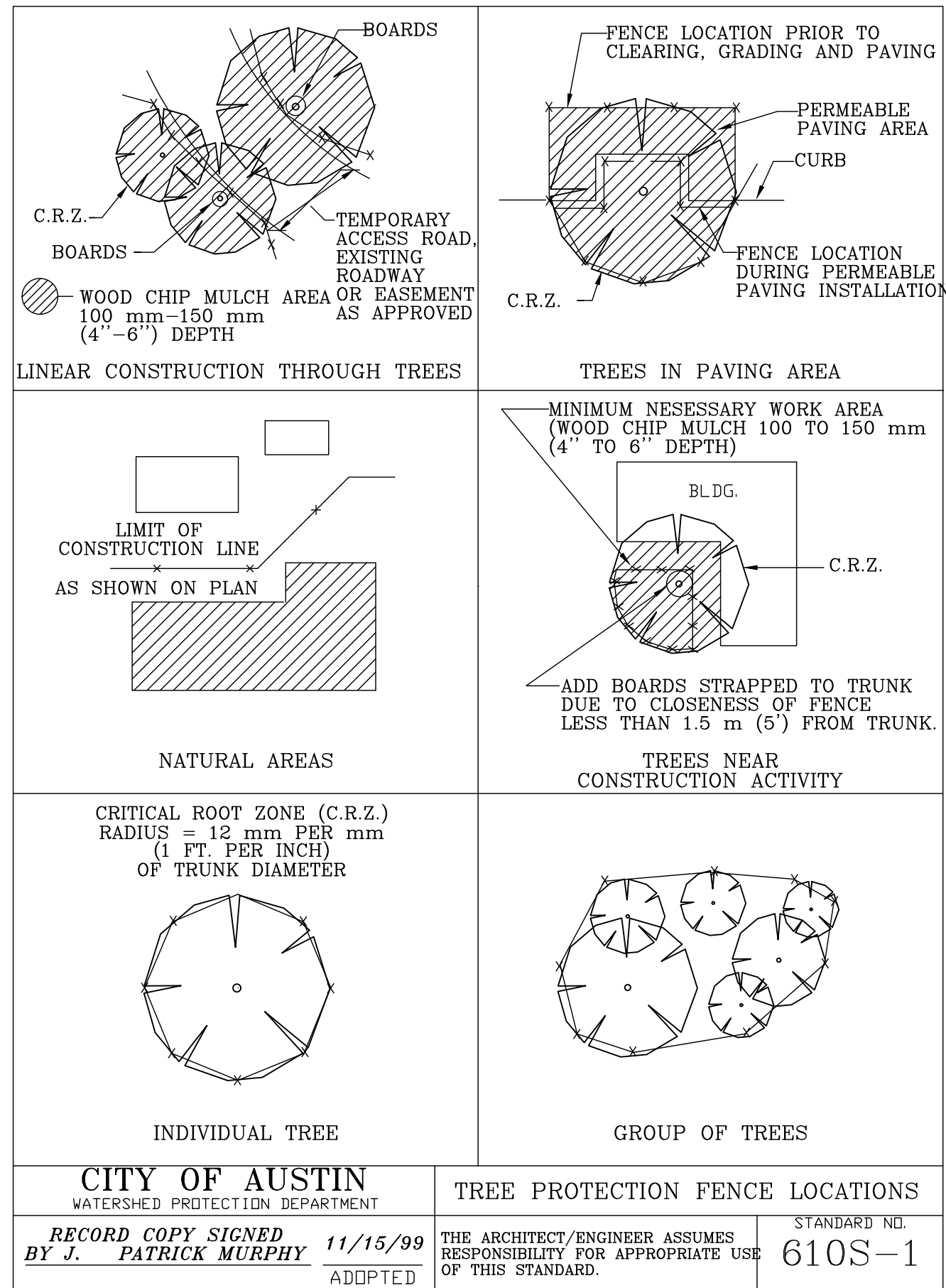
**ROLLINGWOOD TEXAS**  
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PUBLIC PROJECT ENGINEERING  
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NOTES	NAME	DATE

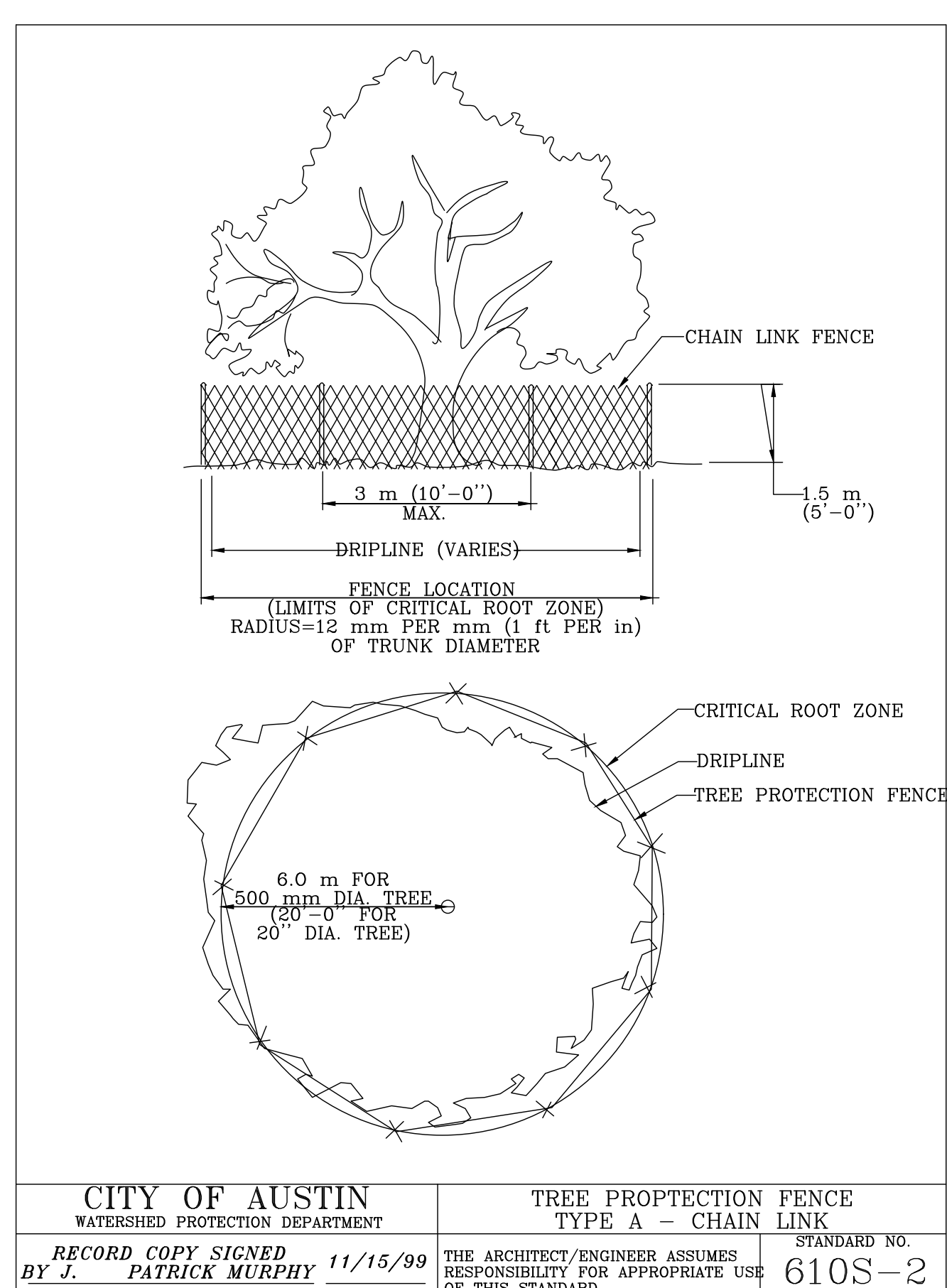


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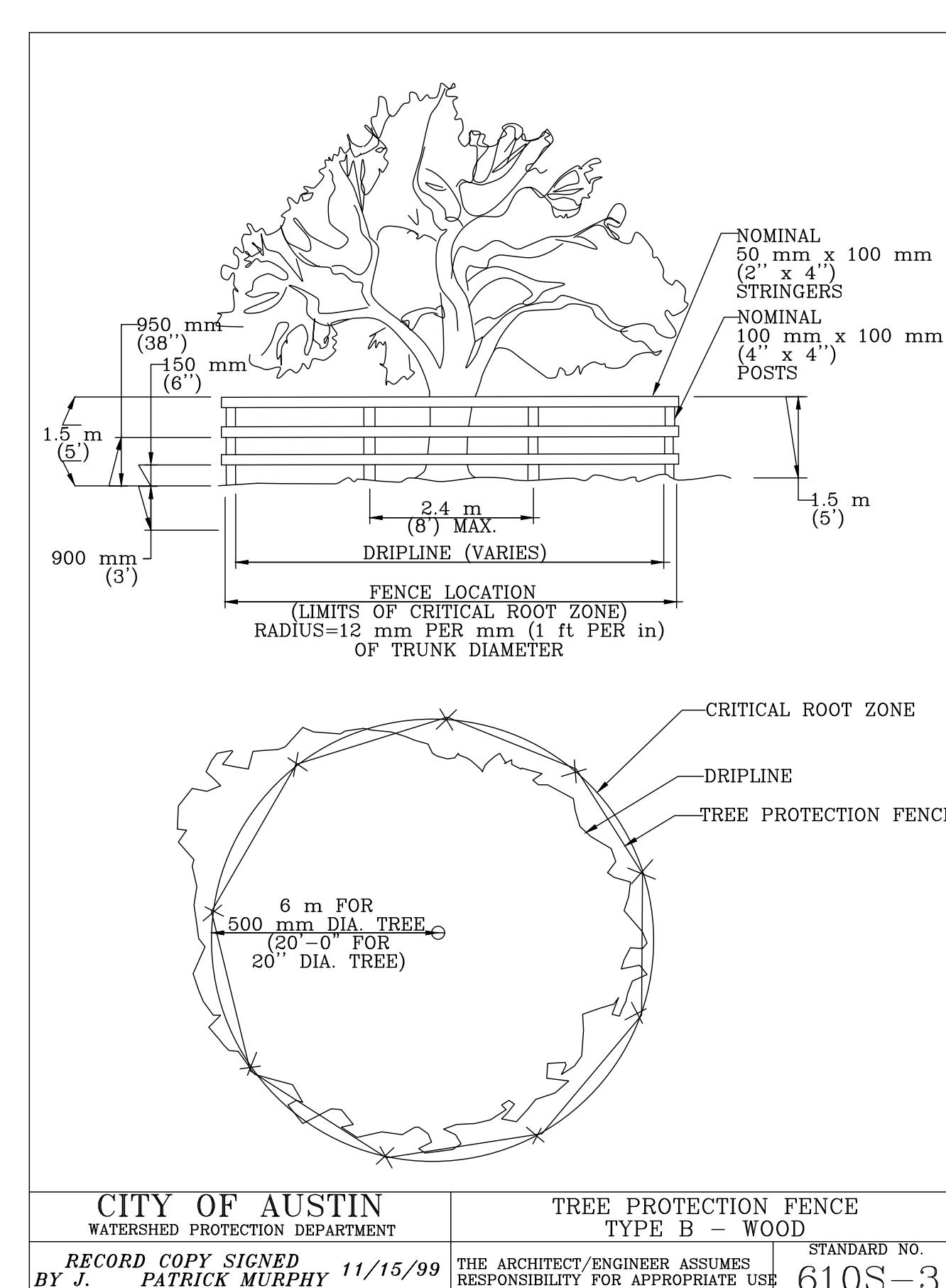




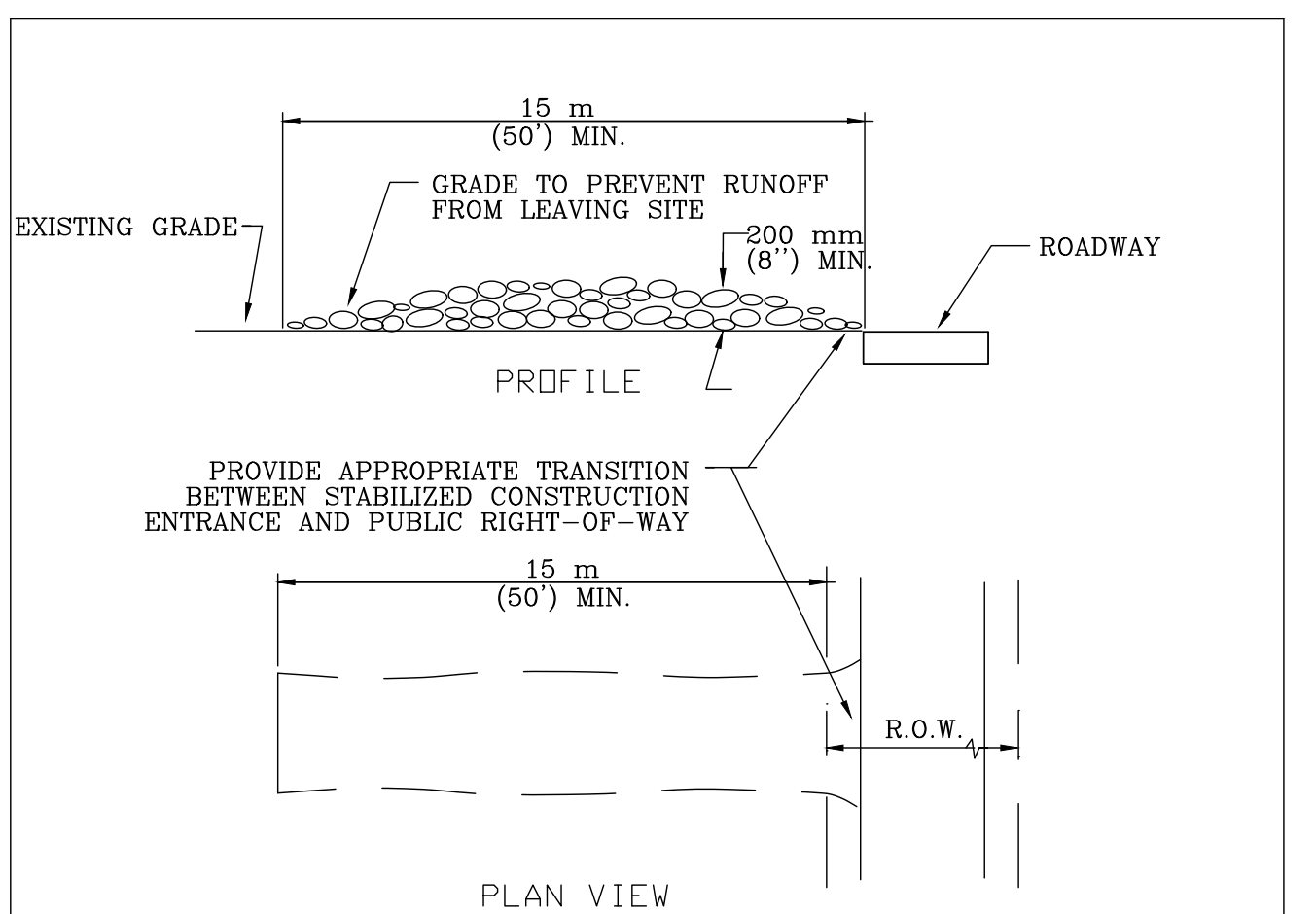
<b>CITY OF AUSTIN</b> WATERSHED PROTECTION DEPARTMENT RECORD COPY SIGNED BY J. PATRICK MURPHY 11/15/99 ADOPTED THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.		TREE PROTECTION FENCE LOCATIONS STANDARD NO. 610S-1
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<b>CITY OF AUSTIN</b> WATERSHED PROTECTION DEPARTMENT RECORD COPY SIGNED BY J. PATRICK MURPHY 11/15/99 ADOPTED THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.		TREE PROTECTION FENCE TYPE A - CHAIN LINK STANDARD NO. 610S-2
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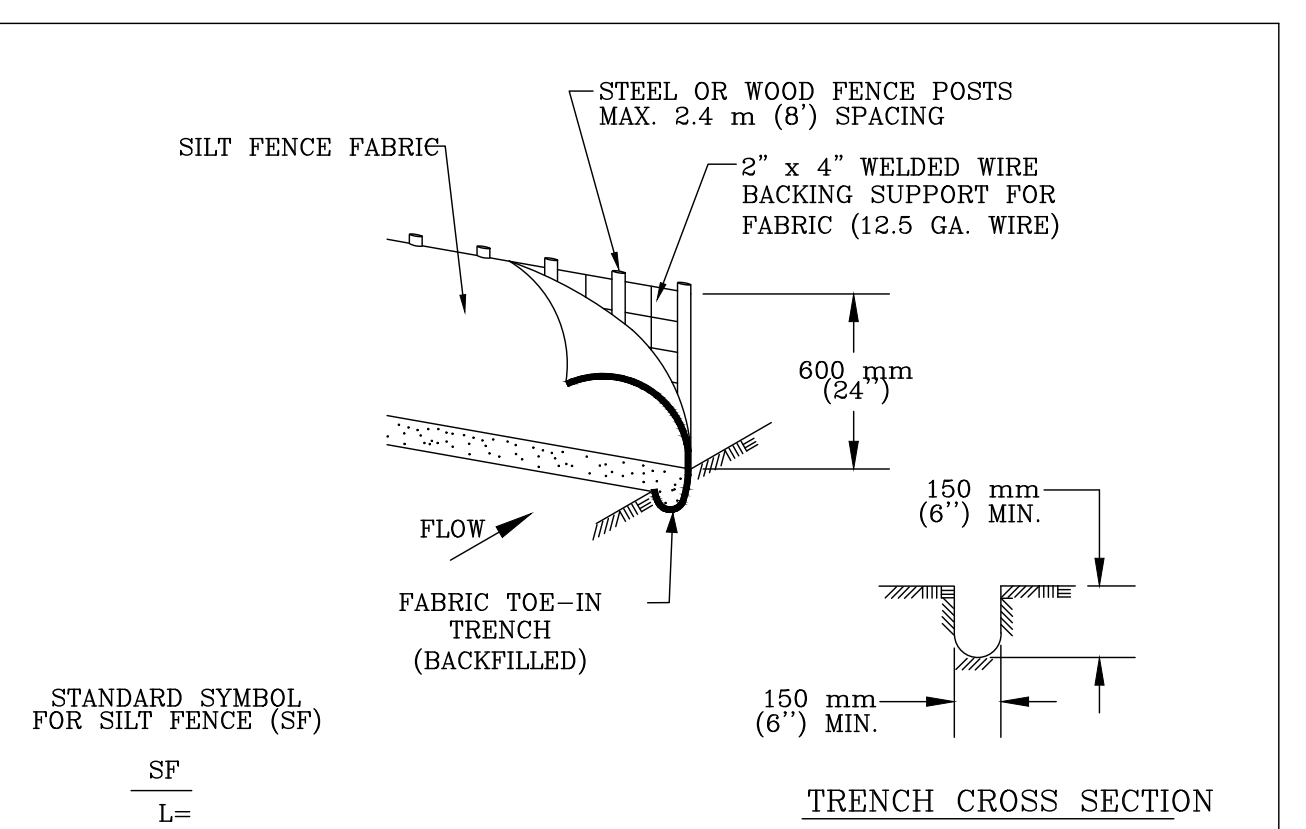


<b>CITY OF AUSTIN</b> WATERSHED PROTECTION DEPARTMENT RECORD COPY SIGNED BY J. PATRICK MURPHY 11/15/99 ADOPTED THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.		TREE PROTECTION FENCE TYPE B - WOOD STANDARD NO. 610S-3
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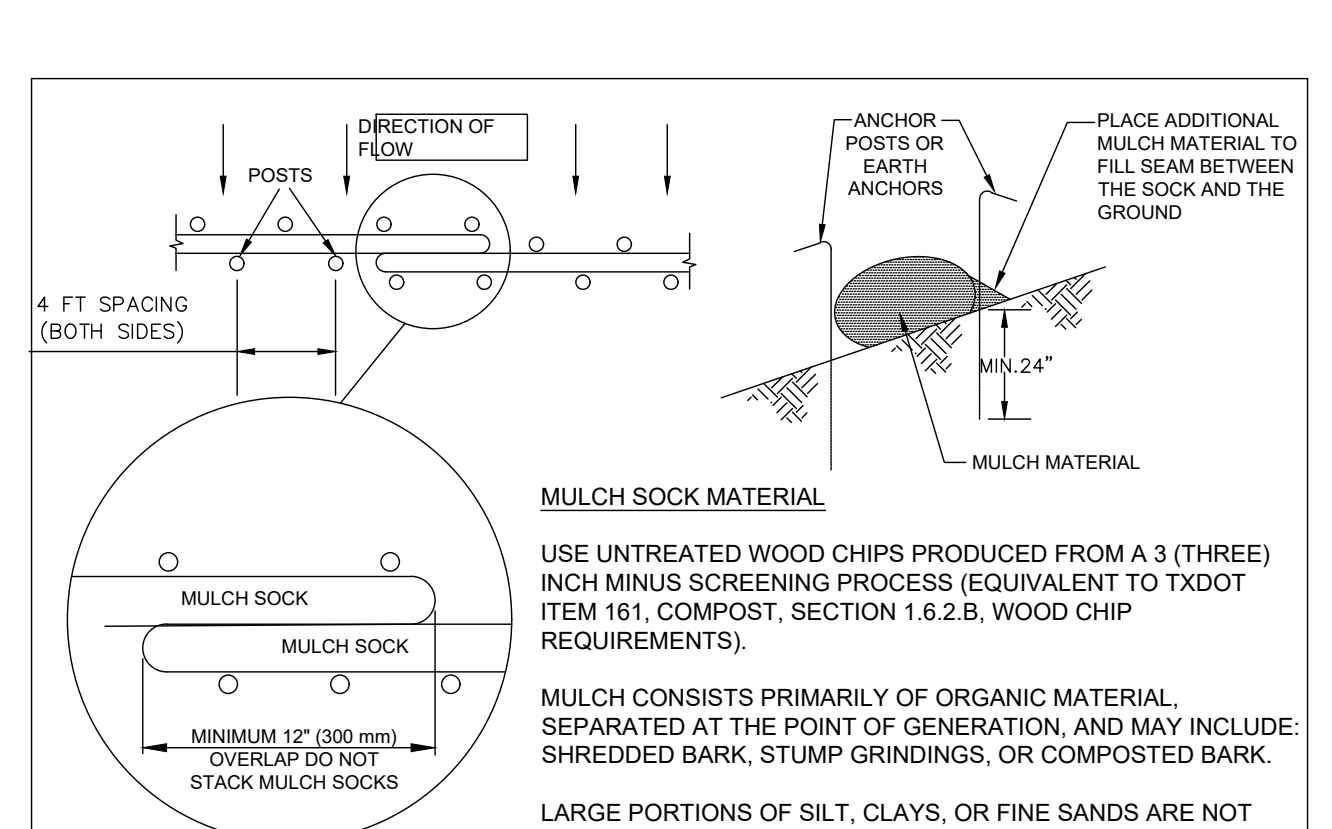
- NOTES:
- STONE SIZE: 75-125 mm (3-5") OPEN GRADED ROCK.
  - LENGTH: AS EFFECTIVE BUT NOT LESS THAN 15 m (50').
  - THICKNESS: NOT LESS THAN 200 mm (8").
  - WIDTH: NOT LESS THAN FULL WIDTH OF ALL POINTS OF INGRESS/EGRESS.
  - WASHING: WHEN NECESSARY, VEHICLE WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC ROADWAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE AND DRAINS INTO AN APPROVED TRAP OR SEDIMENT BASIN. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATERCOURSE USING APPROVED METHODS.
  - MAINTENANCE: THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC ROADWAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND, AS WELL AS REPAIR AND CLEAN OUT OF ANY MEASURE DEVICES USED TO TRAP SEDIMENT. ALL SEDIMENTS THAT IS SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC ROADWAY MUST BE REMOVED IMMEDIATELY.
  - DRAINAGE: ENTRANCE MUST BE PROPERLY GRADED OR INCORPORATE A DRAINAGE SWALE TO PREVENT RUNOFF FROM LEAVING THE CONSTRUCTION SITE.

<b>CITY OF AUSTIN</b> WATERSHED PROTECTION DEPARTMENT RECORD COPY SIGNED BY J. PATRICK MURPHY 5/23/00 ADOPTED THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.		STABILIZED CONSTRUCTION ENTRANCE STANDARD NO. 641S-1
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- STEEL OR WOOD POSTS WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE EMBEDDED A MINIMUM OF 300 mm (12 INCHES). IF WOOD POSTS CANNOT ACHIEVE 300 mm (12 inches) DEPTH, USE STEEL POSTS.
- THE TOE OF THE SILT FENCE SHALL BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWNSLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW.
- THE TRENCH MUST BE A MINIMUM OF 150 mm (6 inches) DEEP AND 150 mm (6 inches) WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.
- SILT FENCE FABRIC SHOULD BE SECURELY FASTENED TO EACH STEEL OR WOOD SUPPORT POST OR TO WOVEN WIRE, WHICH IS IN TURN ATTACHED TO THE STEEL OR WOOD FENCE POST.
- INSPECTION SHALL BE MADE WEEKLY OR AFTER EACH RAINFALL EVENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
- SILT FENCE SHALL BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.
- ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF 150mm (6 inches). THE SILT SHALL BE DISPOSED OF ON AN APPROVED SITE AND IN SUCH A MANNER THAT WILL NOT CONTRIBUTE TO ADDITIONAL SILTATION.

<b>CITY OF AUSTIN</b> WATERSHED PROTECTION DEPARTMENT RECORD COPY SIGNED BY MORGAN BYARS 09/01/2011 ADOPTED THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.		SILT FENCE STANDARD NO. 642S-1
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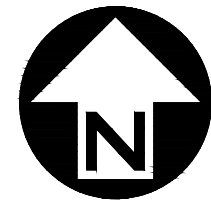
- NOTES:
- STEEL OR WOOD POSTS WHICH SUPPORT THE MULCH SOCK SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE EMBEDDED A MINIMUM OF 600mm (24 inches). IF WOOD POSTS CANNOT ACHIEVE 600mm (24 inches) DEPTH, USE STEEL POSTS. EARTH ANCHORS ARE ALSO ACCEPTABLE.
  - THE TOE OF THE MULCH SOCK SHALL BE PLACED SO THAT THE MULCH SOCK IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW. IN ORDER TO PREVENT WATER FROM FLOWING BETWEEN THE JOINTS OF ADJACENT ENDS OF MULCH SOCKS, LAP THE ENDS OF ADJACENT MULCH SOCKS A MINIMUM OF 300mm (12 inches).
  - MULCH MATERIAL MUST BE FREE OF REFUSE, PHYSICAL CONTAMINANTS, AND MATERIAL TOXIC TO PLANT GROWTH; IT IS NOT ACCEPTABLE FOR THE MULCH MATERIAL TO CONTAIN GROUND CONSTRUCTION DEBRIS, BIOSOLIDS, OR MANURE.
  - SOCK MATERIAL WILL BE 100% BIODEGRADABLE, PHOTODEGRADABLE, OR RECYCLABLE SUCH AS BURLAP, TWINE, UV PHOTODEGRADABLE PLASTIC, POLYESTER, OR ANY OTHER ACCEPTABLE MATERIAL.
  - MULCH SOCKS SHOULD BE USED AT THE BASE OF SLOPES NO STEEPER THAN 2:1 AND SHOULD NOT EXCEED THE MAXIMUM SPACING CRITERIA PROVIDED IN CITY OF AUSTIN ENVIRONMENTAL CRITERIA MANUAL TABLE 1.4.5.F-1 FOR A GIVEN SLOPE CATEGORY.
  - ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF 150mm (6 inches). THE SILT SHALL BE DISPOSED OF ON AN APPROVED SITE AND IN SUCH A MANNER THAT WILL NOT CONTRIBUTE TO ADDITIONAL SILTATION.

<b>CITY OF AUSTIN</b> WATERSHED PROTECTION DEPARTMENT RECORD COPY SIGNED BY MORGAN BYARS 08/24/2010 ADOPTED THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.		MULCH SOCK STANDARD NO. 648S-1
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REVISION DESCRIPTION	DATE	REV. BY	NO.
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<b>CITY OF ROLLINGWOOD, TEXAS</b> PUBLIC WORKS DEPARTMENT		<b>CITY OF ROLLINGWOOD</b> ROLLINGWOOD DRAINAGE IMPROVEMENTS EROSION CONTROL DETAILS	
<b>ROLLINGWOOD TEXAS</b> <b>K-FRIESE + ASSOCIATES</b> PUBLIC PROJECT ENGINEERING 1120 S. Capital of Texas Highway CityView 2, Suite 100 Austin, Texas 78746 P - 512.338.1704 F - 512.338.1784 TPE Firm #6335 www.kfriese.com			
NOTES	NAME	DATE	
SURVEY BY			
DRAWN BY	KT	07/21	
DESIGNED BY	AF	07/21	
CHECKED BY	GE	07/21	
REVIEWED BY			
EC501	27	OF 32	

NIXON DR

City  
of  
Rollingwood



REV NO.	DATE	REVISION DESCRIPTION

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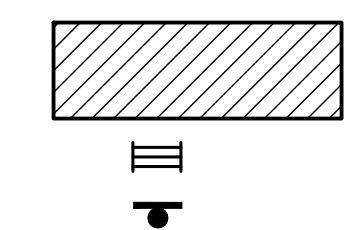
CITY OF ROLLINGWOOD, TEXAS  
PUBLIC WORKS DEPARTMENT  
CITY OF ROLLINGWOOD  
PROPOSED DRAINAGE IMPROVEMENTS  
TRAFFIC CONTROL PLAN

**ROLLINGWOOD** TEXAS  
**K-FRIESE + ASSOCIATES**  
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**NOTES:**

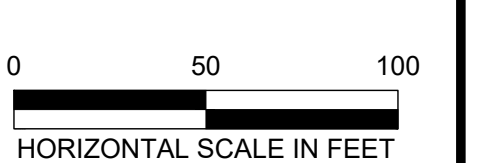
1. ALL PROPERTY OWNERS ADJACENT TO CONSTRUCTION MUST HAVE ACCESS TO THEIR PROPERTY AT ALL TIMES.
2. SEE COA TRAFFIC CONTROL STANDARDS FOR PLACEMENT OF FLAGGERS AND DETOUR STANDARDS.
3. CONTRACTOR MAY USE AN ALTERNATE TRAFFIC CONTROL PLAN PROVIDED THAT PLAN IS SUBMITTED TO THE CITY FOR REVIEW AND APPROVAL.

**LEGEND**

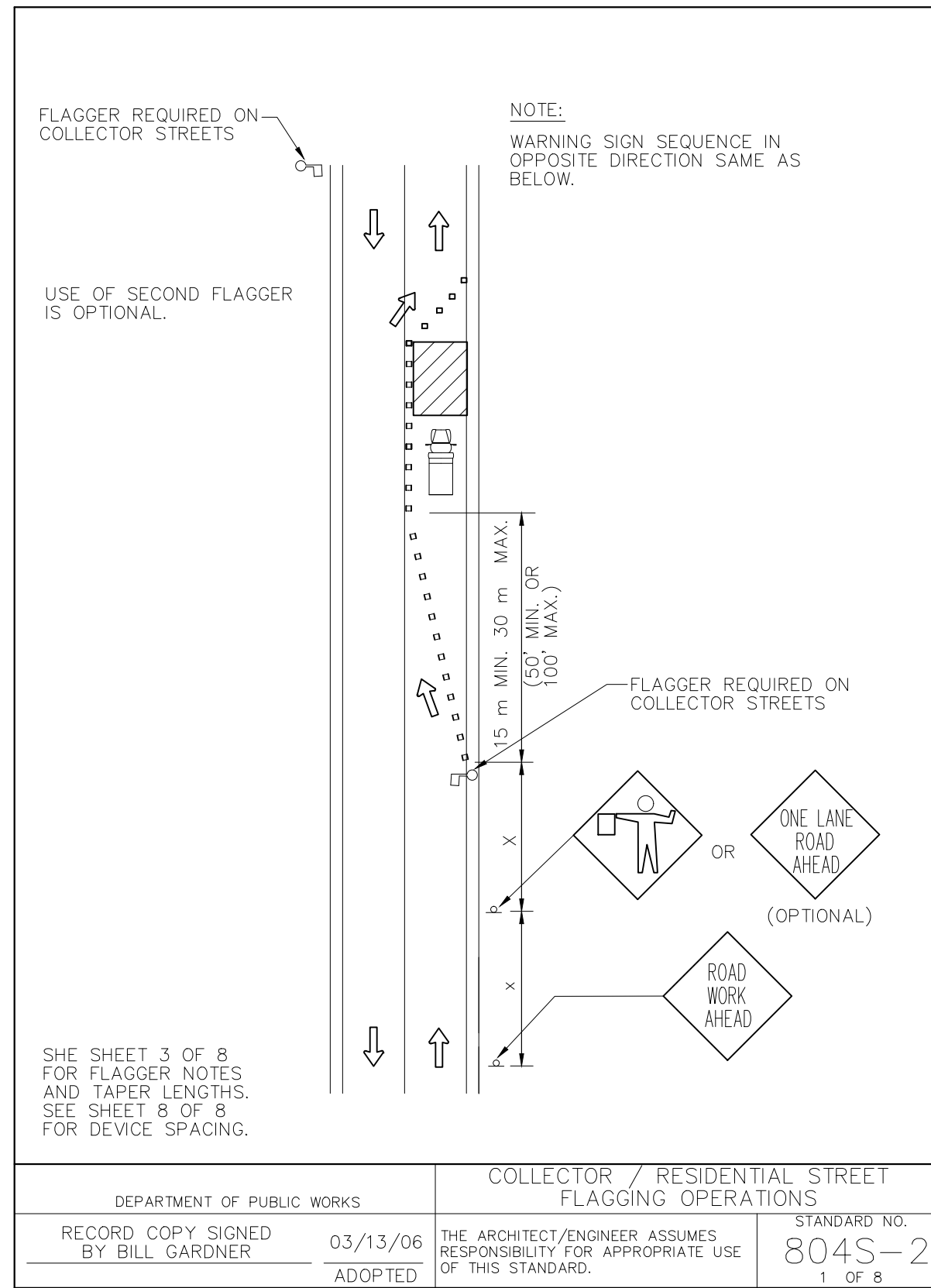


CONSTRUCTION AREA (APPROXIMATE)  
TYPE III BARRICADE  
SIGN  
SEE COA STANDARD DETAIL 804S-1 SERIES FOR MORE DETAILS

NOTES	NAME	DATE



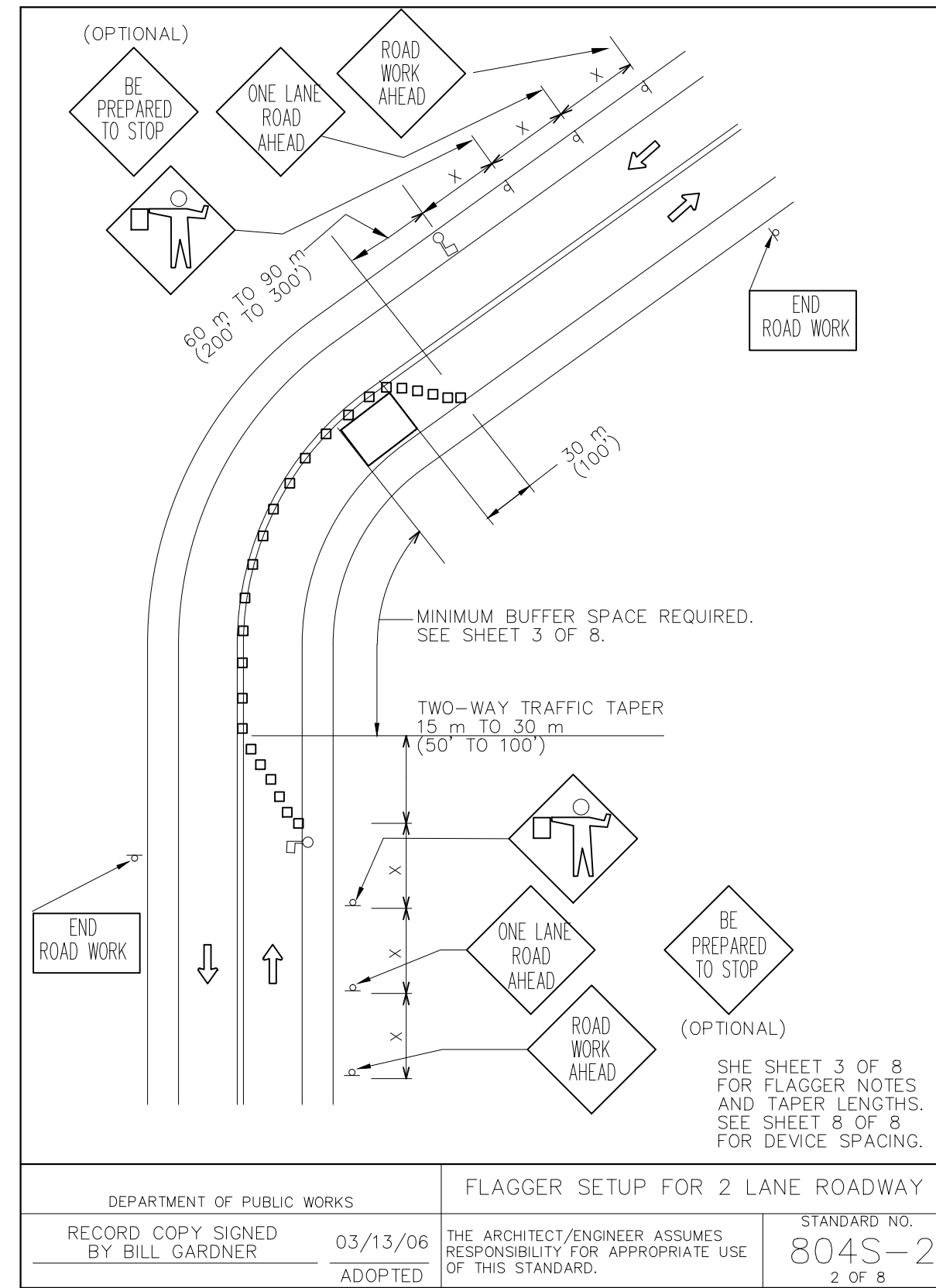
X:\PROJECTS\0803\_Rollingwood\_Hubbard-Hatley\_Drainage\_Improvements\Drawings\0803-CT101.dwg, 3/15/2023 12:19 PM, GEOFFREY ELFERS



DEPARTMENT OF PUBLIC WORKS  
RECORD COPY SIGNED BY BILL GARDNER 03/13/06 ADOPTED

COLLECTOR / RESIDENTIAL STREET FLAGGING OPERATIONS  
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.

STANDARD NO. 804S-2  
1 OF 8



DEPARTMENT OF PUBLIC WORKS  
RECORD COPY SIGNED BY BILL GARDNER 03/13/06 ADOPTED

FLAGGER SETUP FOR 2 LANE ROADWAY  
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.

STANDARD NO. 804S-2  
2 OF 8

1. FOR DAYTIME WORK, THE FLAGGER SHALL WEAR AN APPROVED BRIGHTLY COLORED VEST. FOR NIGHTTIME WORK, THE VEST SHALL BE RETROREFLECTIVE. THE RETROREFLECTIVE MATERIAL SHALL BE ORANGE, YELLOW, WHITE, SILVER, STRONG YELLOW-GREEN OR A FLOURESCENT VERSION OF THESE COLORS AND SHALL BE VISIBLE AT A MINIMUM DISTANCE OF 305 m (1,000').

2. FOR LOW-VOLUME APPLICATIONS, A SINGLE FLAGGER MAY BE ADEQUATE. WHERE ONE FLAGGER CAN BE USED, SUCH AS FOR SHORT WORK AREAS ON STRAIGHT ROADWAYS, THE FLAGGER MUST BE VISIBLE TO APPROACHING TRAFFIC FROM BOTH DIRECTIONS.

3. FLAGGERS SHALL USE ONLY STOP/SLOW PADDLE TO DIRECT TRAFFIC UNLESS WORKING IN A SIGNALIZED INTERSECTION WHERE DRIVERS MAY BE CONFUSED BY THE SIGN PADDLE. HAND SIGNAL MAY BE USED IN THESE SITUATIONS.

4. FLAGGERS SHALL ENSURE THAT ALL REQUIRED SIGNING IS IN PLACE PRIOR TO BEGINNING FLAGGING OPERATIONS.

5. FLAGGERS SHALL NOT PERFORM WORK THAT IS NOT RELATED TO FLAGGING WHILE ON DUTY.

6. FLAGGERS MAY CARRY AIR HORNS OR WHISTLES TO WARN WORKERS OF AN EMERGENCY CONDITION.

7. FLAGGERS SHALL BE REQUIRED TO USE TWO-WAY RADIOS WHEN OUT OF CLEAR VIEW OF EACH OTHER.

8. FLOODLIGHTS SHOULD BE PROVIDED TO MARK FLAGGER STATIONS AT NIGHT AS NEEDED.

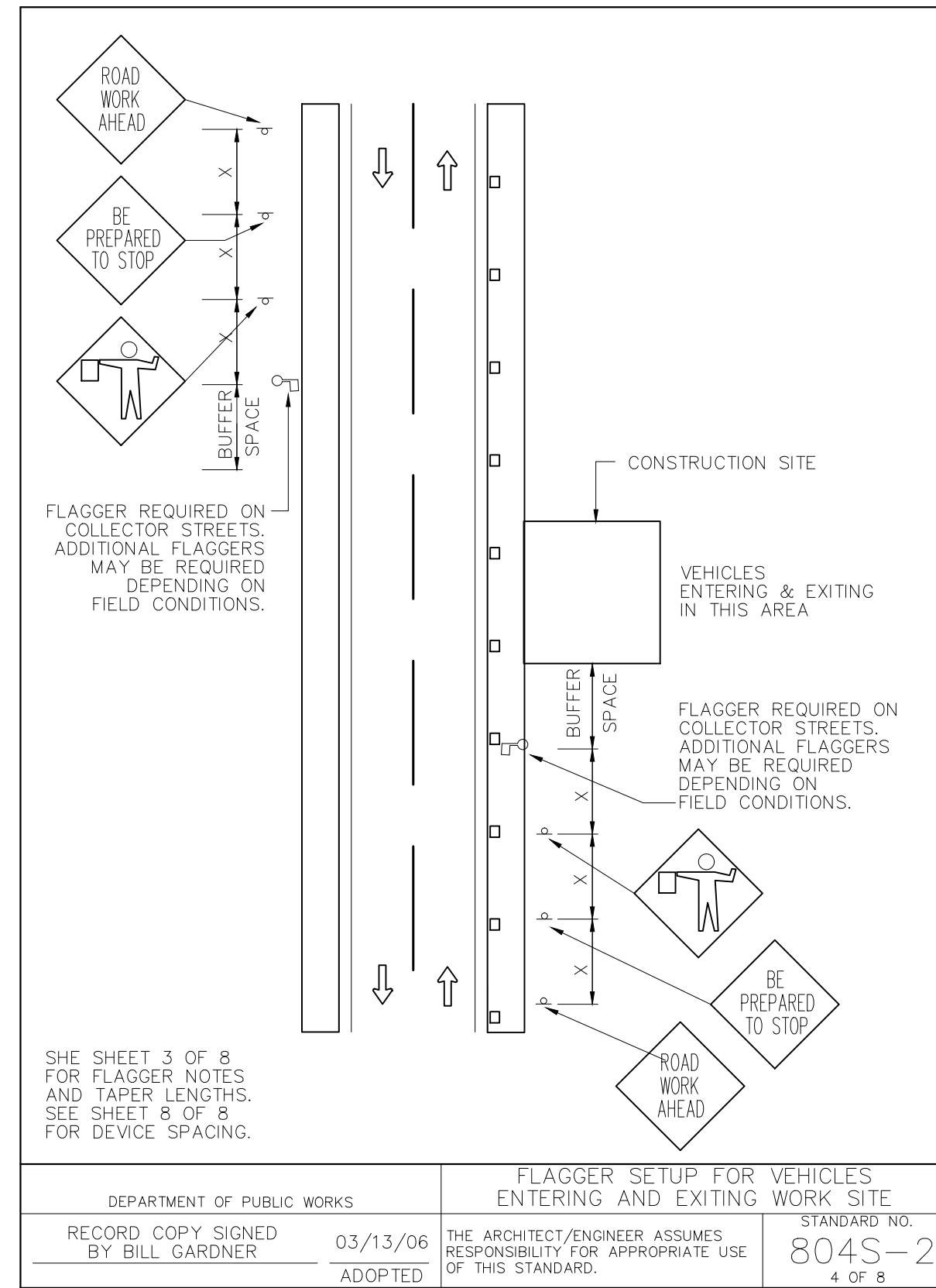
TAPER LENGTHS			
SPEED (kmph)	SPEED* (mph)	LENGTH (meters)	LENGTH (feet)
30	20	11	35
40	25	17	55
50	30	26	85
55	35	36	120
65	40	51	170
70	45	66	220
80	50	84	280
90	55	101	335
95	60	125	415
105	65	146	485

\*POSTED SPEED

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RECORD COPY SIGNED BY BILL GARDNER 03/13/06 ADOPTED

FLAGGER SETUP FOR 2 LANE ROADWAY  
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.

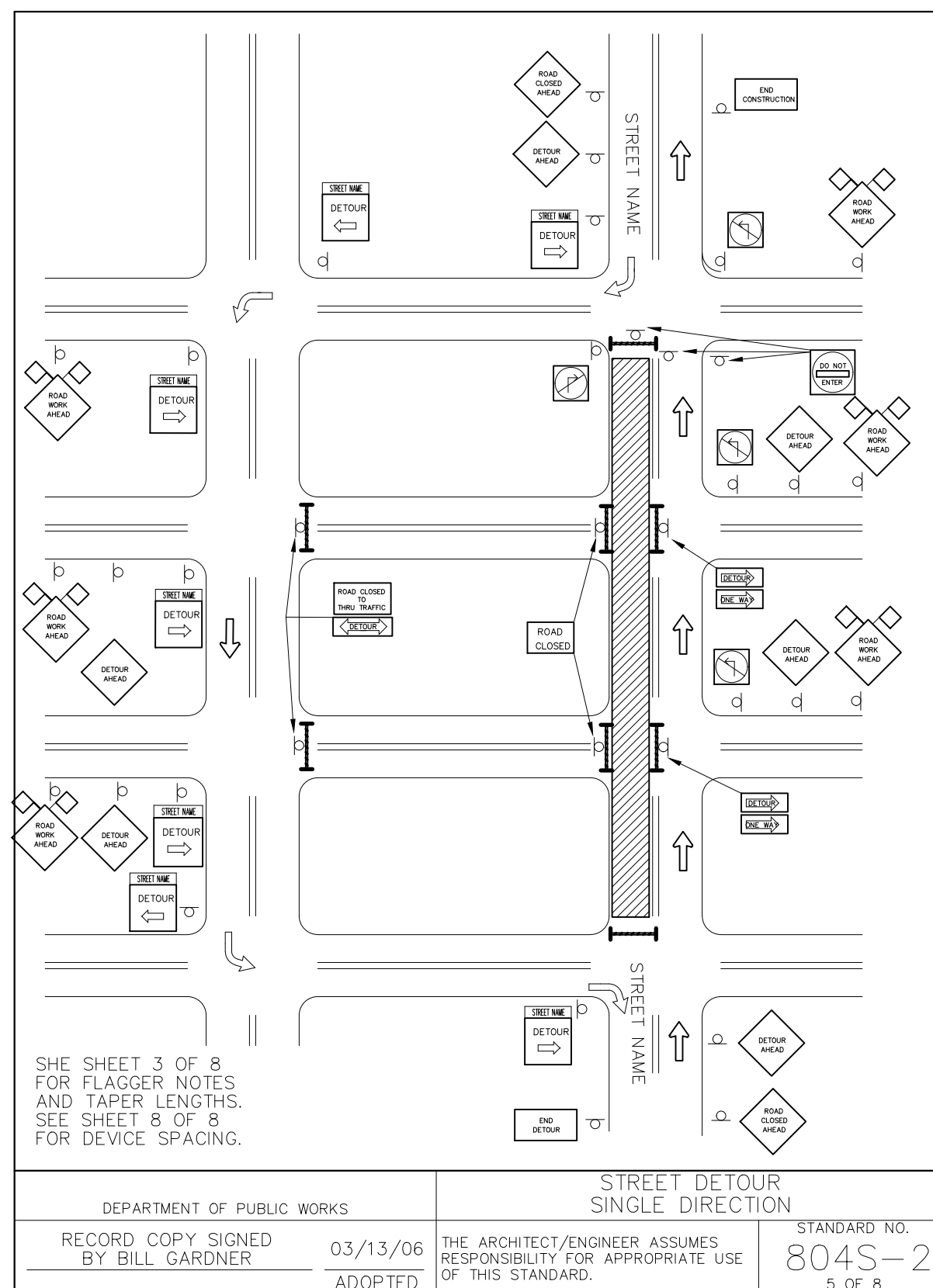
STANDARD NO. 804S-2  
3 OF 8



DEPARTMENT OF PUBLIC WORKS  
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FLAGGER SETUP FOR VEHICLES ENTERING AND EXITING WORK SITE  
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.

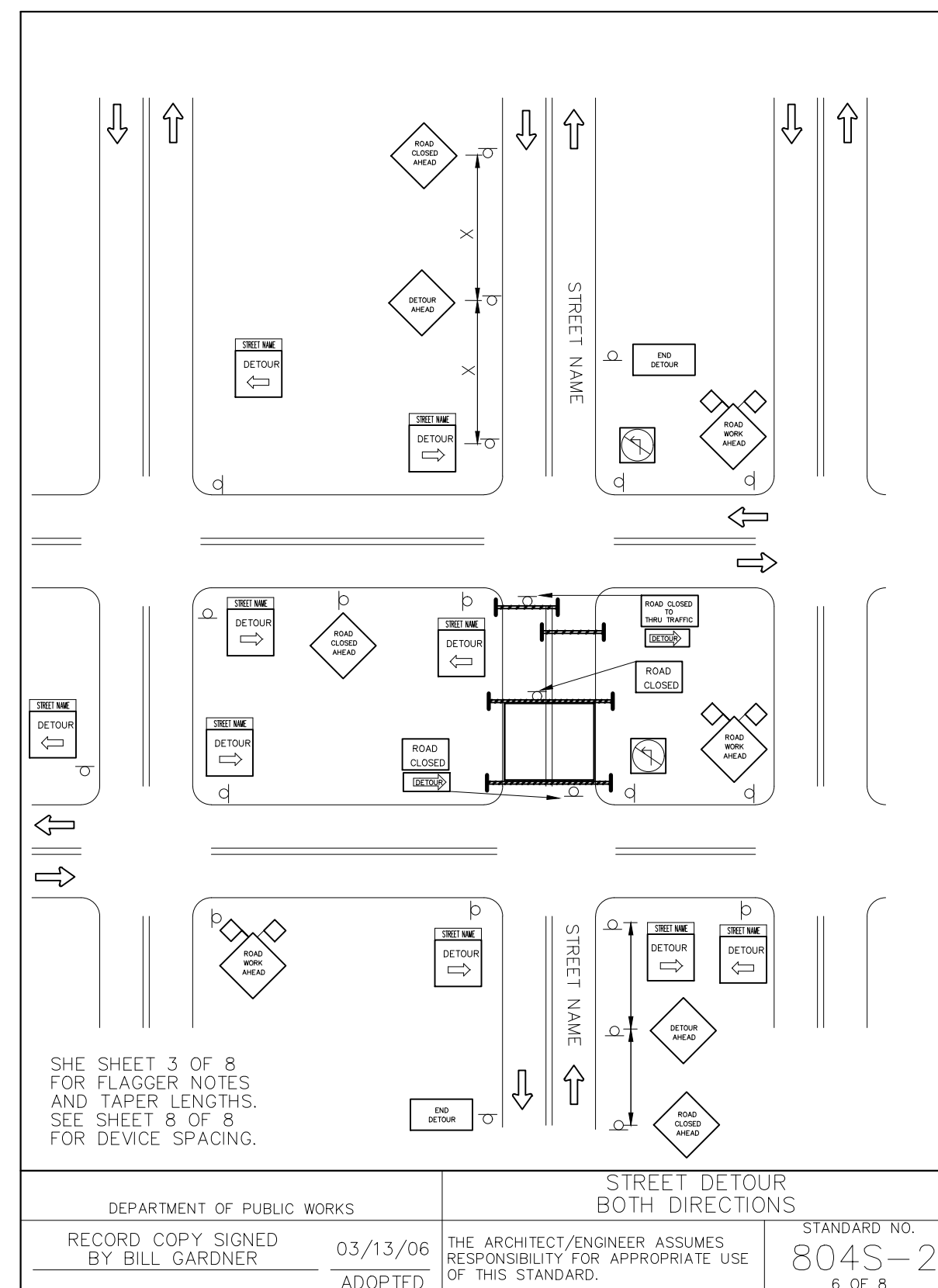
STANDARD NO. 804S-2  
4 OF 8



DEPARTMENT OF PUBLIC WORKS  
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STREET DETOUR SINGLE DIRECTION  
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.

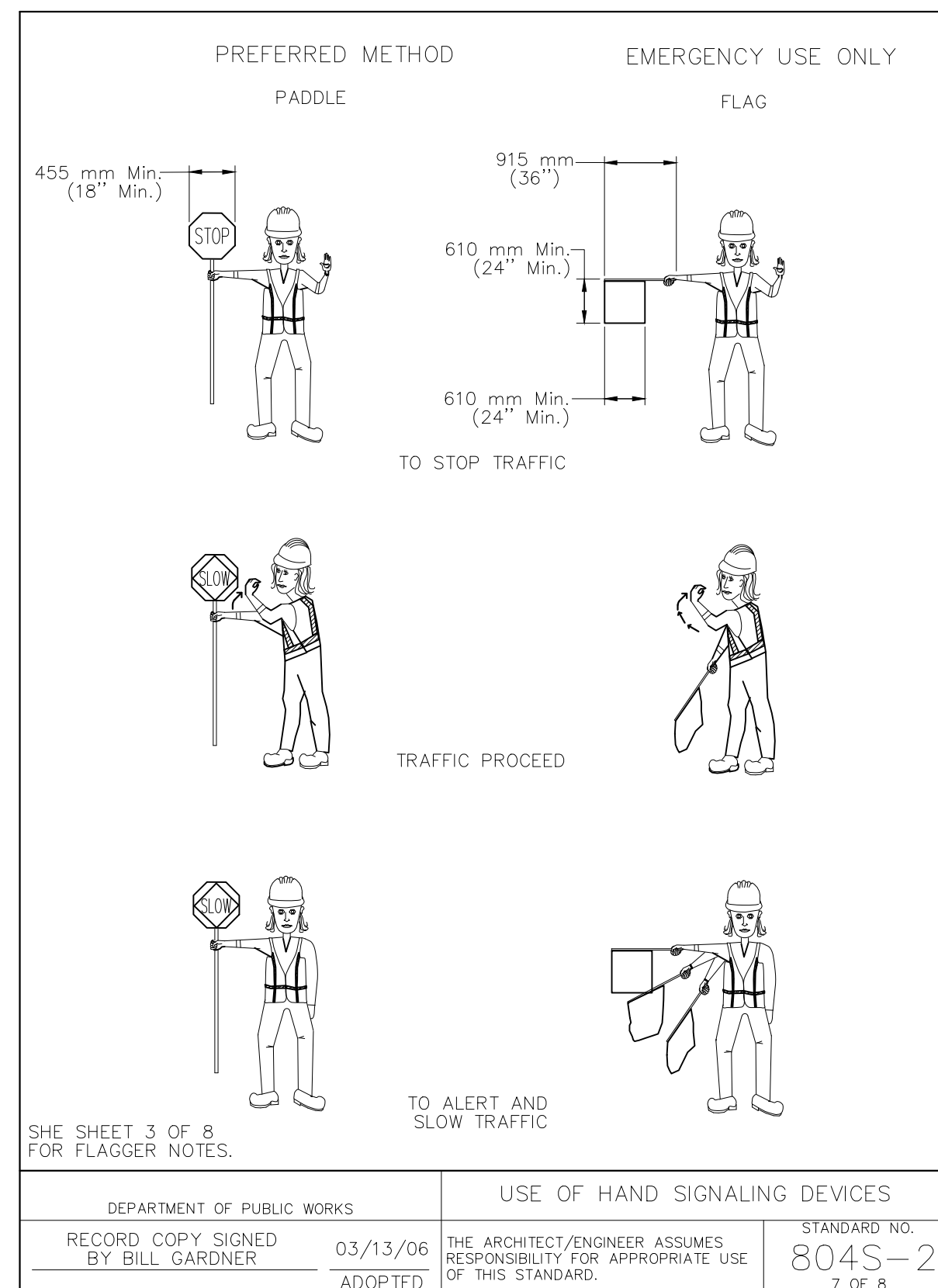
STANDARD NO. 804S-2  
5 OF 8



DEPARTMENT OF PUBLIC WORKS  
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STREET DETOUR BOTH DIRECTIONS  
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.

STANDARD NO. 804S-2  
6 OF 8



DEPARTMENT OF PUBLIC WORKS  
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USE OF HAND SIGNALING DEVICES  
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.

STANDARD NO. 804S-2  
7 OF 8

Typical Transition Lengths and Suggested Maximum Spacing of Devices

Speed KMPH	Posted Speed MPH	Formula	Minimum Desirable Taper Lengths (L) Meters (Feet)		Suggested Max. Device Spacing Meters (Feet)	Suggested Sign Spacing "X" Dimension Meters (Feet)
			3.0(10) Offset Meters (feet)	3.3(11) Offset Meters (feet)		
50	30	L=WS/60	45 (150)	50 (165)	9 (30)	15-20 (60-75)
			65 (215)	70 (230)	10 (33)	25-30 (80-100)
55	35	L=WS/60	65 (215)	70 (230)	10 (33)	25-30 (80-100)
			80 (265)	90 (295)	12 (40)	25-30 (80-100)
65	40	L=WS/60	135 (450)	150 (495)	13 (43)	25-30 (80-100)
			165 (540)	180 (585)	15 (49)	30-35 (100-125)
70	45	L=WS/60	165 (540)	180 (585)	15 (49)	30-35 (100-125)
			200 (660)	220 (720)	16 (52)	35-40 (110-140)
80	50	L=WS/60	165 (540)	180 (585)	15 (49)	30-35 (100-125)
			200 (660)	220 (720)	16 (52)	35-40 (110-140)
90	55	L=WS/60	180 (600)	200 (660)	16 (52)	35-40 (110-140)
			215 (705)	235 (775)	19 (62)	40-45 (130-150)
95	60	L=WS/60	180 (600)	200 (660)	16 (52)	35-40 (110-140)
			215 (705)	235 (775)	19 (62)	40-45 (130-150)
105	65	L=WS/60	195 (645)	215 (705)	17 (56)	40-45 (130-150)
			235 (775)	255 (840)	21 (69)	45-55 (140-175)
115	70	L=WS/60	215 (705)	235 (775)	19 (62)	40-45 (130-150)
			255 (840)	275 (905)	23 (76)	50-60 (160-200)

LEGEND  
 Channelizing devices  
 Trailer mounted flashing arrow board  
 Flagger

TRAFFIC DETOUR NOTES:  
1. "STREET CLOSED" AND "STREET CLOSED TO THRU TRAFFIC" MAY BE USED IN PLACE OF "ROAD CLOSED" AND "ROAD CLOSED TO THRU TRAFFIC".  
2. THE USE OF A STREET SIGN NAME MOUNTED WITH THE M4-9 DETOUR SIGN\*\* IS REQUIRED. THE STREET NAME PLATE SHOULD BE PLACED ABOVE THE DETOUR SIGN. THE PLATE MAY HAVE EITHER A WHITE-ON-GREEN OR A BLACK-ON-ORANGE LEGEND.  
3. ADDITIONAL "DO NOT ENTER SIGNS" MAY BE DESIRABLE AT INTERSECTIONS WITH INTERVENING STREETS.  
4. A M4-9 DETOUR SIGN\*\* WITH AN ADVANCE TURN ARROW MAY BE USED IN ADVANCE OF A TURN. ON MULTI-LANE STREETS, SUCH SIGNS SHOULD BE USED.  
5. M4-9 DETOUR SIGNS\*\* MAY BE LOCATED ON THE FAR SIDE OF INTERSECTIONS.  
\*\* TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES

DEPARTMENT OF PUBLIC WORKS  
RECORD COPY SIGNED BY BILL GARDNER 03/13/06 ADOPTED

TYPICAL LENGTHS & SPACING OF DEVICES, LEGEND AND GENERAL NOTES  
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.

STANDARD NO. 804S-2  
8 OF 8

REVISION DESCRIPTION	DATE	REV. BY	NO.

**100% SUBMITTAL**

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CITY OF ROLLINGWOOD, TEXAS  
PUBLIC WORKS DEPARTMENT

CITY OF ROLLINGWOOD  
ROLLINGWOOD DRAINAGE IMPROVEMENTS

TRAFFIC CONTROL DETAILS

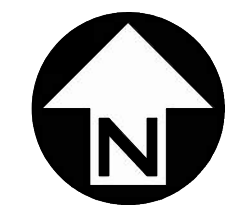
ROLLINGWOOD TEXAS  
K-FRIESE + ASSOCIATES  
PUBLIC PROJECT ENGINEERING  
1120 S. Capital of Texas Highway  
CityView 2, Suite 100  
Austin, Texas 78746  
P - 512.338.1704 F - 512.338.1784  
TPE Firm #6335  
www.kfriese.com

NOTES	NAME	DATE

SURVEY BY  
DRAWN BY KT 07/21  
DESIGNED BY AF 07/21  
CHECKED BY GE 07/21  
REVIEWED BY

CT501 29 OF 32





**EXISTING FEATURES**

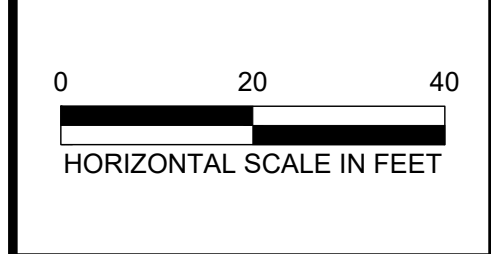
- CENTERLINE
- RIGHT OF WAY LINE
- PROPERTY LINE
- EASEMENT LINE
- BUILDING SETBACK LINE
- BACK OF CURB
- EDGE OF ASPHALT
- EDGE OF CONCRETE
- GUTTER
- CONCRETE PAVEMENT
- DRAINAGE FLOW LINE
- DITCH EDGE
- WOOD FENCE
- MAJOR CONTOURS
- MINOR CONTOURS
- GRADE BREAK
- PAVED PARKING / DRIVEWAY
- SLOPE TOP
- SLOPE BOTTOM
- WASTEWATER LINE
- WATER LINE
- ROCK WALL
- EXISTING RCP PIPE
- NATURAL GAS LINE
- ELECTRIC OVERHEAD
- ELECTRIC UNDERGROUND
- GUY WIRE
- WATER METER
- WATER VALVE
- SPRINKLER VALVE
- WASTEWATER MANHOLE
- CLEANOUT
- FIRE HYDRANT
- POWER POLE
- ELECTRIC JUNCTION BOX
- STOP SIGN
- MAILBOX
- TREE
- TREE WELL

REV. NO.	BY	DATE	REVISION DESCRIPTION

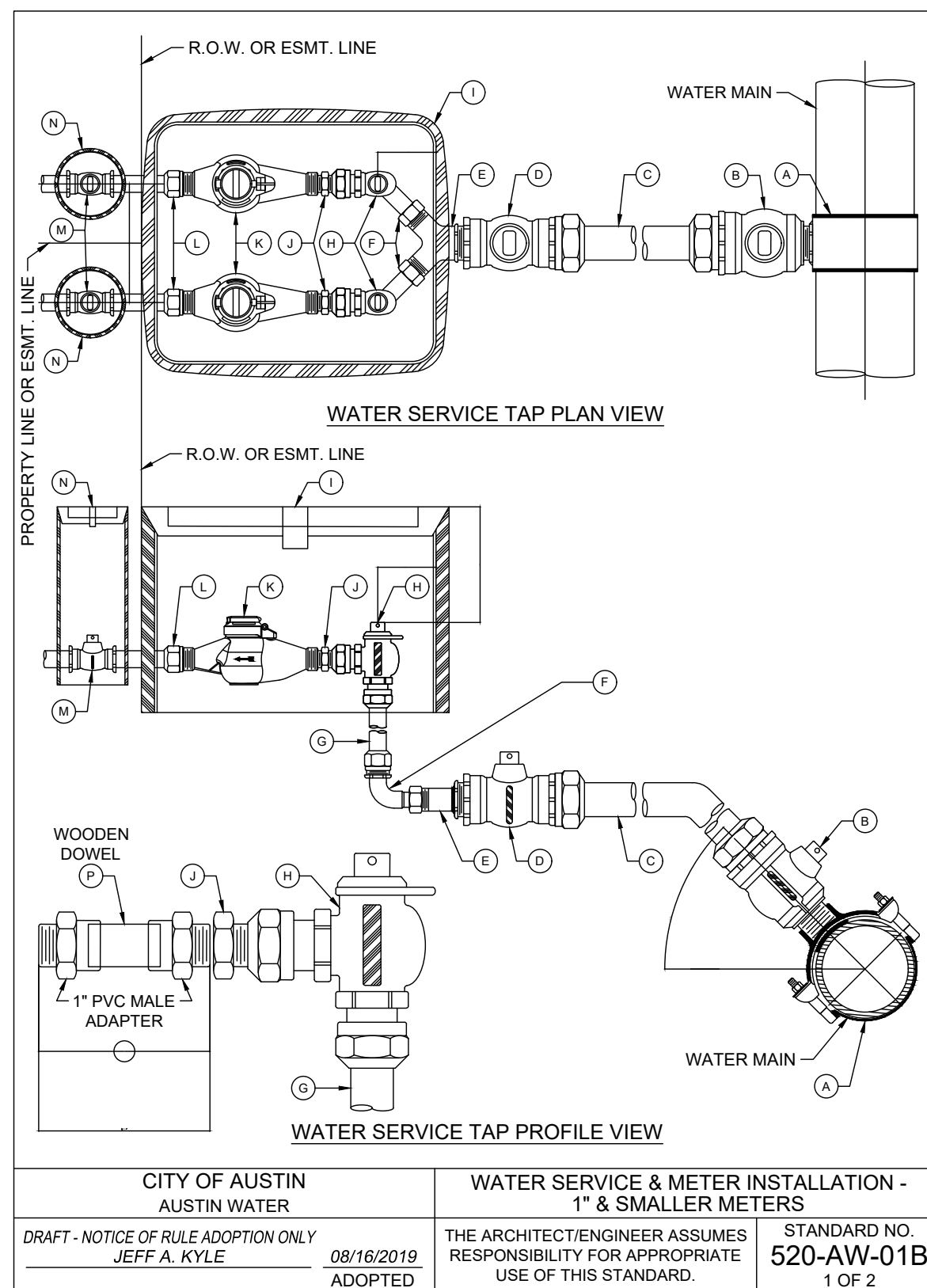
PUBLIC WORKS  
DEPARTMENT  
**CITY OF ROLLINGWOOD**  
**PROPOSED DRAINAGE IMPROVEMENTS**  
**WATER ABANDONMENT PLAN**

NOTES	NAME	DATE

SURVEY BY		
DRAWN BY	KT	07/21
DESIGNED BY	AF	07/21
CHECKED BY	GE	07/21
REVIEWED BY		



X:\PROJECTS\0603\_ROLLINGWOOD\_HUBBARD-HATLEY\_DRAINAGE\_IMPROVEMENTS\DESIGN\SHEETS\0603-ABANDON\_EXISTINGWATERLINE.DWG - CCA\_ESD.STB  
3/15/2023 12:20 PM  
GEOFFREY ELFERS



CITY OF AUSTIN AUSTIN WATER	WATER SERVICE & METER INSTALLATION - 1" & SMALLER METERS	STANDARD NO. <b>520-AW-01B</b> 1 OF 2
DRAFT - NOTICE OF RULE ADOPTION ONLY JEFF A. KYLE	08/16/2019 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.

CITY OF AUSTIN AUSTIN WATER	WATER SERVICE & METER INSTALLATION - 1" & SMALLER METERS	STANDARD NO. <b>520-AW-01B</b> 2 OF 2
DRAFT - NOTICE OF RULE ADOPTION ONLY JEFF A. KYLE	08/16/2019 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.

**MATERIALS LIST:**

A. 2" SERVICE CLAMP, SPL WW-264  
 B. 2" CORPORATION STOP, SPL WW-68  
 C. 2" HDPE WATER SERVICE TUBING, SPL WW-65  
 D. 2" BALL VALVE, SPL WW-68  
 E. SINGLE SERVICE: 2" MIP X 1" COPPER FLARE FITTING, SPL WW-68 OR DOUBLE SERVICE: 2" MIP X 1" COPPER FLARE WYE, SPL WW-68  
 F. 1" SWIVEL NUT X 1" COMPRESSION 90° BEND, SPL WW-68  
 G. 1" HDPE WATER SERVICE TUBING, SPL WW-65  
 H. 1" ANGLE METER STOP, SPL WW-68  
 I. METER BOX AND LID, SPL WW-145A;  
 FOR DUAL 1" METERS: USE TWO SINGLE METER BOXES

**MATERIALS TO BE INSTALLED BY PLUMBER:**

J. BRASS METER BUSHING - SIZE AS NEEDED TO CONNECT ANGLE METER STOP TO METER  
 K. WATER METER PURCHASED FROM AUSTIN WATER  
 L. BRASS WATER METER COUPLING MALE IPT X SWIVEL COUPLING NUT:  
 3/8" AND 1/2" METERS: 8 1/2" LONG X 3/4" DIA.  
 1" METERS: 8 3/4" LONG X 1" DIA.  
 M. PROPERTY OWNERS CUT OFF VALVE, SPL WW-276  
 N. PROPERTY OWNERS CUT OFF VALVE BOX AND LID  
 O. TEMPORARY METER SPACER (REQUIRED TO ASSURE METER WILL FIT APPROPRIATELY)  
 P. 1" WOODEN DOWEL (SHOW ADDRESS ON DOWEL USING WATERPROOF MARKER)

**NOTES:**

1. SERVICE CLAMP SHALL BE WRAPPED COMPLETELY WITH 8 MIL. POLYETHYLENE FILM, SPL WW-27D.  
 2. BRANCH CONNECTIONS AND ALL ANGLE METER STOPS MUST BE INSTALLED PRIOR TO ANY METER INSTALLATION.  
 3. TOP OF METER BOXES SHOULD BE 4" ABOVE GROUND.  
 4. PIPING AND TUBING IN STREET RIGHT-OF-WAY SHALL BE BEDDED IN GRANULAR MATERIALS AS REQUIRED BY SECTION 510.3 (14) OF THE CITY OF AUSTIN STANDARD SPECIFICATIONS; BACKFILL ABOVE GRANULAR BEDDING AS REQUIRED BY SECTION 510.3 (25).  
 5. METER BOX MUST BE BEHIND CURB NEXT TO PROPERTY LINE OR EASEMENT AND OUT OF VEHICULAR TRAFFIC AREA AND SIDEWALK.  
 6. BALL VALVE "D" SHALL NOT BE LOCATED UNDER SIDEWALK, CURB, OR PAVEMENT, AND NOT BE LOCATED MORE THAN 36" BELOW FINAL GRADE.  
 7. METER SIZES TO BE SHOWN ON PLANS.  
 8. METER BOX CUT OUTS SHALL NOT EXCEED TWO TIMES THE PIPE DIAMETER.  
 9. INSTALL METALLIC TRACER TAPE, SPL WW-597, MINIMUM 1" ABOVE TUBING FROM SERVICE CLAMP "A" TO BALL VALVE "D".  
 10. TUBING SHALL BE PLACED IN A STRAIGHT ALIGNMENT AND ALLOWED TO RELAX AND "SNAKE" LOOSELY IN THE TRENCH. TUBING BEHIND CURB AND GUTTER SHALL BE INSTALLED WITH A MINIMUM 2" DEPTH OF COVER.  
 11. 1" TUBING, WHEN BENT, SHALL HAVE A RADIUS NO SMALLER THAN 3". 2" TUBING, WHEN BENT, SHALL HAVE A RADIUS NO SMALLER THAN 5". BRASS FITTINGS SHALL NOT BE CONNECTED TO A BENT SECTION OF TUBING.  
 12. SOLID, TUBULAR STAINLESS STEEL INSERT STIFFENERS FOR HDPE TUBING SHALL BE USED AT ALL COMPRESSION FITTINGS. INSERT STIFFENERS SHALL BE FROM THE SAME MANUFACTURER AS THE COMPRESSION FITTING USED.  
 13. FOR RECLAIMED WATER SERVICES AND METERS, ALL RECLAIMED TUBING SHALL BE MANUFACTURED SOLID PURPLE, SPL WW-65A. ALL APPURTENANCES SHALL BE MANUFACTURED PURPLE IF AVAILABLE. ALL FITTINGS THAT ARE NOT AVAILABLE FROM THE MANUFACTURER IN PURPLE SHALL BE PAINTED PURPLE PER SPL WW-3C. ALL METER BOX LIDS SHALL BE PURPLE AND HAVE "RECLAIMED WATER" CAST INTO THEM, SPL WW-145A.

**STANDARD CONSTRUCTION NOTES**

1. THE CITY STANDARD CONSTRUCTION SPECIFICATIONS CURRENT AT THE TIME OF BIDDING SHALL COVER MATERIALS AND METHODS USED TO DO THIS WORK.
2. THE CONTRACTOR SHALL CONTACT THE AUSTIN AREA "ONE CALL" SYSTEM AT 1-800-344-8377 FOR EXISTING UTILITY LOCATIONS PRIOR TO ANY EXCAVATION IN ADVANCE OF CONSTRUCTION. THE CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL UTILITIES TO BE EXTENDED, TIED TO, OR ALTERED, OR SUBJECT TO DAMAGE/INCONVENIENCE BY THE CONSTRUCTION OPERATIONS. THE CITY OF AUSTIN WATER AND WASTEWATER MAINTENANCE RESPONSIBILITY ENDS AT R.O.W./EASEMENT LINES.
3. NO OTHER UTILITY SERVICE/APPURTENANCES SHALL BE PLACED NEAR THE PROPERTY LINE, OR OTHER ASSIGNED LOCATION DESIGNATED FOR WATER AND WASTEWATER UTILITY SERVICE THAT WOULD INTERFERE WITH THE WATER AND WASTEWATER SERVICES.
4. THE CITY SPECIFICATION ITEM 509S WILL BE REQUIRED AS A MINIMUM TRENCH SAFETY MEASURE.
5. ALL MATERIALS TESTS ORDERED BY THE OWNER FOR QUALITY ASSURANCE PURPOSES, SHALL BE CONDUCTED BY AN INDEPENDENT LABORATORY AND FUNDED BY THE OWNER IN ACCORDANCE WITH CITY STANDARD SPECIFICATION ITEM 1804S.04.
6. PRESSURE TAPS SHALL BE ALLOWED ON A CASE BY CASE BASIS, AS DETERMINED BY THE DIRECTOR'S DESIGNEE. NORMALLY PRESSURE TAPS 4 INCHES AND LARGER SHALL BE ALLOWED IN THE FOLLOWING CASES: A) A TEST SHUT OUT INDICATES AN ADEQUATE SHUT OUT TO PERFORM THE WORK IS NOT FEASIBLE B) MORE THAN 30 CUSTOMERS OR A SINGLE CRITICAL CUSTOMER (AS DEFINED BY AUSTIN WATER) WOULD BE IMPACTED BY THE SHUT OUT OR C) THE EXISTING WATER LINE WARRANTS IT.
7. THRUST RESTRAINT SHALL BE IN ACCORDANCE WITH CITY STANDARD SPECIFICATION ITEM 510.3(22) AND SPL WW 27-A and WW 27-F.
8. WATER LINE TESTING AND STERILIZATION SHALL BE PERFORMED IN ACCORDANCE WITH CITY STANDARD SPECIFICATION ITEMS 510.3 (27)-(29).
9. ALL MATERIAL USED ON THIS PROJECT MUST BE LISTED ON THE STANDARD PRODUCTS LISTING. ANY MATERIAL, NOT LISTED HAS TO GO THROUGH THE REVIEW OF THE STANDARDS COMMITTEE FOR REVIEW AND APPROVAL PRIOR TO START OF PROJECT. TESTING AND EVALUATION OF PRODUCTS ARE REQUIRED BEFORE APPROVAL WILL BE GIVEN ANY CONSIDERATION.
10. WHEN WATER SERVICES ARE DAMAGED AND THE SERVICE MATERIAL IS PE, THE LINE SHALL BE REPAIRED ONLY BY HEAT FUSION WELD OR REPLACED THE FULL LENGTH WITH TYPE K COPPER MATERIAL. ANY TIME PB IS DAMAGED OR TAMPHERED WITH IN ANY WAY, THE SERVICE LINE SHALL BE REPLACED FULL LENGTH WITH TYPE K COPPER MATERIAL. NOTE: FULL LENGTH IS FROM CORPORATION STOP TO METER.
11. WHEN AN EXISTING WATERLINE SHUT OUT IS NECESSARY AND POSSIBLE, THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION INSPECTOR WHO WILL THEN NOTIFY AUSTIN WATER DISPATCH AND THE AFFECTED CUSTOMERS A MINIMUM OF SEVENTY-TWO (72) HOURS IN ADVANCE.
12. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION INSPECTOR SO THAT HE CAN NOTIFY THE AUSTIN WATER AT 972-0000 AT A MINIMUM OF 72 HOURS PRIOR TO RELOCATING ANY DOMESTIC OR FIRE DEMAND WATER METERS. THE CONTRACTOR SHALL CAREFULLY REMOVE ALL METERS AND METERS BOXES THAT ARE INDICATED TO BE RELOCATED OR SALVAGED. THE CONTRACTOR SHALL INSTALL THE REMOVED METER OR CITY PROVIDED METER AT THE NEW LOCATION INDICATED ON THE CONSTRUCTION PLANS.
13. WATER AND WASTEWATER SERVICES WILL NEED TO BE REPLACED UP TO THE MAIN. REPAIR COUPLINGS ARE NOT ALLOWED ON NEW INSTALLATIONS.
14. THE CONTRACTOR SHALL VERIFY ALL VERTICAL AND HORIZONTAL LOCATIONS OF EXISTING UTILITIES, BELOW GROUND AND OVERHEAD, PRIOR TO STARTING ONSITE UTILITY WORK.
15. ALL WATER AND WASTEWATER MAINS SHALL BE INSTALLED IN ACCORDANCE WITH THE SEPARATION DISTANCES INDICATED IN CHAPTER 290 - DRINKING WATER STANDARDS, CHAPTER 217 - DESIGN CRITERIA FOR SEWERAGE SYSTEMS AND CHAPTER 210 - DESIGN CRITERIA FOR RECLAIMED SYSTEMS OF TCEQ RULES.
16. CONTRACTOR'S PERSONNEL THAT PERFORM BUTT FUSION AND ELECTROFUSION ON OR TO HDPE PIPE AND FITTINGS MUST HAVE CURRENT QUALIFICATION TRAINING CERTIFICATE ISSUED BY MCELROY OR COMPARABLE TRAINING PROGRAM.
17. VALVE STEM EXTENSIONS SHALL CONSIST OF A SINGLE PIECE OF IRON ROD OF THE REQUIRED LENGTH WITH A SOCKET ON ONE END AND NUT ON THE OTHER.
18. ALL POTABLE WATER SYSTEM COMPONENTS INSTALLED AFTER JANUARY 4, 2014, SHALL BE ESSENTIALLY "LEAD FREE" ACCORDING TO THE US SAFE DRINKING WATER ACT. EXAMPLES ARE VALVES (CORPORATION STOP, CURB STOP, AND PRESSURE REDUCING), NIPPLES, BUSHINGS, PIPE, FITTINGS, BACKFLOW PREVENTERS AND FIRE HYDRANTS. TAPPING SADDLES AND 2 INCH AND LARGER GATE VALVES ARE THE ONLY COMPONENTS EXEMPT FROM THIS REQUIREMENT. COMPONENTS THAT ARE NOT CLEARLY IDENTIFIED BY THE MANUFACTURER AS MEETING THIS REQUIREMENT EITHER BY MARKINGS ON THE COMPONENT OR ON THE PACKAGING SHALL NOT BE INSTALLED.
19. ALL EXISTING WATER METERS IDENTIFIED TO BE RELOCATED OR ABANDONED AT THE DEVELOPMENT, SHALL BE REMOVED FROM THE METER BOX PRIOR TO CONSTRUCTION AND GIVEN IMMEDIATELY TO THE CITY.
20. THE ENGINEER SHALL CALL OUT THE SIZE, TYPE AND USE (DOMESTIC OR IRRIGATION) OF ALL EXISTING WATER METERS TO BE RELOCATED OR REPURPOSED. WATER METER NUMBERS WILL NOT BE REQUIRED TO BE PLACED ON THE PLAN SHEET.
21. NO CONNECTION MAY BE MADE BETWEEN THE PRIVATE PLUMBING AND CITY WATER INFRASTRUCTURE UNTIL A CITY APPROVED WATER METER HAS BEEN INSTALLED.
22. METER BOXES AND CLEAN OUTS SHALL NOT BE LOCATED WITHIN PAVED AREAS SUCH AS DRIVEWAYS AND SIDEWALKS.

**PROJECT SPECIFIC NOTES:**

1. CONTRACTOR TO PROVIDE TREE PROTECTION FOR ANY TREE WITHIN 10' OF LIMITS OF WATER RELOCATION WORK.
2. LOCATION OF THE EXISTING WATER MAINS AND SERVICES ARE APPROXIMATE. CONTRACTOR OF FILED VERIFY THE LOCATIONS OF EXISTING UTILITIES PRIOR TO THE START OF CONSTRUCTION AND SHALL NOTIFY ENGINEER IMMEDIATELY IF DISCREPANCIES ARE FOUND.
3. CONTRACTOR SHALL COORDINATE WITH ENGINEER, CITY, AND PROPERTY OWNERS ON WATER METER LOCATIONS AND SERVICE ROUTING FROM METER TO THE CONNECTIONS TO THE EXISTING SERVICE LINES. PRIVATE CUSTOMER YARD PIPING SHALL NOT BE LOCATED OUTSIDE OF THE PROPERTY LIMITS THAT IT IS SERVING.
4. CONTRACTOR SHALL REMOVE AND REPLACE ALL LANDSCAPING, IRRIGATION LINE, FENCES, GATES, AND OTHER SURFACE FEATURES IMPACTED BY CONSTRUCTION, AND RETURN ALL FEATURES TO EQUAL OR BETTER CONDITIONS THAN EXISTING.
5. CONTRACTOR SHALL COORDINATE WITH ENGINEER AND CITY PRIOR TO ABANDONING EXISTING WATER LINES. SUFFICIENT NOTICE MUST BE PROVIDED TO PROPERTY OWNERS BEFORE DISRUPTING SERVICE.
6. WATER SERVICE YARD PIPING ON PRIVATE CUSTOMER SIDE OF THE METER MUST BE PERFORMED BY A PLUMBER LICENSED IN THE STATE OF TEXAS. BENDS AND CURVES IN YARD PIPING SHALL CODES AND PIPE MANUFACTURERS RECOMMENDATIONS.
7. ASPHALT PAVING, CONCRETE CURB, AND CONCRETE SIDEWALK SHALL BE REPLACED TO MATCH EXISTING CONDITIONS. ASPHALT PAVING SHALL BE SAW-CUT AND REPLACED AT A WIDTH OF 10-FEET. CURB AND SIDEWALK SHALL BE REPLACED TO THE NEAREST JOINT. REMOVAL AND REPLACEMENT OF THESE SURFACE FEATURES ARE SUBSIDIARY TO THE WATER METER RELOCATION BID ITEMS.



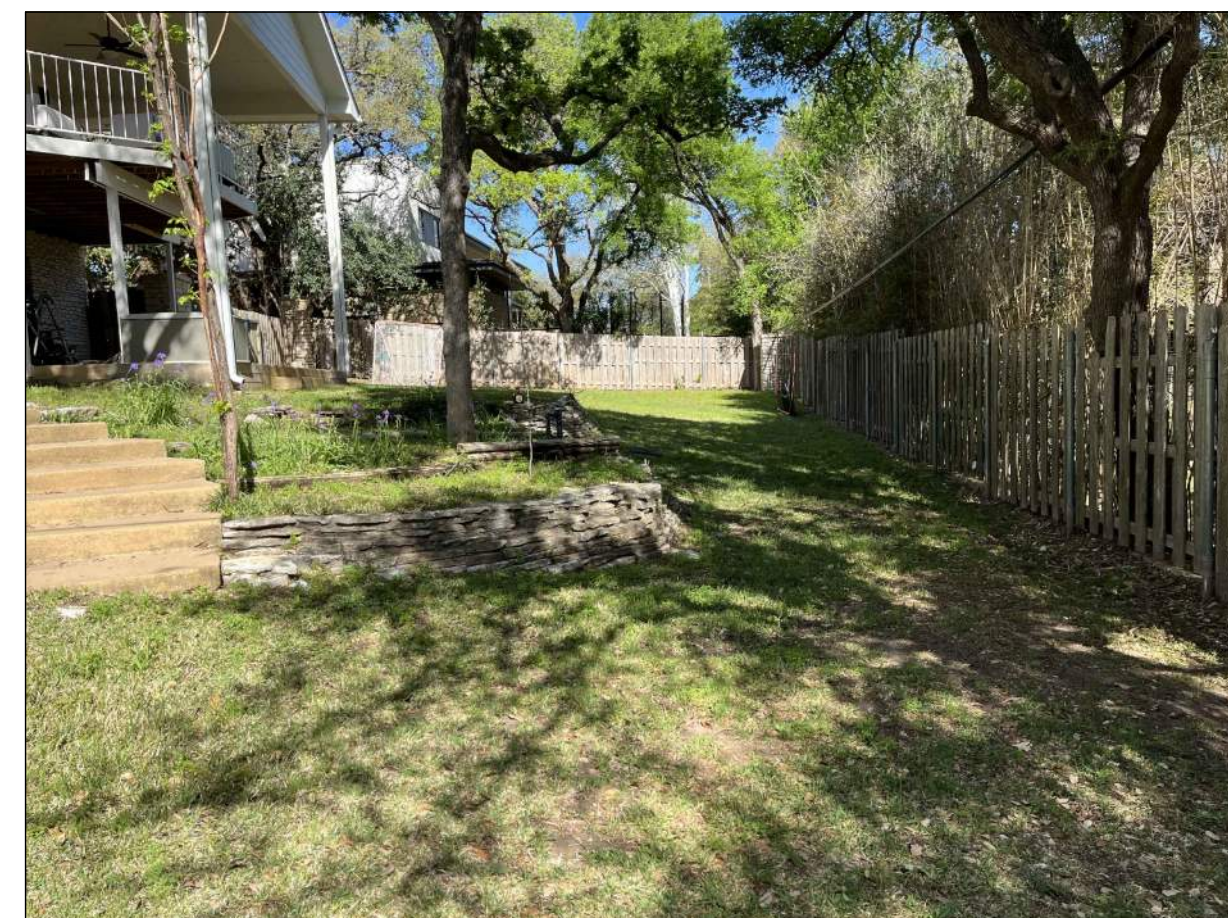
2803 HUBBARD CIRCLE FRONT YARD



2803 HUBBARD CIRCLE FRONT YARD



2803 HUBBARD CIRCLE BACK YARD



2803 HUBBARD CIRCLE BACK YARD

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CITY OF ROLLINGWOOD, TEXAS  
PUBLIC WORKS DEPARTMENT

CITY OF ROLLINGWOOD  
ROLLINGWOOD DRAINAGE IMPROVEMENTS

WATER DETAILS

**ROLLINGWOOD TEXAS**

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