

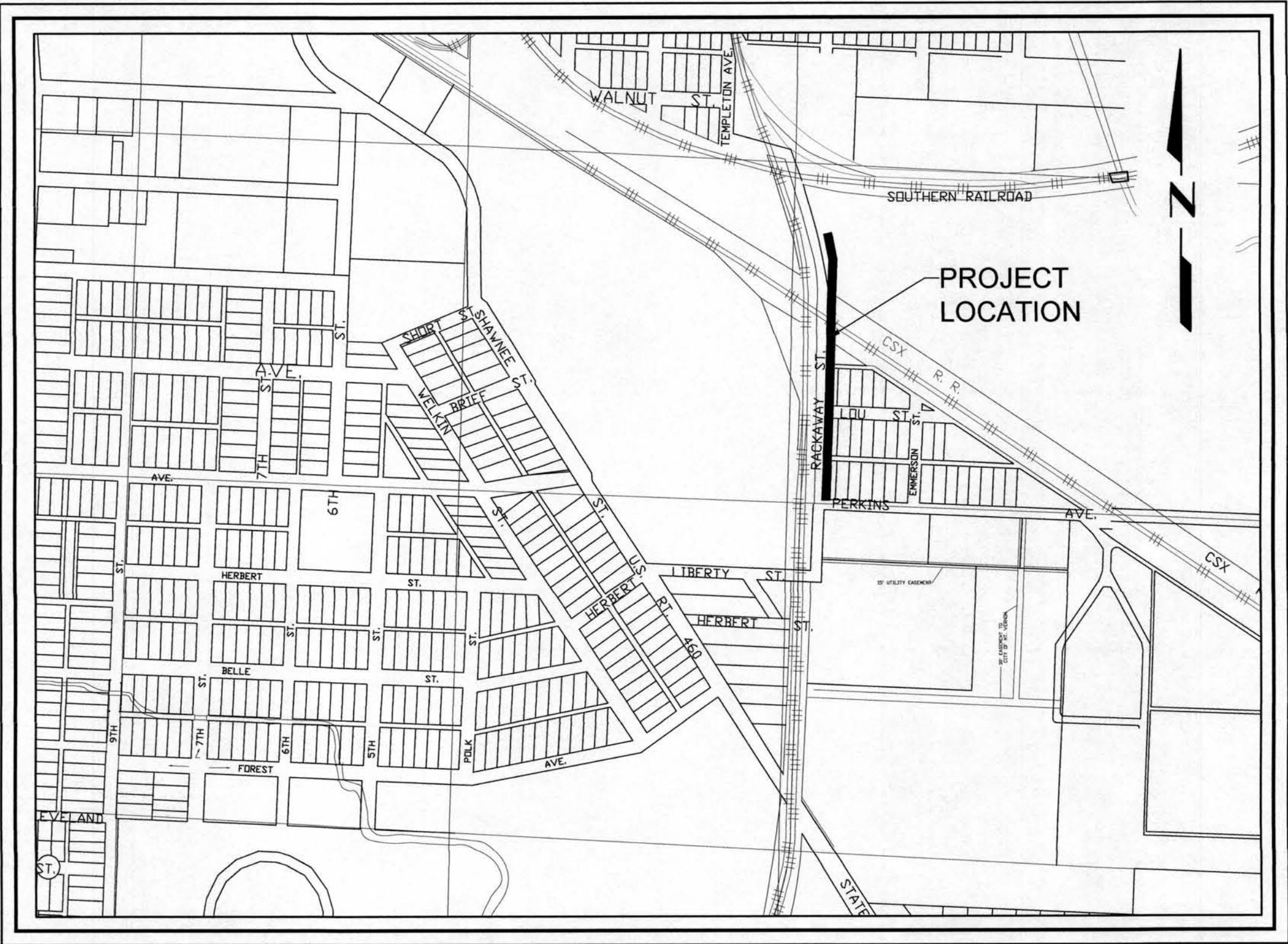
RACKAWAY STREET WATER MAIN EXTENSION

CITY OF MT. VERNON JEFFERSON COUNTY, ILLINOIS

FACILITY NUMBER: IL 0810300

IEPA PERMIT NUMBER: 0933-FY2017

DATE: October 16, 2017



LOCATION MAP

INDEX OF SHEETS

SHEET NO.	SHEET TITLE
1	COVER SHEET
2	LEGEND AND NOTES
3	RACKAWAY STREET WATER MAIN EXTENSION
4	RACKAWAY STREET WATER MAIN EXTENSION
5	WATER MAIN DETAILS



Contractor to contact JULIE prior to any excavation or demolition for the location of any pipes, cables, lines, mains, etc. The contractor shall also coordinate any disconnection required with the various utility companies and/or governmental agencies serving the site.

Underground facilities, structures and utilities have been plotted from available surveys and records. Their locations must be considered to be approximate only. It is possible there may be others, the existence of which is not presently known or shown. It is the contractor's responsibility to determine their existence and exact location and to avoid damage thereto.

DIG LOG#



CRAIG A. OLSEN
REG. ILLINOIS P.E. 0062-037102
EXPIRES NOVEMBER 30, 2017







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















DESIGN FIRM NUMBER 184-002692, EXPIRES APRIL 30, 2019


1004 STATE HWY. 16 JERSEYVILLE, ILLINOIS 62052 PHONE NO. (618) 498-6418 FAX NO. (618) 498-6410	838 EAST McCORD STREET CENTRALIA, ILLINOIS 62801 PHONE NO. (618) 533-6525 FAX NO. (618) 533-6552	310A VISION DRIVE COLUMBIA, ILLINOIS 62236 PHONE NO. (618) 281-8133 FAX NO. (618) 281-8290	5213 MAE DRIVE, SUITE D GODFREY, ILLINOIS 62035 PHONE NO. (618) 466-8076 FAX NO. (618) 466-8078
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 PLOTTED: 10/16/2017 @ 3:48:22 PM BY philip.s.gary

EXISTING	SYMBOLS	PROPOSED
	PROPERTY LINE	
	AIR CONDITIONING UNIT	
	BENCHMARK	
	BOLLARD	
	BUSH	
	CABLE TV PEDESTAL	
	DEADMAN	
	FENCE POST	
	SIGN	
	AREA INLET (IDOT)	
	CATCH BASIN (IDOT)	
	CURB INLET (IDOT)	
	INLET (TYPE A-B)	
	INLET (TYPE F)	
	INLET (TYPE G)	
	INLET (OPEN)	
	INLET (BEEHIVE)	
	STORM MANHOLE	
	FLOW ARROW	
	SANITARY MANHOLE	
	CLEANOUT	
	FLARED END SECTION	
	TREE (DECIDUOUS)	
	TREE (CONIFEROUS)	
	FIRE HYDRANT	
	WATER VALVE	
	WATER METER	
	ELECTRIC PEDESTAL	
	ELECTRIC TRANSFORMER	
	LIGHT POLE	
	POWER POLE	


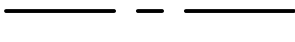
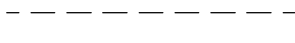



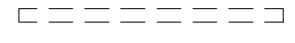
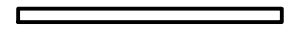








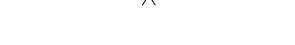









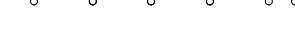
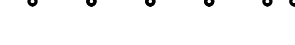










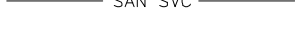

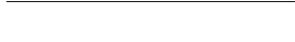





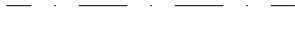
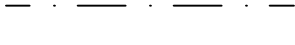


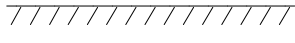
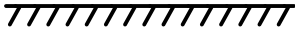



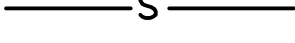

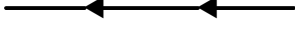










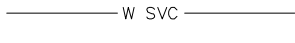

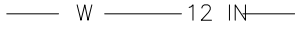
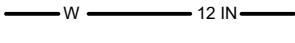
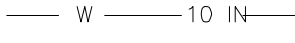
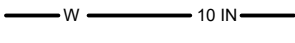

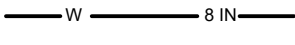
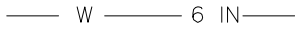
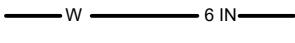
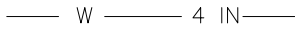
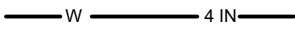

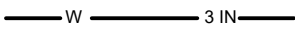

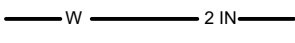
ABBREVIATIONS	
BC	BACK OF CURB
BM	BENCHMARK
BLDG	BUILDING
	CENTERLINE
CONC.	CONCRETE
CMP	CORRUGATED METAL PIPE
CF	CUBIC FEET
CY	CUBIC YARDS
CI	CURB INLET
DR	DRIVE
DI	DUCTILE IRON
ESMT	EASEMENT
EOA	EDGE ASPHALT
EOC	EDGE OF CONCRETE
ELEV.	ELEVATION
EXIST.	EXISTING
EJ	EXPANSION JOINT
FO	FIBEROPTIC LINE
FT	FEET
F&L	FRAME AND LID
FES	FLARED END SECTION
FB	FLAT BOTTOM
	FLOWLINE
GI	GRATED INLET
HDPE	HIGH-DENSITY POLYETHYLENE PIPE
IN	INCHES
INF	INFLOW
INV	INVERT
LA	LANE
LF	LINEAL FOOT
MAX	MAXIMUM

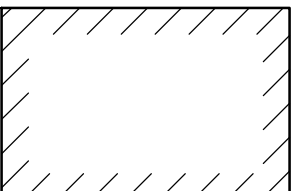
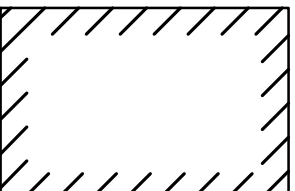
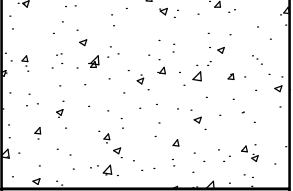
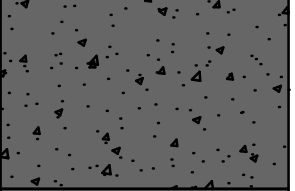
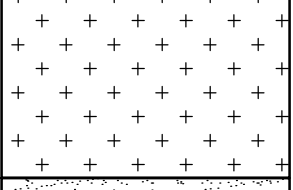
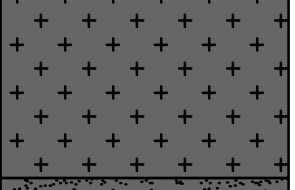
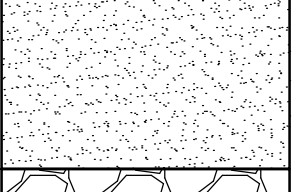
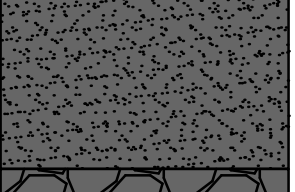
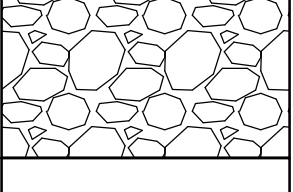
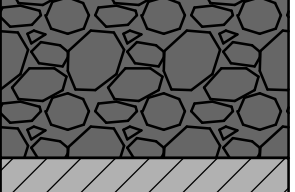

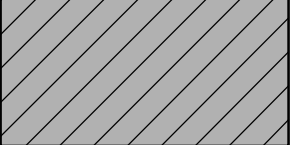
EXISTING	SYMBOLS	PROPOSED
	GUY WIRE	
	ELECTRIC METER	
	ELECTRIC MANHOLE	
	TELEPHONE PEDESTAL	
	TELEPHONE MANHOLE	
	TELEPHONE POLE	
	GAS METER	
	GAS VALVE	

ABBREVIATIONS	
MH	MANHOLE
MJ	MECHANICAL JOINT
MIN	MINIMUM
N/F	NOW AND FORMER
NO	NUMBER
O/C	OIL AND CHIP
OE	OVERHEAD ELECTRIC LINE
PG	PAGE
PVMT	PAVEMENT
POC	POINT OF COMMENCEMENT
POB	POINT OF BEGINNING
PC	POINT OF CURVATURE
PI	POINT OF INTERSECTION
PT	POINT OF TANGENT
PVC	POLYVINYL CHLORIDE
PE	PRIVATE ENTRANCE
	PROPERTY LINE
RR	RAILROAD
RCA	REINFORCED CONCRETE ELLIPTICAL ARCH PIPE
RCE	REINFORCED CONCRETE ELLIPTICAL PIPE
RCP	REINFORCED CONCRETE PIPE
ROW	RIGHT OF WAY
SAN	SANITARY
SF	SQUARE FEET
SY	SQUARE YARDS
STA	STATION
TBM	TEMPORARY BENCHMARK
TYP	TYPICAL
TOC	TOP OF CURB
TBA	TO BE ABANDONED
TBA&F	TO BE ABANDONED AND FILLED

ABBREVIATIONS	
TBR	TO BE REMOVED
TBR&R	TO BE REMOVED AND REPLACED
UIP	USE IN PLACE

BENCHMARK INFORMATION:
 HA1

EXISTING	LINE TYPES	PROPOSED
	CENTERLINE	
	CONCRETE ROADS & DRIVES	
	CONTOUR LINE	
	CULVERT (SIZE & MATERIAL)	
	EASEMENT	
	ELECTRIC	
	OVERHEAD ELECTRIC	
	ASPHALT ROADS & DRIVES	
	FENCE	
	DITCH FLOWLINE	
	FLAG (GUTTER)	
	GAS	
	GRAVEL ROADS & DRIVES	
	GUARD RAIL	
	RIGHT OF WAY	
	SIDEWALK	
	SANITARY SEWER MAIN	
	SANITARY SEWER LATERAL	
	SANITARY FORCEMAIN	
	SANITARY SERVICE	
	EXISTING PROPERTY LINE	
	SECTION LINE	
	SECTION LINE (QUARTER)	
	SETBACK	
	GRADING LIMITS	
	PERMANENT SEWER EASEMENT	
	TEMPORARY CONSTRUCTION EASEMENT	
	SILT FENCE	
	STORM SEWER	
	TELEPHONE	
	OVERHEAD TELEPHONE	
	FIBEROPTIC LINE	
	TREE LINE	
	WATER MAIN	
	WATER SERVICE	
	12" WATER MAIN	
	10" WATER MAIN	
	8" WATER MAIN	
	6" WATER MAIN	
	4" WATER MAIN	
	3" WATER MAIN	
	2" WATER MAIN	

EXISTING	HATCHING	PROPOSED
	BUILDINGS/STRUCTURES	
	CONCRETE	
	ASPHALT	
	GRAVEL	
	RIPRAP	
	PAVEMENT (TBR)	

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DESIGN FIRM NUMBER 184-002692,
 EXPIRES APRIL 30, 2019

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 F: (618) 498-6410

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 P: (618) 533-6525
 F: (618) 533-6652

☐ 310A VISION DRIVE
 COLUMBIA, IL 62236
 P: (618) 281-8133
 F: (618) 281-8290

☐ 5213 MAE DRIVE, SUITE D
 GODFREY, IL 62035
 P: (618) 466-8076
 F: (618) 466-8078

REVISIONS	DATE	NO.

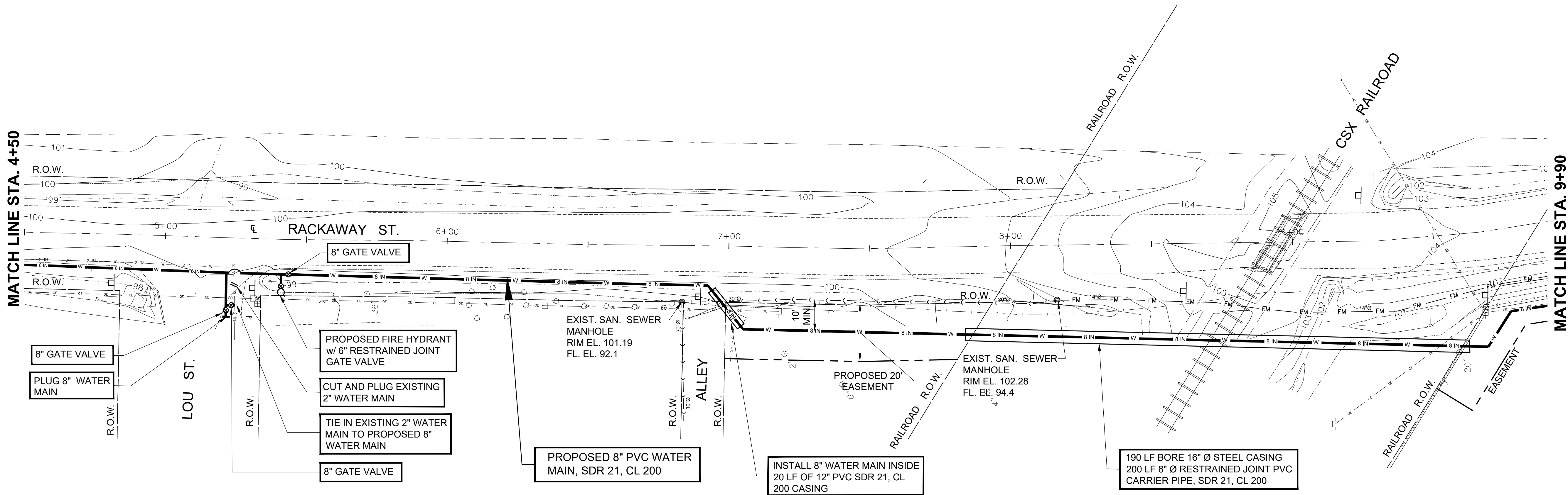
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LEGEND AND NOTES RACKAWAY STREET WATER MAIN EXTENSION	CITY OF MT. VERNON JEFFERSON COUNTY, ILLINOIS
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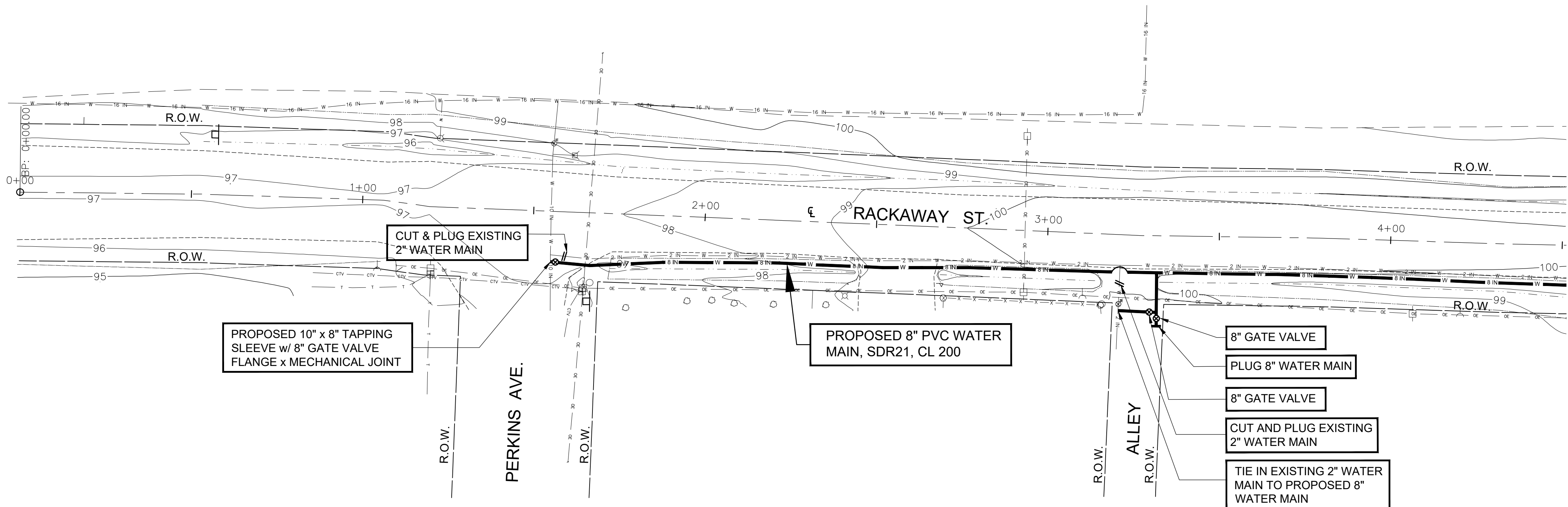
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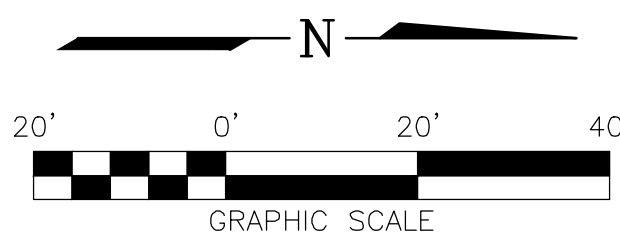
MATCH LINE STA. 4+50



MATCH LINE STA. 9+90



MATCH LINE STA. 4+50



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F: (618) 466-8078

NO.	DATE	REVISIONS

PLAN SHEET STA. 0+00 TO 9+50
RACKAWAY STREET WATER MAIN
EXTENSION

CITY OF MT. VERNON
JEFFERSON COUNTY, ILLINOIS

DRAWN BY: G.R.P.
CHECKED BY: C.A.O.
APPROVED BY: C.A.O.

HORIZONTAL SCALE:
1"=20'

VERTICAL SCALE:
N/A

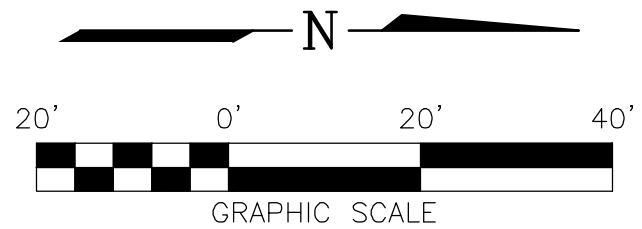
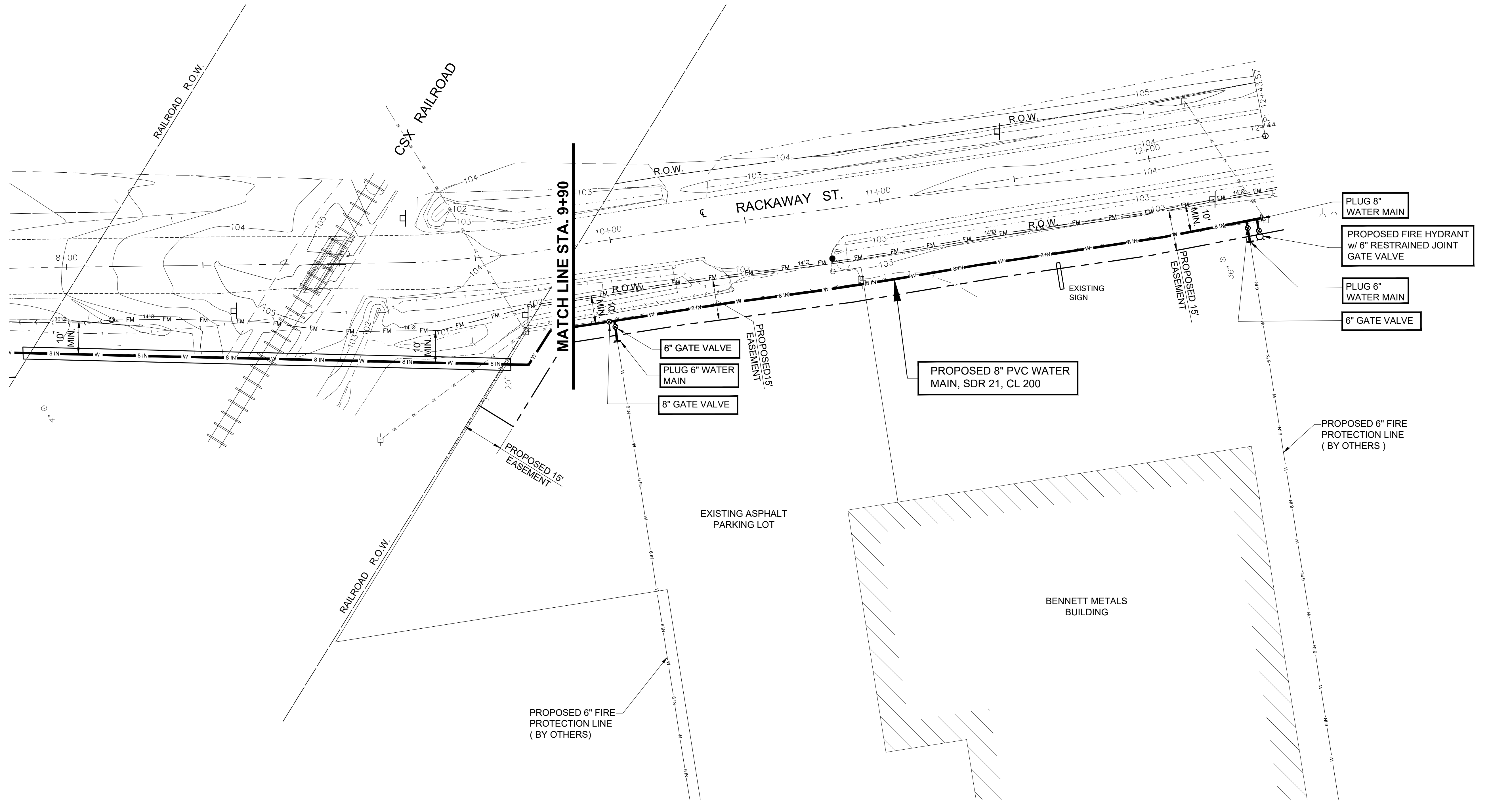
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40039-400

DATE:
10/16/17

SHEET NO.
3

3 OF 5 SHEETS

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EXPIRES APRIL 30, 2019

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GODFREY, IL 62035
P: (618) 466-8076
F: (618) 466-8078

REVISIONS	DATE	NO.			

PLAN SHEET - STA. 9+50 TO 12+44
RACKAWAY STREET WATER MAIN
EXTENSION

CITY OF MT. VERNON
JEFFERSON COUNTY, ILLINOIS

DRAWN BY:
CHECKED BY:
APPROVED BY:

G.R.P.
C.A.O.
C.A.O.

HORIZONTAL SCALE:
1"=20'

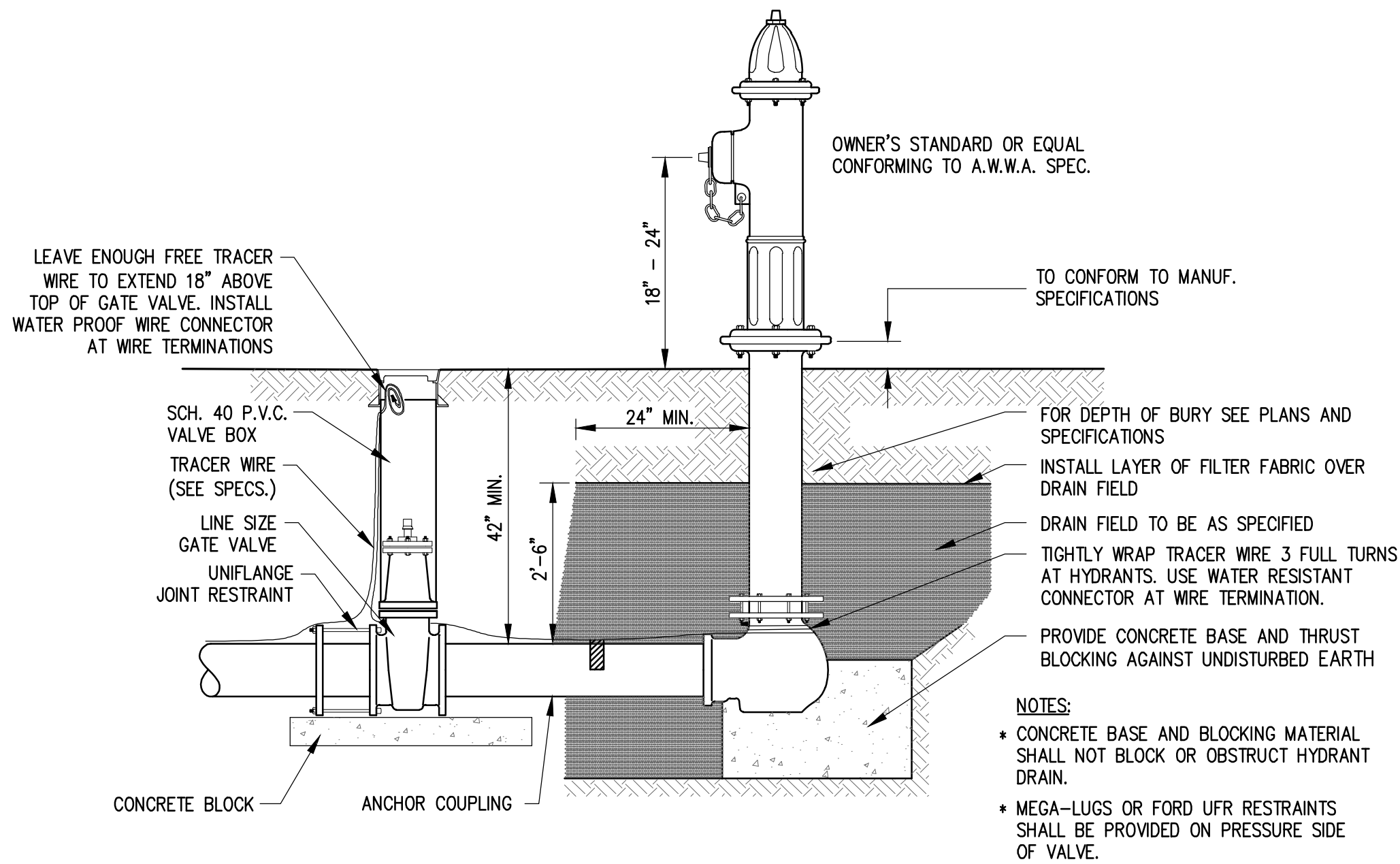
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PROJECT NO.
DATE:

40039-400
10/16/17

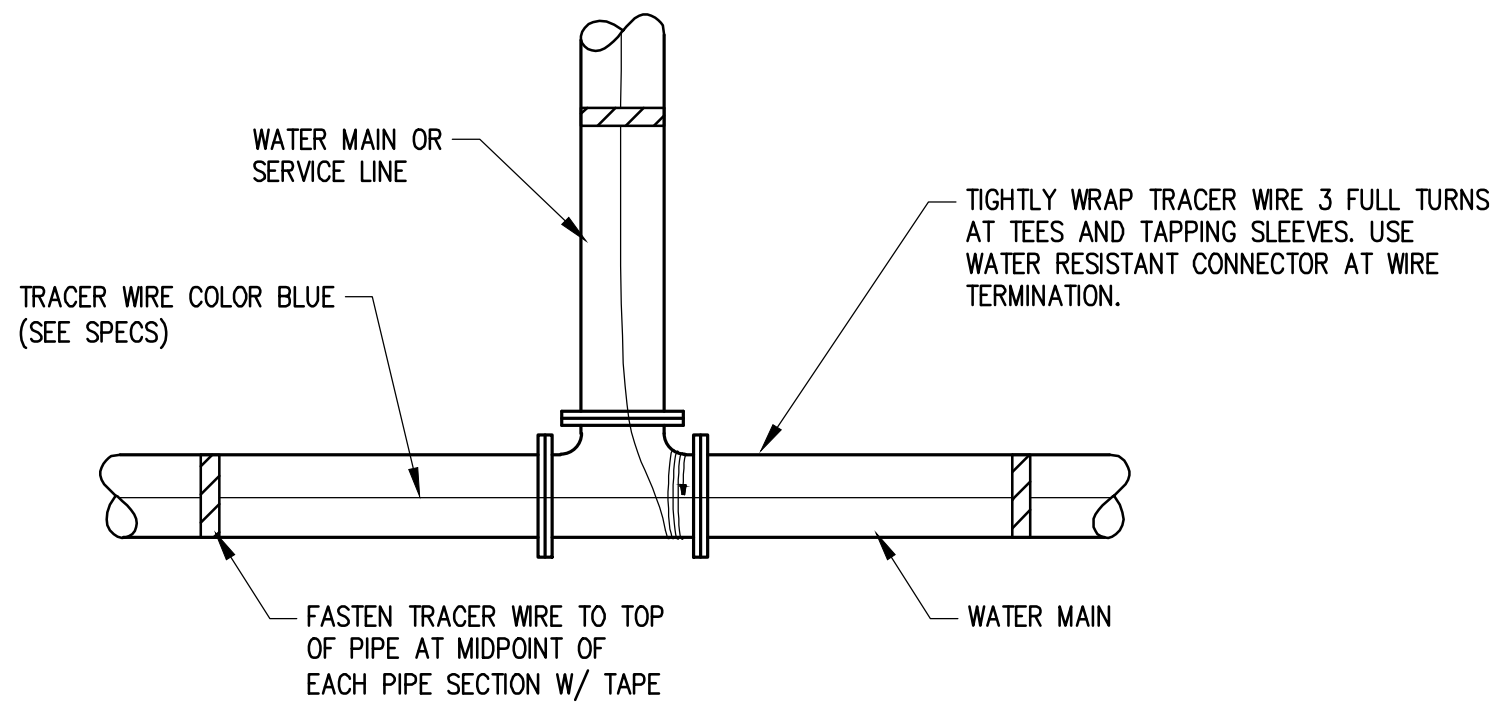
SHEET NO.
4

4 OF 5 SHEETS



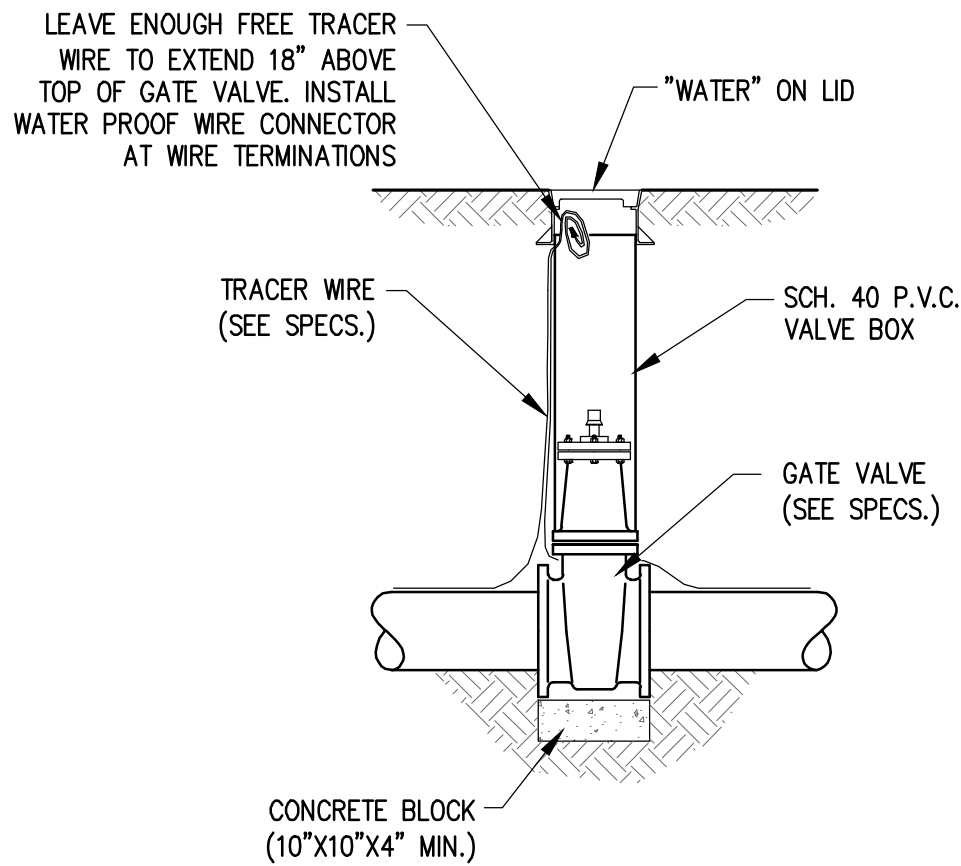
INLINE FLUSH HYDRANT & GATE VALVE DETAIL

SCALE: NONE



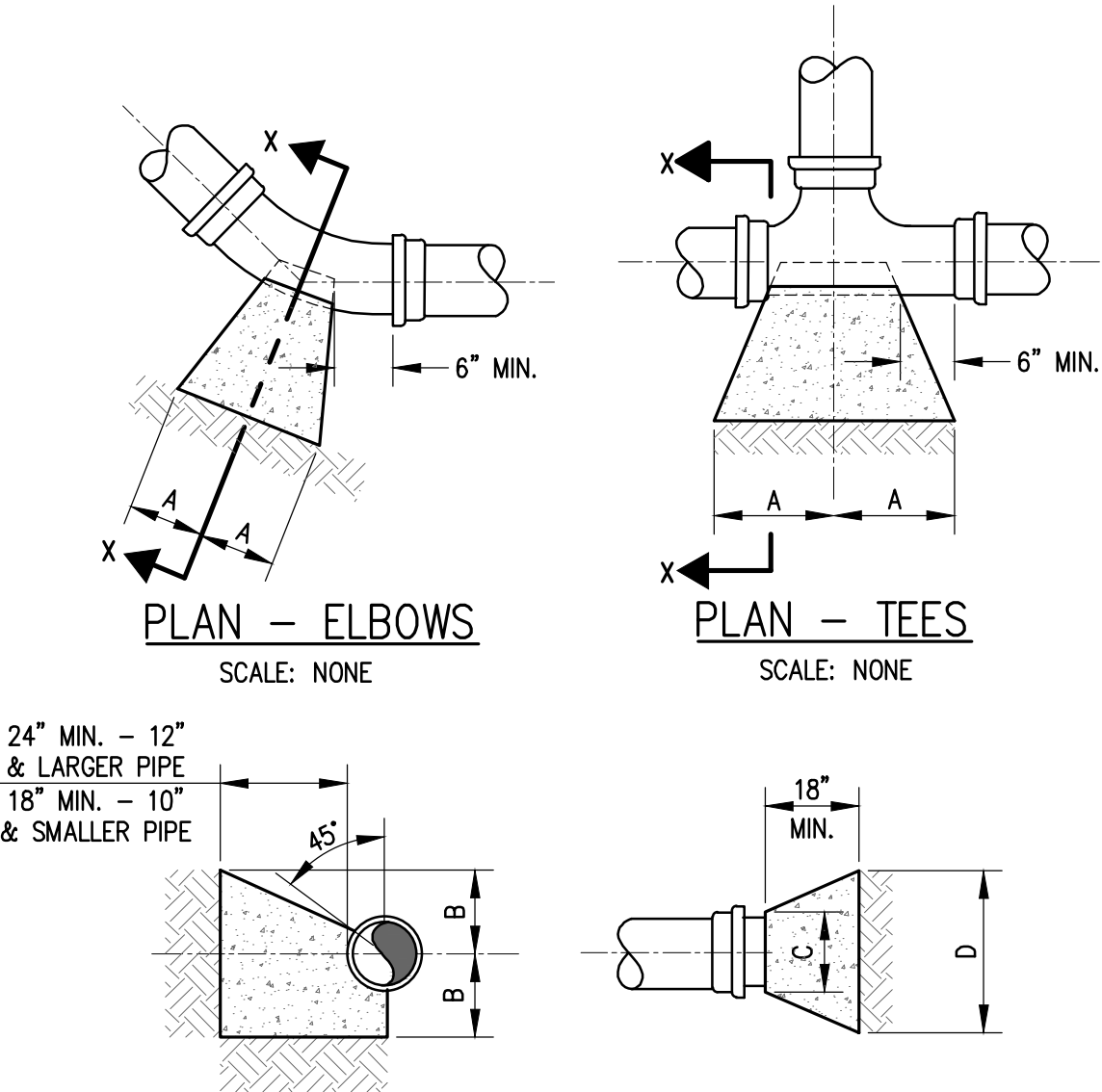
TRACER WIRE DETAIL

SCALE: NONE



TYPICAL GATE VALVE INSTALLATION

SCALE: NONE



TYPE	SIZE	1/4 BENDS		1/8 BENDS		1/16 BENDS		TEES		PLUGS	
		A	B	A	B	A	B	A	B	C	D
TYPE I 2000 PSF SOIL	4"	12"	8"	8"	8"	6"	8"	8"	10"	8"	18"
	6"	16"	10"	9"	10"	6"	8"	10"	12"	10"	21"
	8"	22"	13"	12"	13"	8"	10"	13"	16"	12"	29"
	10"	26"	17"	14"	17"	10"	13"	16"	20"	14"	36"
	12"	29"	21"	16"	21"	11"	16"	18"	24"	16"	41"
	14"	35"	24"	19"	24"	12"	20"	22"	27"	18"	48"
	16"	38"	27"	21"	27"	12"	24"	24"	30"	20"	54"

NOTE: BASED ON 100 PSI STATIC PRESSURE PLUS A.W.W.A. WATER HAMMER. ALL BEARING SURFACES TO BE CARRIED TO UNDISTURBED GROUND.

WATER MAIN THRUST BLOCK DETAILS

SCALE: NONE

WATER MAIN SPECIFICATIONS

- ALL WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH "STANDARD SPECIFICATIONS FOR WATER AND SEWER MAIN CONSTRUCTION IN ILLINOIS".
- THE CONTRACTOR SHALL BE TOTALLY RESPONSIBLE FOR COORDINATING THE WORK WITH THE UTILITY COMPANIES IN THE PROJECT AREA. THE UTILITIES SHOWN ARE FOR INFORMATIONAL PURPOSES ONLY AND THE OWNER AND THE ENGINEER DO NOT IMPLY THAT THE INFORMATION IS COMPLETE.

THE LOCATION OF EXISTING UNDERGROUND PIPING AND UTILITIES AS SHOWN ON THE PLANS HAS BEEN DETERMINED FROM AVAILABLE INFORMATION, AND HAS BEEN SHOWN ONLY FOR THE CONVENIENCE OF THE CONTRACTOR. THE CONTRACTOR MUST ASSUME RESPONSIBILITY FOR ALL EXISTING FACILITIES ENCOUNTERED DURING CONSTRUCTION WHETHER SHOWN OR NOT, AND MUST REALIZE THAT THE ACTUAL LOCATION OF UNDERGROUND PIPING AND UTILITIES MAY BE DIFFERENT FROM THAT SHOWN ON THE PLANS. ALL PROPOSED UNDERGROUND PIPING SHALL BE VERIFIED IN THE FIELD., WHERE NECESSARY, MINOR REVISIONS MAY BE NEEDED TO MATCH EXISTING WORK, AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED. CONTACT UTILITY OWNERS 48 HOURS PRIOR TO COMMENCING EXCAVATION. CONTACT J.U.L.I.E. AT 1-800-892-0123.
- MINIMUM COVER OVER THE TOP OF THE PROPOSED WATER MAIN PIPE SHALL BE NOT LESS THAN 3.5 FEET (42 INCHES).
- BURIED WATER MAIN PIPE FITTINGS SHALL BE MECHANICAL JOINT, DUCTILE IRON, 250 PSI PRESSURE RATING IN ACCORD WITH AWWA STANDARD C110 OR C153.
- PROVIDE SELECT GRANULAR BACKFILL BENEATH DRIVEWAYS AND ROADS WHERE THE WATER MAIN CROSSES BENEATH PAVED AREAS. SELECT GRANULAR BACKFILL SHALL EXTEND TO A POINT AT LEAST 4 FEET PAST THE EDGE OF EXISTING SURFACED AREAS. USE GRANULAR CRADLE UNDER PIPE WHERE IT IS BENEATH DRIVEWAYS AND STREETS.
- THE WATER MAIN SHALL BE SUBJECTED TO A HYDROSTATIC PRESSURE TEST USING 100 PSI MINIMUM PRESSURE. IF EXPOSED SECTIONS OF PIPE ARE TESTED, THE MINIMUM TEST DURATION SHALL BE 6 HOURS. NO PIPE WILL BE ACCEPTED UNLESS AND UNTIL THE LEAKAGE, DETERMINED UNDER THE SPECIFIED TEST PRESSURE IS LESS THAN COMPUTED WITH THE FOLLOWING FORMULA:
$$L = \frac{ND(P)^{0.5}}{7400}$$

L= ALLOWABLE LEAKAGE, GALLONS PER HOUR.
N= NUMBER OF JOINTS IN LINE BEING TESTED.
D= PIPE DIAMETER, INCHES.
P= AVERAGE TEST PRESSURE, PSI
- EXCEPT WHERE NOTED OTHERWISE, WATER MAIN PIPE SHALL BE PVC, SDR 21, CLASS 200 WITH PUSH ON COMPRESSION GASKETED JOINTS. PVC PIPE WILL CONFORM TO THE LATEST REVISION OF ASTM SPECIFICATIONS D2241 AND D1784.
- THE PROPOSED WATER MAIN SHALL BE THOROUGHLY DISINFECTED WITH CHLORINE. MINIMUM CHLORINE DOSAGE OF 50 MG/L SHALL BE APPLIED FOR A PERIOD OF AT LEAST 24 HOURS. AT THE END OF THE 24 HOUR PERIOD, A MINIMUM OF 25 MG/L CHLORINE RESIDUAL SHALL BE PRESENT. AFTER FLUSHING, BACTERIOLOGICAL SAMPLES SHALL BE COLLECTED AND ANALYZED BY A CERTIFIED LABORATORY ON AT LEAST 2 CONSECUTIVE DAYS IN ACCORDANCE WITH THE MOST CURRENT IEPA TECHNICAL POLICY STATEMENTS. AFTER RECEIPT OF SATISFACTORY SAMPLE RESULTS ON 2 CONSECUTIVE DAYS, THE OWNER SHALL COMPLETE THE OPERATING PERMIT APPLICATION FORM AND SUBMIT IT TO IEPA. AFTER RECEIPT OF THE OPERATING PERMIT, THE LINES SHALL BE FLUSHED AGAIN AND PLACED INTO SERVICE. CONFORM WITH AWWA STANDARD C-651 FOR STERILIZATION OF PLASTIC PIPE.
- CONFINE OPERATIONS WITHIN ROAD RIGHT-OF-WAY. DO NOT ENCROACH ONTO PRIVATE PROPERTY WITHOUT WRITTEN PERMISSION OF PROPERTY OWNER
- HORIZONTAL SEPARATION – WATER MAINS AND SEWERS**
 - WATER MAINS SHALL BE LOCATED AT LEAST TEN FEET HORIZONTALLY FROM ANY EXISTING OR PROPOSED DRAIN, STORM SEWER, SANITARY SEWER, COMBINED SEWER OR SERVICE CONNECTION.
 - WATER MAINS MAY BE LOCATED CLOSER THAN TEN FEET TO A SEWER LINE WHEN:
 - LOCAL CONDITIONS PREVENT A LATERAL SEPARATION OF TEN FEET; AND
 - THE WATER MAIN INVERT IS AT LEAST 18 INCHES ABOVE THE CROWN OF THE SEWER; AND
 - THE WATER MAIN IS EITHER IN A SEPARATE TRENCH OR IN THE SAME TRENCH OR AN UNDISTURBED EARTH SHELF LOCATED TO ONE SIDE OF THE SEWER.
 - WHEN IT IS IMPOSSIBLE TO MEET (1) OR (2) ABOVE, BOTH THE WATER MAIN AND DRAIN OR SEWER SHALL BE CONSTRUCTED OF MECHANICAL JOINT DUCTILE IRON PIPE, OR PVC PIPE EQUIVALENT TO WATER MAIN STANDARDS OF CONSTRUCTION. THE DRAIN OR SEWER SHALL BE PRESSURE TESTED TO THE MAXIMUM EXPECTED SURCHARGE HEAD BEFORE BACK FILLING
 - WATER MAINS SHALL BE SEPARATED FROM SEPTIC TANKS, DISPOSAL FIELDS, AND SEEPAGE BEDS BY A MINIMUM OF 25 FEET.
- VERTICAL SEPARATION – WATER MAINS AND SEWERS**
 - A WATER MAIN SHALL BE LAID SO THAT ITS INVERT IS A MINIMUM OF 18 INCHES ABOVE THE CROWN OF THE DRAIN OR SEWER WHENEVER WATER MAINS CROSS STORM SEWERS, SANITARY SEWERS OR SEWER SERVICE CONNECTIONS. THE VERTICAL SEPARATION SHALL BE MAINTAINED FOR THAT PORTION OF THE WATER MAIN LOCATED WITHIN TEN FEET HORIZONTALLY OF ANY SEWER OR DRAIN CROSSED. A LENGTH OF WATER MAIN PIPE SHALL BE CENTERED OVER THE SEWER TO BE CROSSED WITH JOINTS EQUIDISTANT FROM THE SEWER OR DRAIN.
 - BOTH THE WATER MAIN AND SEWER SHALL BE CONSTRUCTED OF MECHANICAL JOINT DUCTILE IRON PIPE, OR PVC PIPE EQUIVALENT TO WATER MAIN STANDARDS OF CONSTRUCTION WHEN:
 - IT IS IMPOSSIBLE TO OBTAIN THE PROPER VERTICAL SEPARATION AS DESCRIBED IN (1) ABOVE; OR
 - THE WATER MAIN PASSES UNDER A SEWER OR DRAIN.
 - A VERTICAL SEPARATION OF 18 INCHES BETWEEN THE INVERT OF THE SEWER OR DRAIN AND THE CROWN OF THE WATER MAIN SHALL BE MAINTAINED WHERE A WATER MAIN CROSSES UNDER A SEWER. SUPPORT THE SEWER OR DRAIN LINES TO PREVENT SETTLING AND BREAKING THE WATER MAIN, AS SHOWN ON THE PLANS OR AS APPROVED SHOWN ON THE PLANS OR AS APPROVED BY THE ENGINEER.
 - CONSTRUCTION SHALL EXTEND ON EACH SIDE OF THE CROSSING UNTIL THE PERPENDICULAR DISTANCE FROM THE WATER MAIN TO THE SEWER OR DRAIN LINE IS AT LEAST TEN FEET.
- GATE VALVES SHALL BE CAPABLE OF A MINIMUM WORKING PRESSURE OF 200 PSI. AND SHALL BE MADE BY MUELLER OR EQUAL, TO BE FURNISHED WITH U.S. MANUFACTURING ADJUSTABLE C.I. BOX, PVC BOXES ARE NOT ACCEPTABLE.
- FIRE HYDRANTS SHALL BE EQUIPPED WITH FULL LINE SIZE SHOE TO MATCH LINE INSTALLED ON, BE EQUIPPED WITH (2) 2 1/2" OUTLET NOZZLES, (1) 4 1/2" OUTLET NOZZLE, 4' BURY (MIN.), 5 1/4" VALVE OPENING, MUELLER, M & H , OR EQUAL.
- ALL WORK WILL BE PERFORMED BY THE CITY AND/OR UNDER THE SUPERVISION OF THE CITY OPERATOR AND/OR MANAGER.

HENEGHAN &
ASSOCIATES, P.C.



ENGINEERS-SURVEYORS

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DESIGN FIRM NUMBER 184-002692,
EXPIRES APRIL 30, 2019

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NO.	DATE	REVISIONS				

WATER MAIN DETAILS
RACKAWAY STREET WATER MAIN
EXTENSION

CITY OF MT. VERNON
JEFFERSON COUNTY, ILLINOIS

DRAWN BY: G.R.P.
CHECKED BY: C.A.O.
APPROVED BY: C.A.O.

HORIZONTAL SCALE:
N/A

VERTICAL SCALE:
N/A

PROJECT NO.
40039-400

DATE:
10/16/17

SHEET NO.
5

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