THE CONSTRUCTION PLANS
FOR
2004 WATER MAIN REPLACEMENT PROJECTS

BOROUGH OF MADISON
MORRIS COUNTY, NEW JERSEY

SCALE AS INDICATED APRIL, 2004

BOROUGH COUNCIL

ELLWOOD R. KERKESLAGER, Mayor
ASTRI J. BAILLIE, Council President
MARY-ANNA HOLDEN, Council Member
DONALD J. BOWEN, Council Member
CARMELA VITALE, Council Member
SAM MANTONE, Council Member
JOHN M. ELIAS, Council Member

UTILITY COMPANIES	
GAS – PUBLIC SERVICE ELECTRIC & GAS	(908) 522-7411
SEWER – BOROUGH OF MADISON	(973) 593-3088
ELECTRIC – BOROUGH OF MADISON	(973) 593-3091
WATER – BOROUGH OF MADISON	(973) 593-3092
TELE – VERIZON	(800) 427-9977
CABLE – CABLEVISION	(973) 884-2293
N.J. ONE CALL	(800) 272-1000

NOTE:

LOCATION OF UTILITIES AS SHOWN ON THESE PLANS ARE PLOTTED FROM AVAILABLE DATA ON FILE WITH THE UTILITY COMPANIES AND FIELD OBSERVATIONS BY THE BOROUGH ENGINEERING DEPARTMENT AND ARE NOT GUARANTEED AS TO EXACTNESS. THE CONTRACTOR IS TO CONTACT UTILITY COMPANIES 72 HOURS PRIOR TO CONSTRUCTION TO DETERMINE EXACT LOCATION AND DEPTH OF ALL UTILITIES IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL USE THE UTILITY LOCATIONS AS AN AID IN DETERMINING EXACT UTILITY LOCATIONS.

BOROUGH ADMINISTRATOR
JAMES R. ALLISON

BOROUGH ENGINEER
ROBERT A. VOGEL, P.E., C.M.E.

BOROUGH ATTORNEY
JOSEPH MEZZACCA, JR., ESQ.

WATER DEPARTMENT FOREMAN
SALATORE DeBIASSE

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2001 STANDARD SPECIFICATIONS FOR ROAD & BRIDGE CONSTRUCTION
CURRENT NJDOT SUPPLEMENTAL SPECIFICATIONS
AND CURRENT A.W.W.A STANDARDS TO GOVERN

BOROUGH OF MADISON
DEPARTMENT OF ENGINEERING
HARTLEY DODGE MEMORIAL
MADISON, MORRIS COUNTY, N.J. 07940
(973) 593-3060

DATE

ROBERT A. VOGEL, P.E.
PROFESSIONAL ENGINEER N.J. LIC. NO. 34463

TITL2004.DWG – 4-30-2004

NO.	REVISIONS	DATE	BY	CHK.	APPR

2004 WATER MAIN IMPROVEMENTS LOCATION PLAN

BOROUGH OF MADISON
DEPARTMENT OF ENGINEERING
HARTLEY DODGE MEMORIAL
MADISON, MORRIS COUNTY, N.J. 07940
(973) 593-3060

DATE

ROBERT A. VOGEL, P.E.
PROFESSIONAL ENGINEER N.J. LIC. NO. 34463

SCALE:	1" = 800'±
DATE:	4-30-04
DR. BY:	D. BUCK
DWG. NO.	2 of 10

2004 WATER MAIN IMPROVEMENTS

ESTIMATE & DISTRIBUTITION OF QUANTITIES

ITEM NO.	ITEM DESCRIPTION	UNIT	KINGS ROAD PROJECT "1" APPROX. QUANTITIES	HILLSIDE AVENUE PROJECT "2" APPROX. QUANTITIES	PROJECT TOTAL APPROX. QUANTITIES
1	MAINTENANCE AND PROTECTION OF TRAFFIC	L.S.	100%	100%	100%
2	POLICE TRAFFIC DIRECTORS	MAN HRS.	120	40	160
3	BITUMINOUS CONCRETE SURFACE, MIX I-5, 2" THICK	TONS	30	120	150
4	BITUMINOUS STABILIZED BASE, MIX I-2, 6" THICK	TONS	350	350	700
5	DENSE GRADED AGGREGATE BASE COURSE, 6" THICK	S.Y.	1,000	1,020	2,020
6	MILLING, 2" THICK	S.Y.	200	1,000	1,200
7	DUCTILE IRON PIPE, 8" DIA, CLASS 52	L.F.	1,720	2,000	3,720
8	GATE VALVE, 8 INCH	EACH	12	10	22
9	WATER SERVICE CONNECTION, 1 INCH	EACH	40	29	69
10	CORPORATION STOP, 1 INCH	EACH	40	29	69
11	FIRE HYDRANT ASSEMBLY	UNIT	3	3	6
12	ABANDON WATER MAIN	L.S.	100%	100%	100%
13	RESET WATER VALVE	EACH	3	4	7
14	MISC. BENDS, REDUCERS, CLAMPS, RODS & FITTINGS	EACH	30	10	40
15	UNCLASSIFIED ROADWAY EXCAVATION	C.Y.	1,450	1,800	3,250
16	SELECT BACKFILL (IF AND WHERE DIRECTED)	C.Y.	1,000	200	1,200
17	TEST PITS	C.Y.	50	50	100
18	LANDSCAPE RESTORATION	L.S.	100%	100%	100%

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2004 WATER MAIN IMPROVEMENTS
ESTIMATE & DISTRIBUTITION
OF QUANTITIES

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DATE:	4-30-04
DR. BY:	D.C.B.
DWG. NO.	3 of 10

GENERAL NOTES

1) THE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 1989 EDITION, AS PUBLISHED BY THE NEW JERSEY STATE HIGHWAY DEPARTMENT, THE PLANS, TECHNICAL SPECIFICATIONS, ADVERTISEMENT, CONTRACTOR'S PROPOSAL AND INCLUDING BUT NOT LIMITED TO THE AMENDMENTS CONTAINED HEREINAFTER SHALL COMPRISE THE CONTRACT.

2) THE CONTRACTOR IS TO REFER TO THE SUPPLEMENTAL SPECIFICATION, WHICH INDICATES WHEN THE STANDARD SPECIFICATIONS, AND/OR THE AMENDMENTS THAT FOLLOW SHOULD APPLY.

3) THE CONTRACTOR SHALL COMPLY WITH ALL LAWS, ORDINANCES, RULES, ORDERS AND REGULATIONS RELATING TO THE PERFORMANCE OF THE WORK, THE PROTECTION OF ADJACENT PROPERTY AND THE MAINTENANCE OF PASSAGEWAYS.

4) NO CONSTRUCTION, MAINTENANCE OR UTILITY WORK ON, UNDER OR ABOVE THE PROJECT ROAD THAT WILL OBSTRUCT, INTERFERE WITH AND/OR DETOUR TRAFFIC ON THE ROAD, SHALL BE PERFORMED BEFORE THE HOUR OF 7:00 OR AFTER 5:00 PM. THE CONTRACTOR'S WORK HOURS SHALL CONFORM TO LOCAL ORDINANCE. THE CONTRACTOR SHALL NOT DEVIATE FROM THE ABOVE WORK HOURS WITHOUT OBTAINING WRITTEN PERMISSION FROM THE CHIEF OF POLICE PRIOR TO THE START OF CONSTRUCTION.

5) EACH AND EVERY PROVISION OF LAW AND CLAUSE REQUIRED BY LAW TO BE INSERTED IN THIS CONTRACT SHALL BE READ AND ENFORCED AS THOUGH IT WERE INCLUDED HEREIN, AND IF THROUGH MISTAKE OR OTHERWISE ANY SUCH PROVISION IS NOT INSERTED, OR IS NOT CORRECTLY INSERTED, THEN UPON THE APPLICATION OF EITHER PARTY, THE CONTRACT SHALL FORTHWITH BE PHYSICALLY AMENDED TO MAKE SUCH INSERTION OR CORRECTION.

6) THE CONTRACTOR WILL BE FURNISHED WITH FIVE (5) SETS OF PLANS AND SPECIFICATIONS. ONE (1) COPY OF THE PLANS AND SPECIFICATIONS FURNISHED TO THE CONTRACTOR MUST BE KEPT CONSTANTLY ON THE PROJECT SITE. ANYTHING SHOWN ON THE PLANS AND NOT MENTIONED IN THE SPECIFICATIONS, OR MENTIONED IN THE SPECIFICATIONS AND NOT SHOWN ON THE PLANS, AND ALL WORK AND MATERIALS NECESSARY FOR THE COMPLETION OF THE WORK ACCORDING TO THE INTENT AND MEANING OF THE CONTRACT DOCUMENTS, SHALL BE FURNISHED, PERFORMED AND DONE, AS IF THE SAME WERE BOTH MENTIONED IN THE SPECIFICATIONS AND SHOWN ON THE DRAWINGS. ANY CONFLICT OR INCONSISTENCY BETWEEN THE PLANS AND SPECIFICATIONS, OR ANY DISCREPANCY BETWEEN THE FIGURES AND SCALE OF DRAWINGS SHALL BE SUBMITTED BY THE CONTRACTOR TO THE ENGINEER AS TO WHICH SPECIFICATIONS WILL GOVERN WILL BE CONCLUSIVE AND FINAL.

7) IN THE EVENT THE MEANING OF ANY PORTION OF THE SPECIFICATIONS OR DRAWINGS OR ANY SUPPLEMENTARY DRAWINGS OR INSTRUCTIONS OF THE ENGINEER IS DOUBTFUL, THE SAME SHALL BE UNDERSTOOD TO CALL FOR THE BEST TYPE OF CONSTRUCTION, BOTH AS TO MATERIALS AND WORKMANSHIP, WHICH REASONABLY CAN BE INTERPRETED.

8) IN THE EVENT A SITUATION ARISES IN WHICH MATERIALS NOT SPECIFIED ON THE PLANS OR INDICATED IN THE SUPPLEMENTAL SPECIFICATION AARE TO BE USED FOR EXTRA WORK, THEN THE STANDARD SPECIFICATIONS OR SUPPLEMENTS WHICHEVER GOVERNS, WILL BE USED.

9) THE CONTRACTOR'S ATTENTION IS SPECIFICALLY DIRECTED TO GENERAL CONDITIONS, WHICH REQUIRES THAT HE POST A ONE (1) YEAR MAINTENANCE BOND FOR TEN PERCENT (10 %) OF THE FINAL CONTRACT AMOUNT.

10) THE GENERAL CONDITIONS OF THE CONTRACT INDICATES THAT THE CONTRACTOR MUST NOTIFY THE ENGINEER OF ANY INTENDED OVERTIME WORK. FURTHER THE BOROUGH MUST BE REIMBURSED BY DEDUCTION OF MONTHLY PAYMENTS FOR THE OVERTIME WORK PERFORMED BY THE INSPECTOR AND/OR BOROUGH PERSONNEL.

11) ALL TRENCHES UNLESS OTHERWISE INDICATED IN THE SPECIFICATIONS AND/OR AMENDMENTS, SHALL HAVE BACKFILL MATERIAL AS SPECIFIED IN SUBSECTION 207.6. THE ENGINEER AT HIS DISCRETION MAY PERMIT THE USE OF EXCAVATED OR OTHER SUITABLE MATERIAL TO BE USED AS BACKFILL ON TRENCHES OUTSIDE THE CURB LINES.

12) THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DISPOSAL OF ALL EXCESS MATERIALS EXCAVATED OF WHATEVER NATURE AT HIS OWN EXPENSE. THE BOROUGH IS NOT OBLIGATED TO SUPPLY A DISPOSAL SITE. THE CONTRACTOR MUST NOT DEPOSIT THE EXCESS MATERIALS IN THE BOROUGH LIMITS WITHOUT EXPRESS PERMISSION OF THE BOROUGH ENGINEER.

13) THE CONTRACTUAL TIME OF COMPLETION FOR THIS PROJECT IS PROVIDED IN THE SPECIFICATIONS.

14) THE CONTRACTOR IS NOTIFIED THAT THE SPECIFICATIONS IN SUBSECTION 110, INDICATE THAT HE MUST MAINTAIN TRAFFIC AND ACCESS TO RESIDENCES. HE IS ALSO NOTIFIED TO ASSURE ACCESS FOR GARBAGE COLLECTION AND EMERGENCY VEHICLES.

15) PAYMENT FOR PIPES SHALL BE ON THE BASIS OF HORIZONTAL LINEAR FEET. THE UNIT PRICE PER LINEAR FEET SHALL INCLUDE THE COST FOR CONSTRUCTION LAYOUT, EXCAVATION, BEDDING AND BACKFILLING WITH SPECIFIED MATERIAL.

16) EXISTING FENCES SHALL BE REMOVED AND SHALL BE RESET AT THE LOCATION ACCEPTABLE TO THE OWNER AND THE ENGINEER. THE COST TO REMOVE AND RESET FENCES SHALL BE INCLUDED IN VARIOUS ITEMS IN THE PROPOSAL.

17) THE CONTRACTOR IS RESPONSIBLE TO OBEY ALL THE SAFETY AND HEALTH REGULATIONS. THE OWNER ASSUMES NO RESPONSIBILITY FOR THE SAFETY OF THE WORK PERFORMED.

18) THE CONTRACT INCLUDES STATE WAGE RATES.

19) PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL HAVE ALL UNDERGROUND UTILITIES LOCATED AND PHYSICALLY MARKED OUT WITHIN THE LIMITS OF THE PROJECT (CALL 1-800-272-1000). THE CONTRACTOR SHALL PROVIDE TEST HOLES IN AREAS OF POSSIBLE CONFLICT TO VERIFY THE DEPTH AND LOCATION OF THE UTILITY. PAYMENT SHALL BE MADE FOR THIS ITEM. NO SEPARATE PAYMENT SHALL BE MADE FOR DELAYS THAT MAY BE NECESSARY TO RELOCATE UTILITIES OR THE PROPOSED LOCATION OF DRAINAGE STRUCTURES.

20) THE CONTRACTOR SHALL APPLY THE SURFACE WITHIN 72 HOURS OF THE MILLING OPERATION

21) THE CONTRACTOR IS RESPONSIBLE THAT UPON COMPLETION OF CONSTRUCTION THAT ALL WATER MAIN SERVICE CONNECTIONS ARE FUNCTIONING PROPERLY AND CONFORM TO THE "SERVICE CONNECTION" DETAIL CONTAINED IN THIS SET OF PLANS.

CONSTRUCTION NOTES

1) THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH THE LOCAL POLICE DEPARTMENT FOR TRAFFIC OPERATIONS AND PARKING PROHIBITIONS DURING CONSTRUCTION.

2) ANY DAMAGE TO UTILITIES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR, AND ALL COSTS FOR REPAIRS SHALL BE BORNE BY THE CONTRACTOR.

3) ALL DISTRUBED SHRUBS, FENCING, SIGNS, MAILBOXES, DRIVES, ETC. SHALL BE RESTORED TO THEIR ORIGINAL CONDITION, AND TO THE SATISFACTION OF THE OWNER. NO SEPARATE PAYMENT SHALL BE MADE FOR THIS RESTORATION, UNLESS SPECIFIED ELSEWHERE.

4) ALL PROPERTY CORNERS OR MONUMENTS REMOVED DURING CONSTRUCTION SHALL BE REPLACED BY A NEW JERSEY LICENSED LAND SURVEYOR, AT NO SEPARATE COST TO THE OWNER.

5) ALL EXISTING UTILITY CASTINGS, COVERS AND GRATES TO BE REMOVED ARE THE PROPERTY OF THE BOROUGH OF MADISON AND SHALL BE DELIVERED TO THE PUBLIC WORKS DEPARTMENT. PAYMENT WILL NOT BE MADE FOR NEW CASTINGS, COVERS AND GRATES UNLESS THE OLD ONES ARE RETURNED.

6) ALL MILLED MATERIALS ARE TO BE DISPOSED OF IN ACCORDANCE WITH APPROVED NJDOT/NJDEP METHODS AND MEANS, OR TRANSPORTED AT THE DIRECTION OF THE ENGINEER.

7) PRIVATE UTILITY COMPANIES MUST BE CONTACTED BY THE CONTRACTOR SO THAT PRIVATELY OWNED CASTINGS MAY BE RESET BY THE UTILITY COMPANY.

8) UNSUITABLE SUBBASE MATERIAL WHICH HAS BEEN UNCOVERED DURING CONSTRUCTION SHALL BE REMOVED AND REPLACED AT THE DIRECTION OF THE ENGINEER. ROADWAY EXCAVATION, UNCLASSIFIED SHALL BE PERFOMED TO REMOVE UNSUITABLE SUBBASE MATERIAL. SUBBASE MATERIAL SHALL BE REPLACED WITH DENSE GRADED AGGREGATE BASE COURSE. ROADWAY EXCAVATION, UNCLASSIFIED, AND DENSE GRADED AGGREGATE BASE COURSE WHICH HAVE BEEN INSTALLED ON AN "IF AND WHERE DIRECTED" BASIS, WILL BE PAID FOR AT THE UNIT PRICE BID FOR THOSE ITEMS.

9) THE CONTRACTOR SHALL PROVIDE AND MAINTAIN ACCESS RAMPS AT ALL CURB OPENINGS FOR THE DURATION OF THE PROJECT. THE CONTRACTOR SHALL ALSO PROVIDE AND MAINTAIN RAMPS AROUND ALL EXPOSED CASTINGS, BOTH PUBLIC AND PRIVATE, WHICH HAVE BEEN UNCOVERED OR RESET DURING CONSTRUCTION.

10) THE CONTRACTOR SHALL TAKE ALL NECESSARY MEASURES TO MAINTAIN DUST CONTROL AS REQUIRED OR DIRECTED BY THE ENGINEER. ALL VEHICLES SHALL BE CLEAN AND ALL ROADWAYS SHALL BE MAINTAINED AS DIRECTED BY THE ENGINEER.

11) ALL PAVEMENT MARKINGS AND SIGNS SHALL CONFORM TO THE STANDARDS OF THE CURRENT "MANUAL ON UNIFORM TRAFFICE CONTROL DEVICES".

12) IF NOT OTHERWISE INDICATED, NEW PAVEMENT MARKINGS SHOULD CONFORM TO THE FOLLOWING:

CENTER LINES	2 – 4inch WIDE YELLOW LINES, 4inch APART
STOP LINES	12inch WIDE WHITE LINES (4 ft. MIN. FROM CROSSWALK)
CROSSWALKS	6inch WIDE WHITE LINES, 6ft. MIN. WIDTH
MATCH PROPOSED STRIPING WITH EXISTING LANE AND CENTER LINES.	

13) CONTRACTOR SHALL NOTIFY ENGINEER WHEN TRAFFIC STRIPES AND TRAFFIC PAINT HAVE BEEN LAID OUT PRIOR TO PAINTING. THE ENGINEER WILL INSPECT AND APPROVE LAYOUT PRIOR TO CONTRACTOR PAINTING TRAFFIC STRIPES AND TRAFFIC MARKINGS.

14) NO SEPARATE PAYMENT WILL BE MADE FOR THE REMOVAL OF EXISTING CURBS, OSIDEWALKS, ETC., THE COST FOR THE REMOVAL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR SIMILAR NEW ITEMS IN THE PROPOSAL.

WATER MAIN REPLACEMENT NOTES

1. MAILBOX "SERVICE IMPROVEMENT REQUEST" ONE MONTH PRIOR.
2. MAILBOX "CONSTRUCTION NOTICE" ONE WEEK PRIOR.
3. MARKOUT MAINS, UTILITIES ANE SERVICE LOCATIONS.
4. KNOCK ON DOORS PRIOR TO REMOVING RESIDENTIAL PRESSURE.
5. MEASURE VALVE DEPTHS AND REQUEST RISER CLEANING FROM WATER UTILITY.
6. LOCATE STORAGE AREA IN MUNICIPALITY FOR SPARE PARTS INCLUDING AT A MINIMUM (2) VALVES, (12) GASKETS, (2) TEES, (2) 45° BENDS, (2) 22° BENDS (2) 11° BENDS, VARIOUS SERVICE CONNECTION COMPRESSION FITTINGS, GASKET COMPOUND AND CHLORINE SOLUTION.
7. CONSTRUCTION VECHICLES, MATERIALS AND EQUIPMENT ON ONE SIDE OF STREET ONLY.
8. PIPE MAY BE STORED BEHIND CURBLINE FOR ONE WEEK IF TRAFFIC CONES ARE USED.
9. MUNICIPAL ENGINEER TO APPROVE PROPOSED WATER MAIN ALIGNMENT ON PAVEMENT.
10. SAWCUT, JACK OR STRAIGHT MILL PROPOSED TRENCH ALIGNMENT (NO MORE THAN 200 FEET OR 1.5 WORK DAYS).
11. MAINTAIN TRAFFIC CONES DELINEATING CONSTRUCTION AREAS AT A MINIMUM EVERY 50 FEET OF PROJECT, ONE SIDE.
12. BEGIN EXCAVATION, HAND DIG NEAR SERVICE AREAS, LAY NEW MAIN AND AVOID SERVICE CONFLICTS IN ALIGNMENT.
13. BACKFILL, STABILIZE TO GRADE, CHECK TRAFFIC CONTROLS BEFORE LEAVING SITE DAILY.
14. CONTINUE MAIN PIPE LAYING UNTIL INTERCONNECTION OR HYDRANT FLUSH POINT IS REACHED AND ASSEMBLE FLUSH POINT.
15. MAINTAIN CLEAN PIPE INTERIORS, PROPER JOINTING, AND CHLORINATION.
16. REQUEST MAIN SHUTOFF FROM WATER UTILITY 24 HOURS PRIOR TO INTERCONNECT.
17. MAILBOX "TEMPORARY WATER SHUTOFF" NOTICE DATE 24 HOURS PRIOR.
18. INTERCONNECT TO PUBLIC SYSTEM FOR FILLING AND DISINFECTION ONLY. (NO POTABLE USES UNTIL TESTS APPROVED BY WATER UTILITY).
19. PHOTOGRAPH INTERCONNECTION POINTS AND HAVE UTILITY DEPARTMENT INSPECTION.
20. PRESSURE TEST COMPLETED SECTIONS ONCE ALL RESTRAINTS ARE IN PLACE AND SECURE.
21. INSTALL STABILIZED BASE ON MAIN TRENCH AT END OF EACH MAIN SEGMENT.
22. ALLOW HYPERCHLORINATION FOR 48 HOURS PRIOR TO TEST AND FLUSH MAIN.
23. TAKE WATER SAMPLE WITH WATER UTILITY WITNESS, SEND TO APPROVED LABORATORY.
24. IF SAMPLE PASSES, EXCAVATE NEW SERVICE CONNECTIONS AT 90° TO MAIN.
25. MAILBOX "TEMPORARY WATER SHUTOFF" NOTICE DATE FOR EACH SERVICE.
26. TAP SERVICE CONNECTIONS (WET) AND EXTEND NEW COPPER BEYOND EXISTING CORPORATION STOP AND NOTE FITTINGS REQUIRED.
27. PLACE NEW CORPORATION STOP AND CROSSOVER UP TO 10 FEET FROM EXISTING PAVEMENT AND NEAR EXISTING STOP, UNLESS OTHERWISE DIRECTED.
28. PHOTOGRAPH EACH WET TAP, STOP ORIENTATION AND SERVICE CONNECTION.
29. COMPLETE ALL INTERCONNECTIONS FOR COMPLETED SECTIONS OF MAIN.
30. FINAL PAVE, TOPSOIL, SWEEP AND REMOVE DEBRIS ON COMPLETED SECTIONS.

NO.	REVISIONS	DATE	BY	CHK.	APPR

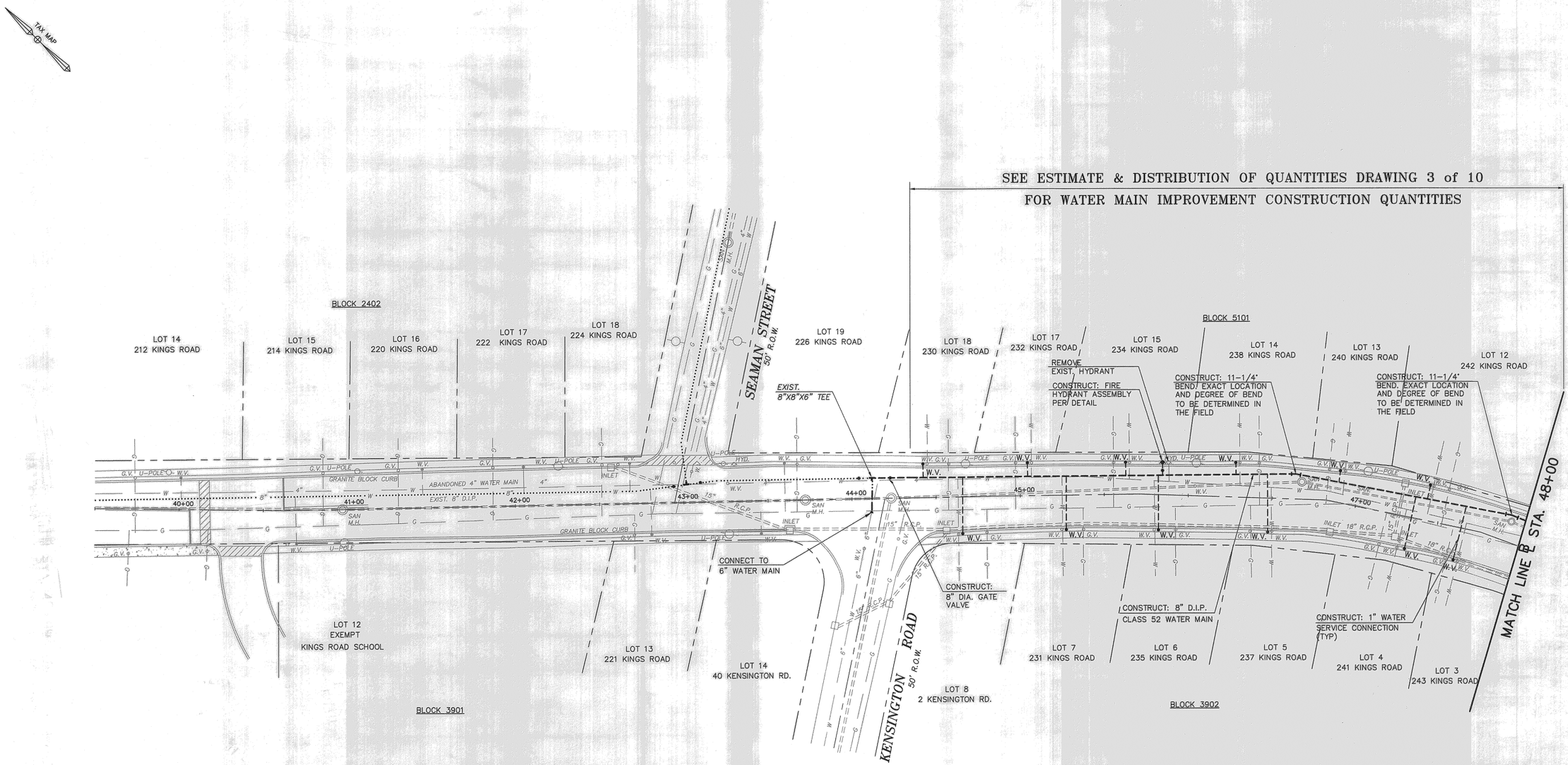
CONSTRUCTION & GENERAL NOTES
2004 WATER MAIN IMPROVEMENTS

BOROUGH OF MADISON
DEPARTMENT OF ENGINEERING
HARTLEY DODGE MEMORIAL
MADISON, MORRIS COUNTY, N.J. 07940
(973) 593-3060

DATE

ROBERT A. VOGEL, P.E.
PROFESSIONAL ENGINEER N.J. LIC. NO. 34463

SCALE: N.T.S.
DATE: 4-30-04
DR. BY: D.BUCK
DWG. NO. 4 of 10



GENERAL NOTES

1. R.O.W. LINES, PROPERTY LINES AND LOT INFORMATION SHOWN ON THIS PLAN ARE BASED UPON BOROUGH OF MADISON TAX MAPS.
2. ROADWAY UTILITIES AND ROADWAY UTILITIES ARE BASED UPON FIELD OBSERVATIONS PERFORMED BY THE BOROUGH OF MADISON ENGINEERING DEPARTMENT AND ARE APPROXIMATE IN LOCATION.
3. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.
4. ALL PAVEMENT REMOVAL SHALL BE SAW CUT.

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KINGS ROAD
2004 WATER MAIN IMPROVEMENTS

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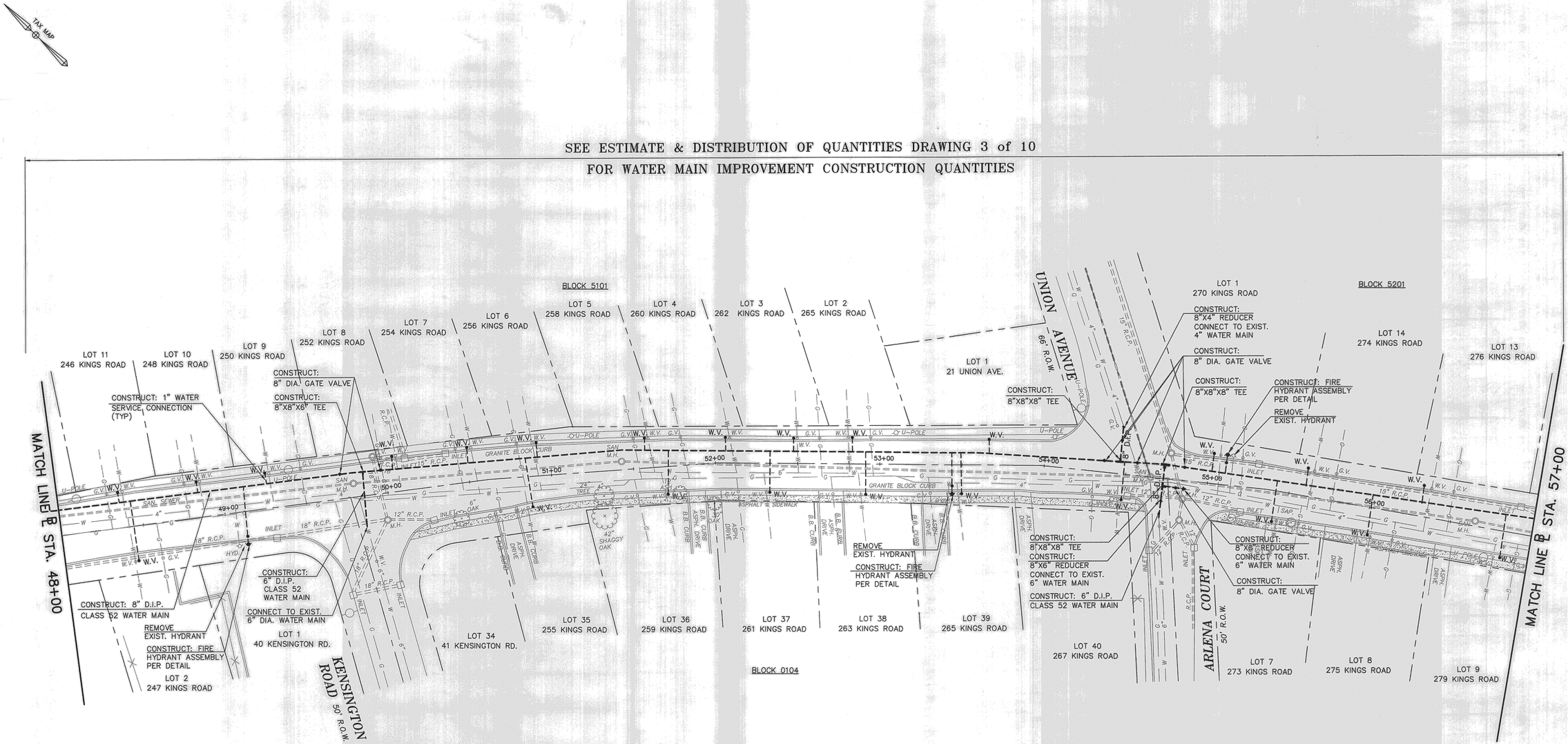
DWG. NO.	5 of 10

SEE ESTIMATE & DISTRIBUTION OF QUANTITIES DRAWING 3 of 10
FOR WATER MAIN IMPROVEMENT CONSTRUCTION QUANTITIES



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KINGS ROAD
2004 WATER MAIN IMPROVEMENTS

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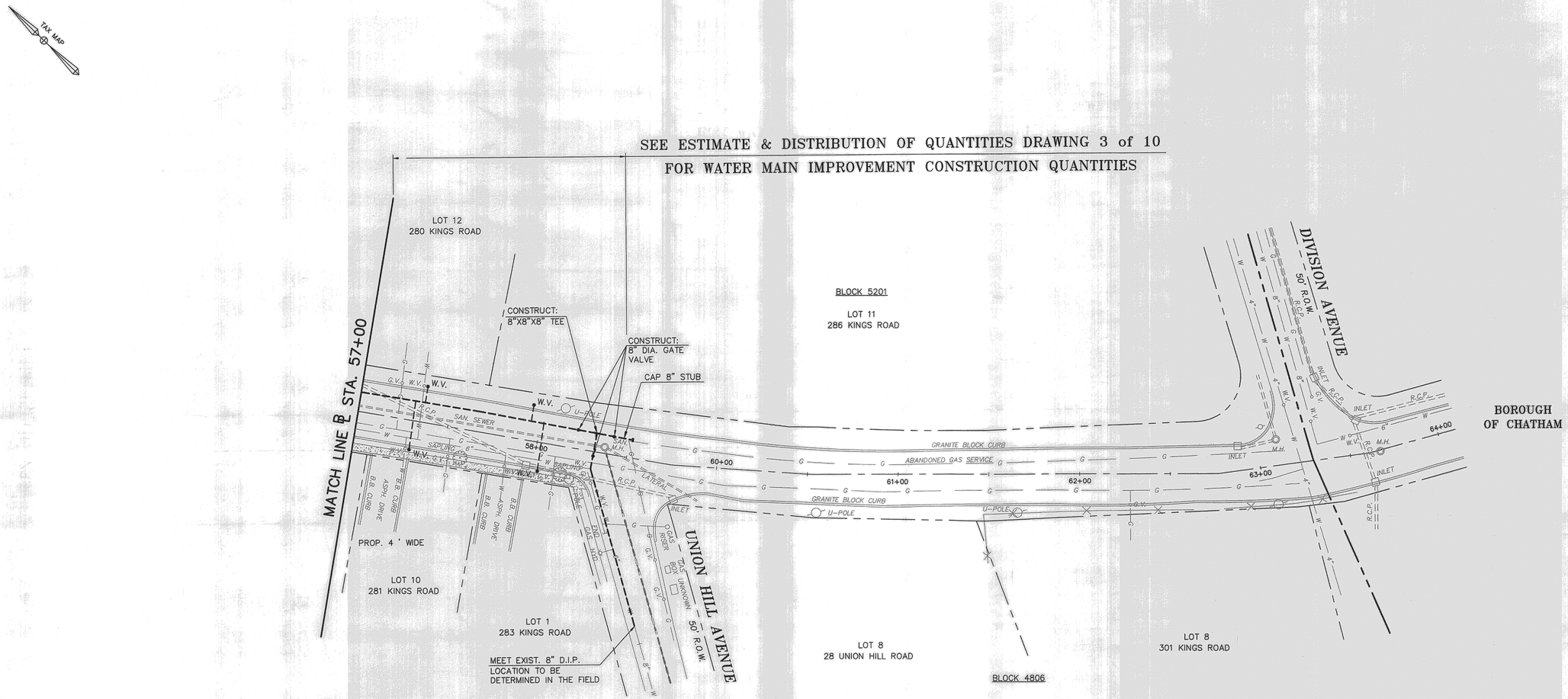

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KINGS ROAD
2004 WATER MAIN IMPROVEMENTS

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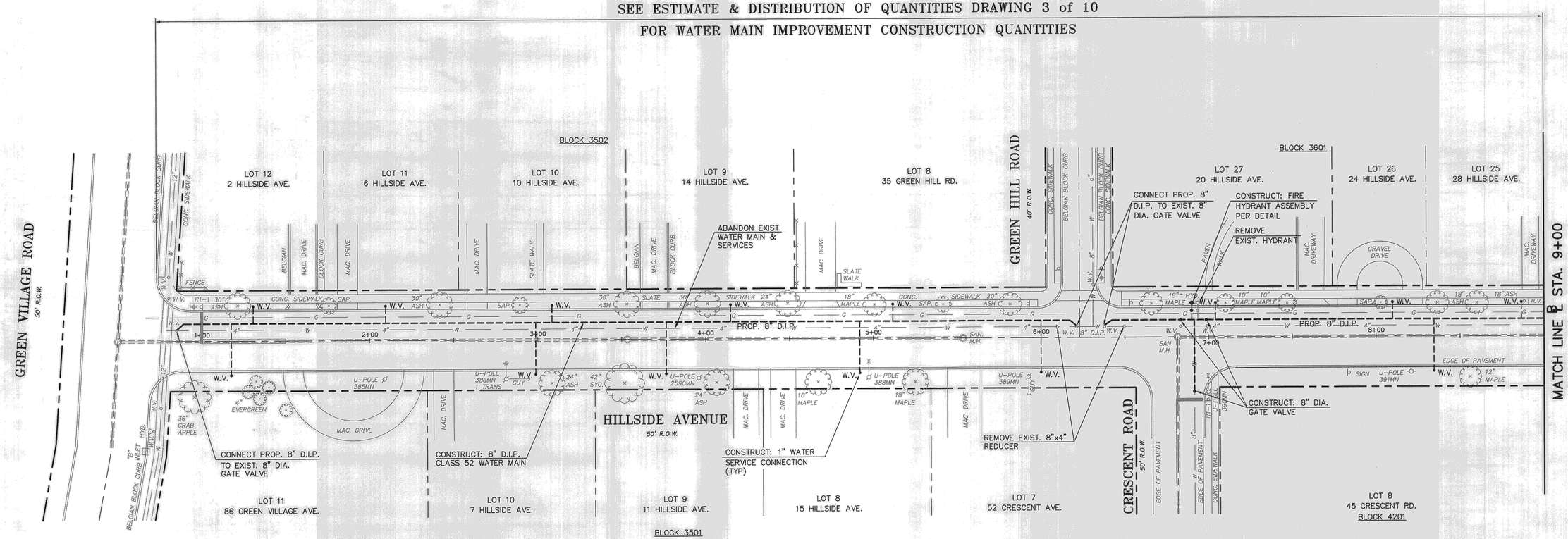

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HILLSIDE AVENUE
2004 WATER MAIN IMPROVEMENTS

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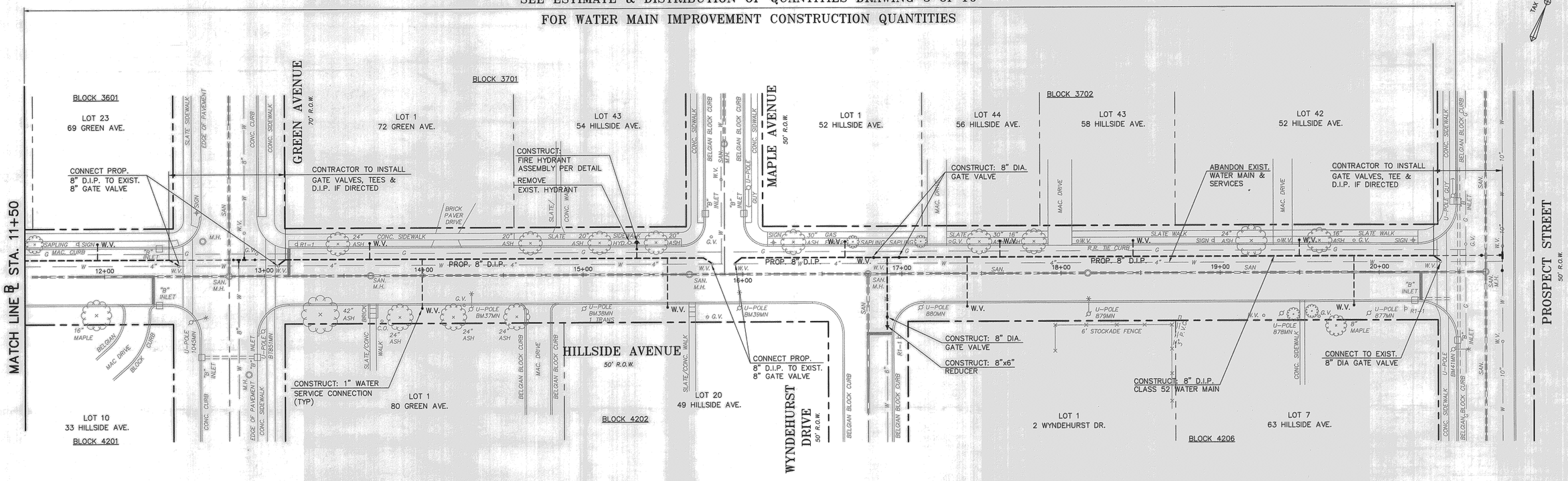
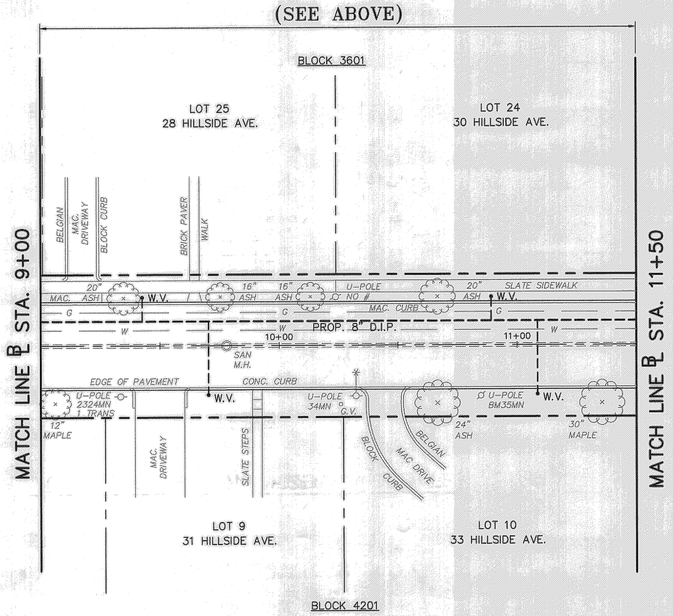


(SEE ABOVE)



GENERAL NOTES

1. R.O.W. LINES, PROPERTY LINES AND LOT INFORMATION SHOWN ON THIS PLAN ARE BASED UPON BOROUGH OF MADISON TAX MAPS.
2. ROADWAY UTILITIES AND ROADWAY UTILITIES ARE BASED UPON FIELD OBSERVATIONS PERFORMED BY THE BOROUGH OF MADISON ENGINEERING DEPARTMENT AND ARE APPROXIMATE IN LOCATION.
3. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.
4. ALL PAVEMENT REMOVAL SHALL BE SAW CUT.

30 20' 10' 0 30' 60'
1"=30'

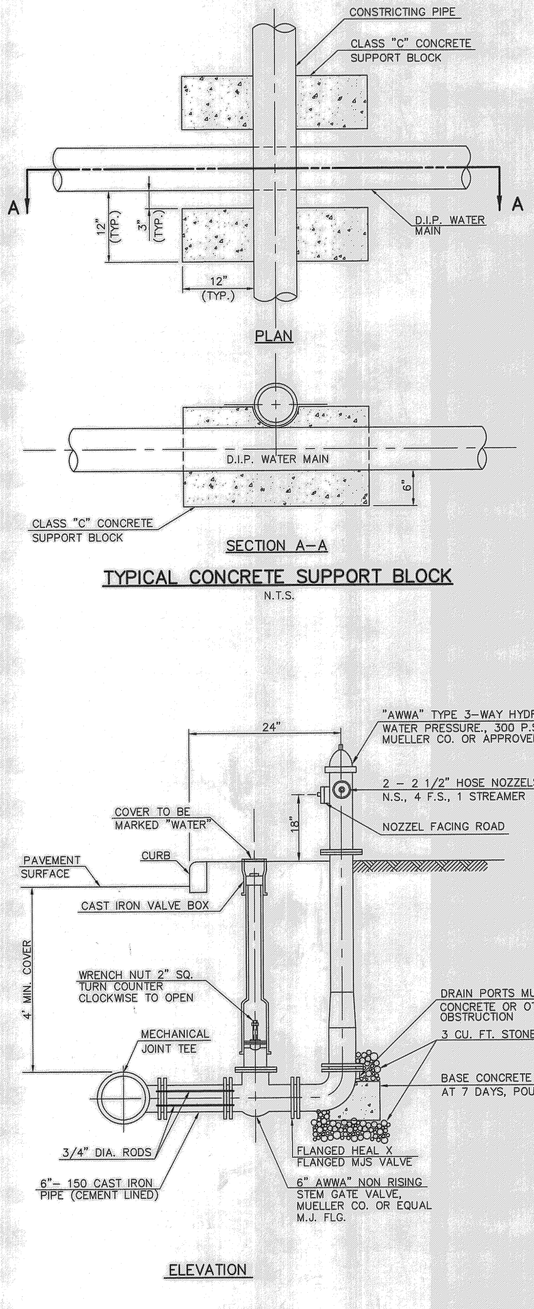
NO.	REVISIONS	DATE	BY	CHK.	APPR

HILLSIDE AVENUE
2004 WATER MAIN IMPROVEMENTS

BOROUGH OF MADISON
DEPARTMENT OF ENGINEERING
HARTLEY DODGE MEMORIAL
MADISON, MORRIS COUNTY, N.J. 07940
(973) 593-3060

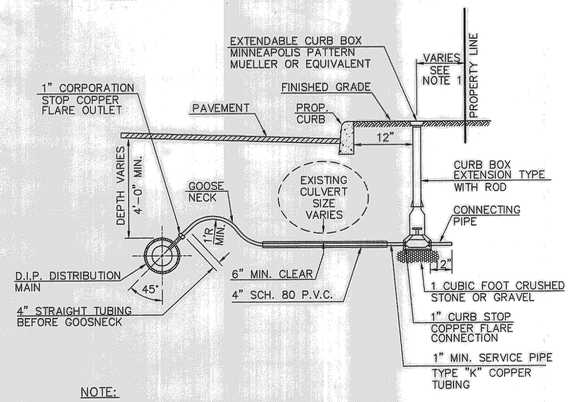
DATE
ROBERT A. VOGEL, P.E.
PROFESSIONAL ENGINEER N.J. LIC. NO. 34463

SCALE:	1" = 30'
DATE:	4-30-04
DR. BY:	D.BUCK
DWG. NO.	9 of 10



TYPICAL CONCRETE SUPPORT BLOCK

N.T.S.

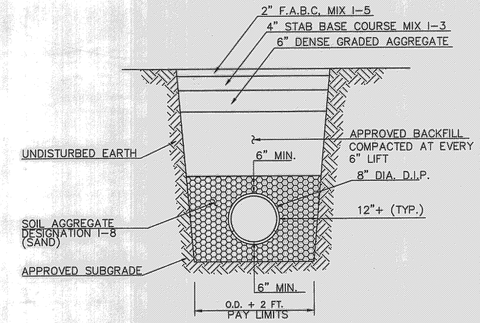


NOTE:

1. CURB STOP TO BE LOCATED 8' FROM PROPERTY LINE ON 50' R.O.W., OR AS DIRECTED.
2. BACKFILL SHALL BE HAND PLACED SAND FOR A DEPTH OF 1 FOOT OVER SERVICE.
3. SERVICE PIPE SHALL BE CONSTRUCTED AT 90° TO THE CURB LINE.
4. A TUBING BENDER APPROVED BY THE ENGINEER MUST BE USED FOR ALL BENDS AND GOOSENECK.

SERVICE CONNECTION

N.T.S.

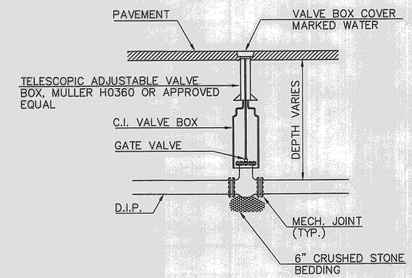


NOTES:

1. IN ALL CASES, EXCAVATE 6" BELOW INVERT OF PIPE AND FILL WITH SAND BEDDING.
2. BACKFILL TO A HEIGHT OF 6" ABOVE PIPE SHALL BE SAND. ABOVE SAND SHALL BE APPROVED SUITABLE EXCAVATED MATERIAL.
3. WHERE PIPE INVERTS ARE IN SOFT ORGANIC SOIL AT LEAST 2 FEET OF CRUSHED STONE SHALL BE USED FOR BEDDING. UNDERLAIN BY A LAYER OF FILTER FABRIC SUCH AS MIRAFI OR EQUAVALENT AS DIRECTED BY THE ENGINEER.
4. WHERE PIPE INVERTS ARE IN FULL CONDITION, SAID FILL IS TO BE CONTROLLED COMPACTED FILL. (SEE NOTES FOR TYPICAL ROAD SECTION)

PAVEMENT RESTORATION WATER MAIN BEDDING

N.T.S.

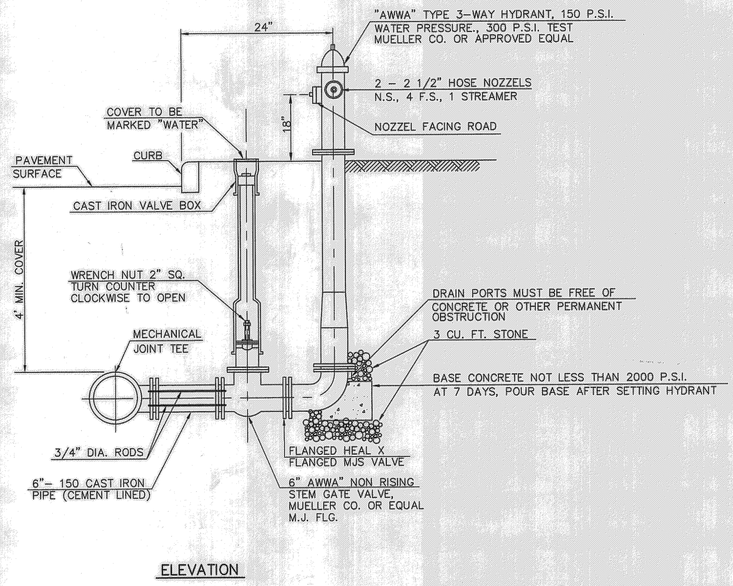


NOTES:

1. SIZE AND BEARING FOR THRUST BLOCK SHALL CONFORM TO CURRENT A.W.W.A. STANDARDS, OR SHALL BE DESIGNATED ON THE PLANS.
2. CONCRETE FOR THE THRUST BLOCKS TO BE N.J.D.O.T., CLASS "C".
3. ALL CONNECTIONS TO BE MECHANICAL JOINT, OR LOCK RING TYPE JOINTS, AS SPECIFIED.

GATE VALVE ASSEMBLY

N.T.S.

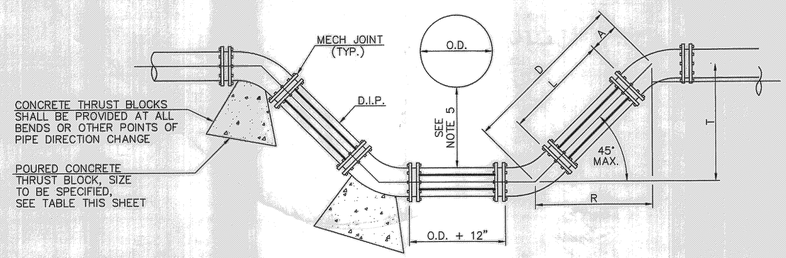


TYPICAL FIRE HYDRANT ASSEMBLY DETAILS

N.T.S.

NOTES:

1. CONCRETE FOR THRUST BLOCKS TO BE N.J.D.O.T., CLASS"C".
2. SIZE AND BEARING AREA FOR THRUST BLOCKS SHALL CONFORM TO CURENT A.W.W.A. STANDARDS OR SHALL BE DESIGNED OM THE PLANS.
3. FINISH PAINTING AND MARKING SHALL BE DESIGNED ON THE PLANS OR CONTRACT DOCUMENTS OR SHALL BE AS DIRECTED BY THE ENGINEER.
4. TYPICAL HYDRANT LOCATION ADJACENT TO ROADWAY, FOR SPECIAL LOCATION REFER TO PLANS.
5. SPECIAL HYDRENT ARRANGEMENT OR SETTINGS TO BE DETAILED BY CONTRACTOR AND SUBJECT TO THE ENGINEER'S APPROVAL.
6. ALL CONNECTIONS TO BE MECHANICAL JOINT OR LOCK RING TYPE JOINT AS SPECIFIED.



MECHANICAL JOINTS

ANGLE	"D" EQUALS	"R" EQUALS	"L"* EQUALS
45°	Tx1.414	Tx1.000	D–2A
22 1/2°	Tx2.613	Tx2.414	D–2A
11 1/4°	Tx5.126	Tx5.027	D–2A

* CUT THE PIPE SOMEWHAT SHORTER THAN THEORETICAL TO ALLOW FOR SOME SLIGHT CLEARANCE IN THE JOINTS.

LOOPING WATER MAIN

N.T.S.

NOTES:

1. WATER MAIN MAY BE LOOPED ABOVE OBSTRUCTION, IF 3' MINIMUM COVER IS MAINTAINED ABOVE WATER MAIN.
2. WATER MAIN LOOPS SHALL BE DUCTILE IRON CEMENT LINED PIPE. ALL JOINTS SHALL BE MECHANICAL JOINT. ALL FITTINGS SHALL BE MECHANICAL JOINT CAST IRON.
3. OFFSETS MAY BE SUBSTITUTED FOR A OR T UP TO 24" IF APPROVED BY THE ENGINEER.
4. CONCRETE THRUST BLOCKS SHALL BE PROVIDED AT ALL BENDS OR OTHER POINTS OF PIPE DIRECTION CHANGE.
5. MINIMUM CLEARANCE BETWEEN OBSTRUCTING PIPE AND WATER MAIN SHALL BE 18" MINIMUM. CLEARANCE BETWEEN WATER MAIN AND OTHER OBSTRUCTIONS SHALL BE 6". IF 18" MINIMUM CLEARANCE IS NOT PROVIDED BETWEEN OBSTRUCTING PIPE AND WATER MAIN, THE WATER MAIN SHALL BE CONCRETE ENCASED. (SEE DETAIL THIS SHEET)
6. TIE RODS SHALL BE UTILIZED TO RESTRAIN PIPE JOINTS. DETAILS OF THE TIE ROD ASSEMBLY SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. TIE RODS SHALL BE SUFFICENT TO RESTRAIN THE THRUST DEVELOPED AT 100 P.S.I. WORKING PRESSURE.

DIAMETER OF PIPE (d)	22 1/2° ELBOW	45° ELBOW	90° ELBOW	TEE	PLUG
	"A"	"A"	"A"	"A"	"A"
6"	1.1	2.1	4.0	2.8	
8"	1.9	3.7	6.8	4.8	
10"	2.8	5.6	10.3	7.3	
12"	4.0	7.9	14.5	10.3	
16"	7.0	13.6	25.2	17.8	
20"	10.7	21.0	38.9	27.5	
24"	15.3	30.0	55.5	39.2	

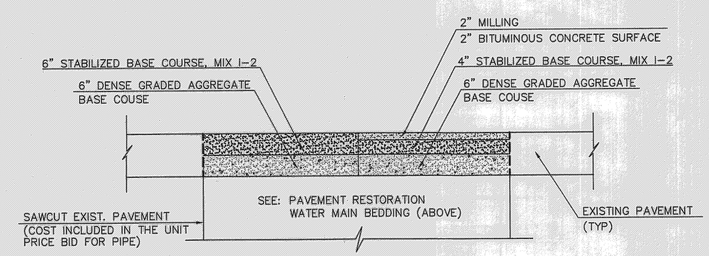
"A" – CONTACT BEARING AREA OF BLOCK WITH EARTH, IN SQUARE FEET

NOTES:

1. BEARING AREAS ARE BASED ON UNDISTURBED SOIL WITH A BEARING CAPCITY
2. ALL CONCRETE THRUST BLOCKS SHALL BE CLASS "C".
3. THRUST BLOCKS SHALL BE POURED AGAINST UNDISTURBED EARTH.
4. TEST PRESSURE = 150 P.S.I.

THRUST BLOCK TABLE

N.T.S.



TRENCH PAVEMENT DETAIL

N.T.S.

NO.	REVISIONS	DATE	BY	CHK.	APPR

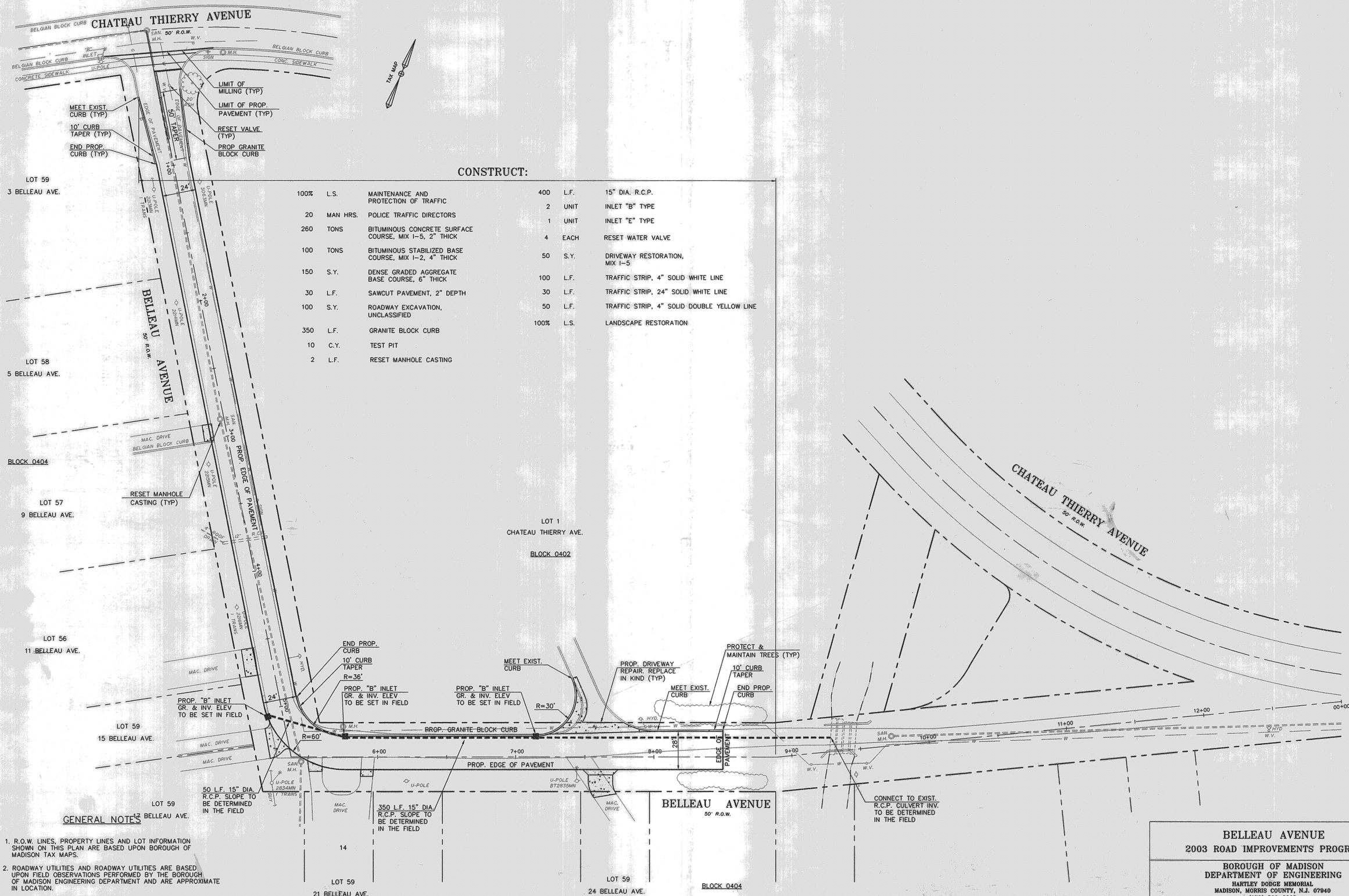
CONSTRUCTION DETAILS
2004 WATER MAIN IMPROVEMENTS

BOROUGH OF MADISON
DEPARTMENT OF ENGINEERING
HARTLEY DODGE MEMORIAL
MADISON, MORRIS COUNTY, N.J. 07940
(973) 593-3060

DATE

ROBERT A. VOGEL, P.E.
PROFESSIONAL ENGINEER N.J. LIC. NO. 34463

SCALE: N.T.S.
DATE: 4–30–04
DR. BY: D.BUCK
DWG. NO. 10 of 10



CONSTRUCT:

100%	L.S.	MAINTENANCE AND PROTECTION OF TRAFFIC	400	L.F.	15" DIA. R.C.P.
20	MAN HRS.	POLICE TRAFFIC DIRECTORS	2	UNIT	INLET "B" TYPE
260	TONS	BITUMINOUS CONCRETE SURFACE COURSE, MIX I-5, 2" THICK	1	UNIT	INLET "E" TYPE
100	TONS	BITUMINOUS STABILIZED BASE COURSE, MIX I-2, 4" THICK	4	EACH	RESET WATER VALVE
150	S.Y.	DENSE GRADED AGGREGATE BASE COURSE, 6" THICK	50	S.Y.	DRIVEWAY RESTORATION, MIX I-5
30	L.F.	SAWCUT PAVEMENT, 2" DEPTH	100	L.F.	TRAFFIC STRIP, 4" SOLID WHITE LINE
100	S.Y.	ROADWAY EXCAVATION, UNCLASSIFIED	30	L.F.	TRAFFIC STRIP, 24" SOLID WHITE LINE
350	L.F.	GRANITE BLOCK CURB	50	L.F.	TRAFFIC STRIP, 4" SOLID DOUBLE YELLOW LINE
10	C.Y.	TEST PIT	100%	L.S.	LANDSCAPE RESTORATION
2	L.F.	RESET MANHOLE CASTING			

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NO.	REVISIONS	DATE	BY	CHK.	APPR

BELLEAU AVENUE
2003 ROAD IMPROVEMENTS PROGRAM

BOROUGH OF MADISON
DEPARTMENT OF ENGINEERING
HARTLEY DODGE MEMORIAL
MADISON, MORRIS COUNTY, N.J. 07940
(973) 593-3063

DATE

ROBERT A. VOGEL, P.E.
PROFESSIONAL ENGINEER N.J. LIC. NO. 34463

SCALE: 1" = 30'
DATE: 4-3-03
DWG. NO. 10 of 19