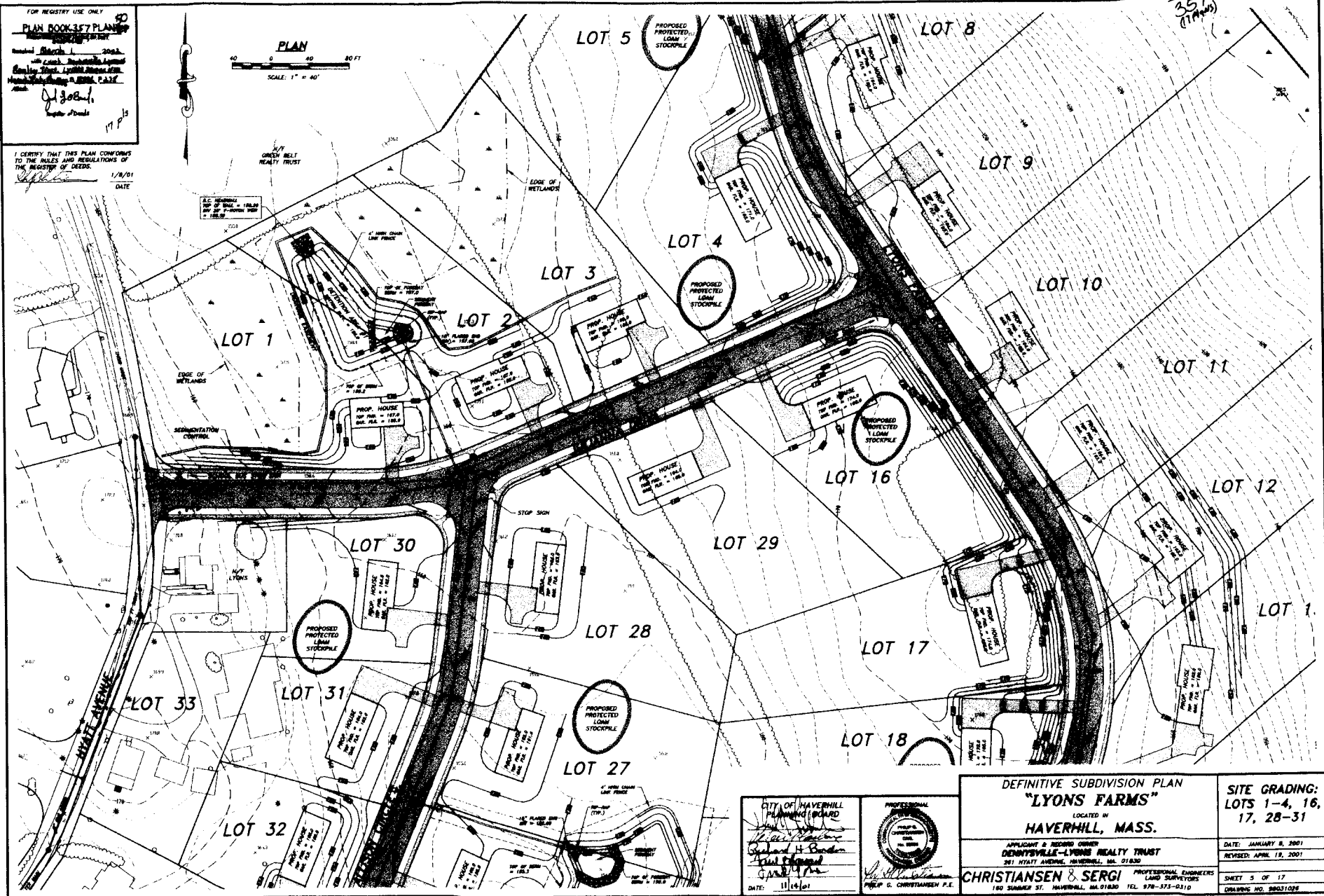


FOR REGISTRY USE ONLY
PLAN BOOK 357 PLAN 17
 Dated: March 1, 2001
 with Local Ordinance Amend
 Chapter 230C, LOCAL ORDINANCE
 No. 100, Haverhill, MASS., dated
 1/19/01
J. J. G. [Signature]
 Register of Deeds

I CERTIFY THAT THIS PLAN CONFORMS
 TO THE RULES AND REGULATIONS OF
 THE REGISTER OF DEEDS.
[Signature] 1/19/01
 DATE



CITY OF HAVERHILL
 PLANNING BOARD
[Signature]
 Richard H. Barber
 Date: 1/19/01



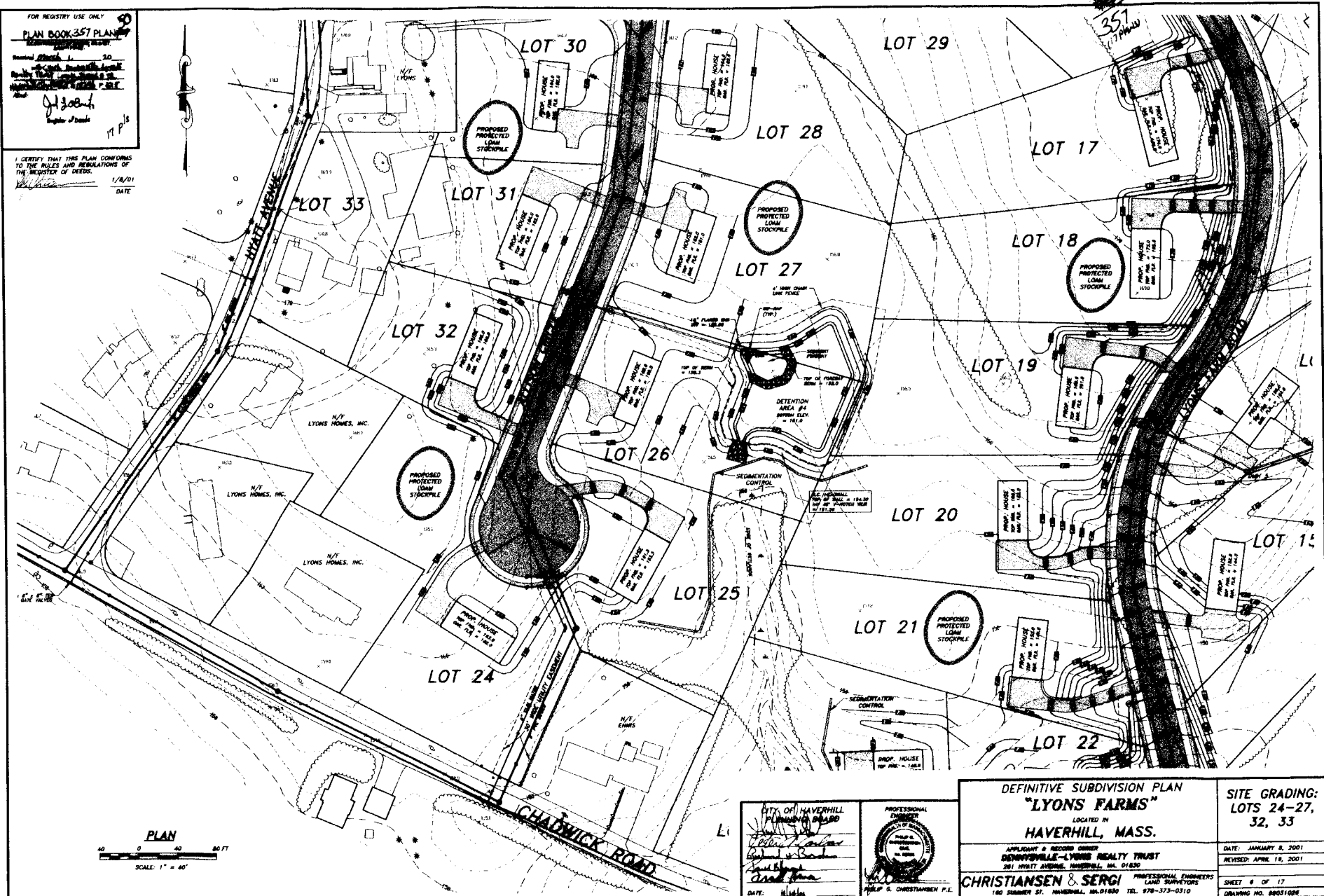
DEFINITIVE SUBDIVISION PLAN
"LYONS FARMS"
 LOCATED IN
HAVERHILL, MASS.
 APPLICANT & RECORD OWNER
DENNYVILLE-LYONS REALTY TRUST
 241 HATFIELD AVENUE, HAVERHILL, MA 01830
CHRISTIANSEN & SERGI PROFESSIONAL ENGINEERS
 LAND SURVEYORS
 180 SUMNER ST., HAVERHILL, MA 01830 TEL: 978-373-0310

SITE GRADING:
LOTS 1-4, 16,
17, 28-31
 DATE: JANUARY 8, 2001
 REVISED: APRIL 18, 2001
 SHEET 5 OF 17
 DRAWING NO. 38031028

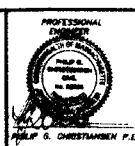
357
 (17/19)

FOR REGISTRY USE ONLY
PLAN BOOK 357 PLAN 17
 Registered Plan
 1/18/21
 DATE

I CERTIFY THAT THIS PLAN CONFORMS TO THE RULES AND REGULATIONS OF THE REGISTRY OF DEEDS.
 DATE



CITY OF HAVERHILL
 Planning Board
 [Signature]
 [Signature]
 [Signature]
 DATE: 1/18/21

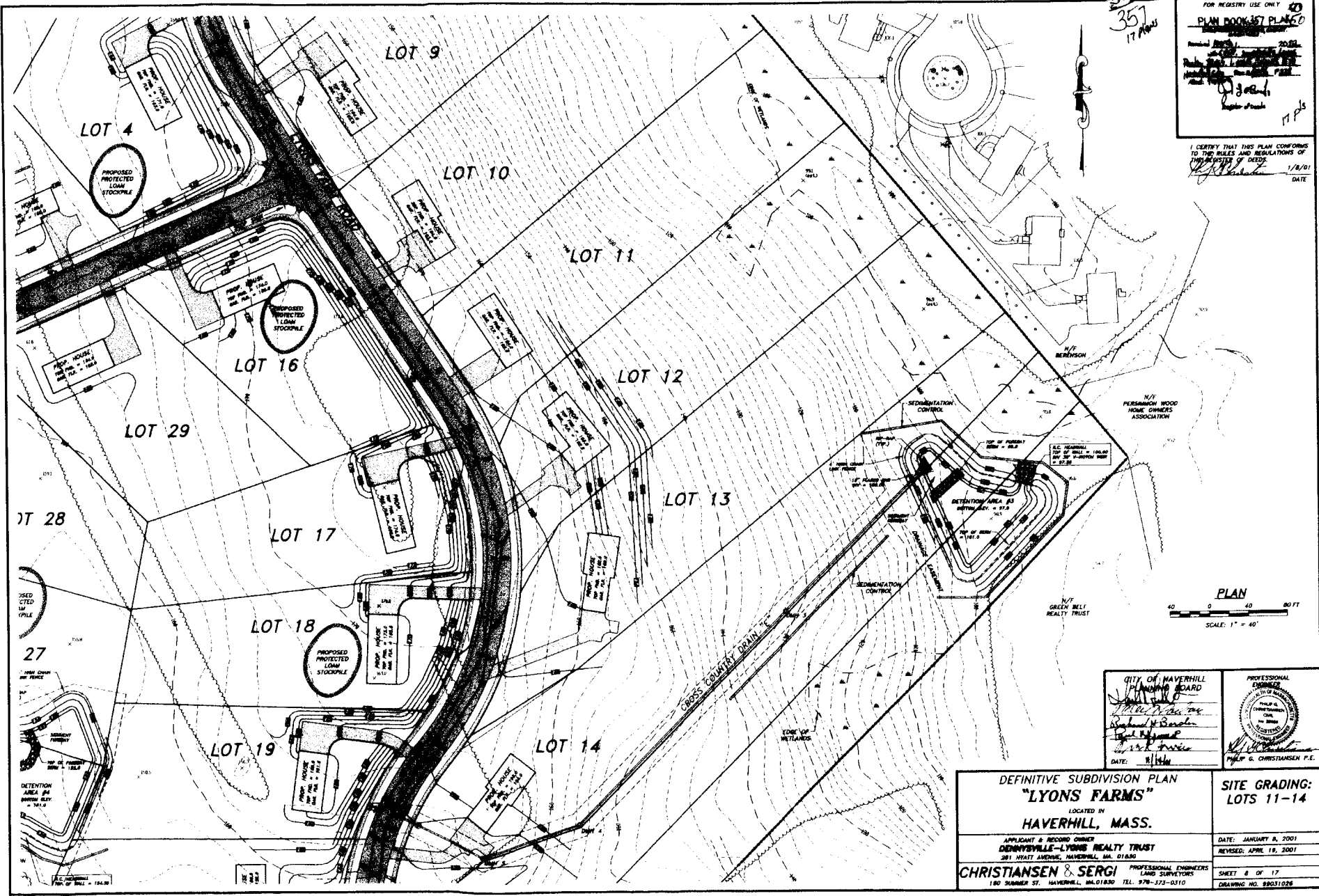


| | | |
|---|--|---|
| DEFINITIVE SUBDIVISION PLAN "LYONS FARMS" LOCATED IN HAVERHILL, MASS. | | SITE GRADING: LOTS 24-27, 32, 33 |
| APPLICANT & RECORD OWNER BENNINGVILLE-LYONS REALTY TRUST 301 HAVAT AVENUE, HAVERHILL, MA 01830 | | DATE: JANUARY 8, 2001 REVISED: APRIL 18, 2001 |
| CHRISTIANSEN & SERGI 180 SUMNER ST. HAVERHILL, MA 01830 TEL. 978-377-0310 | | SHEET 8 OF 17 DRAWING NO. 00031028 |

350-50
357
17 Pgs

FOR REGISTRY USE ONLY
PLAN BOOK 357 PLANS 0
 [Handwritten signatures and dates]
 17 Pgs

I CERTIFY THAT THIS PLAN CONFORMS TO THE RULES AND REGULATIONS OF THE REGISTER OF DEEDS
 [Signature]
 1/8/01
 DATE

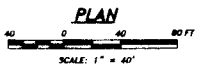
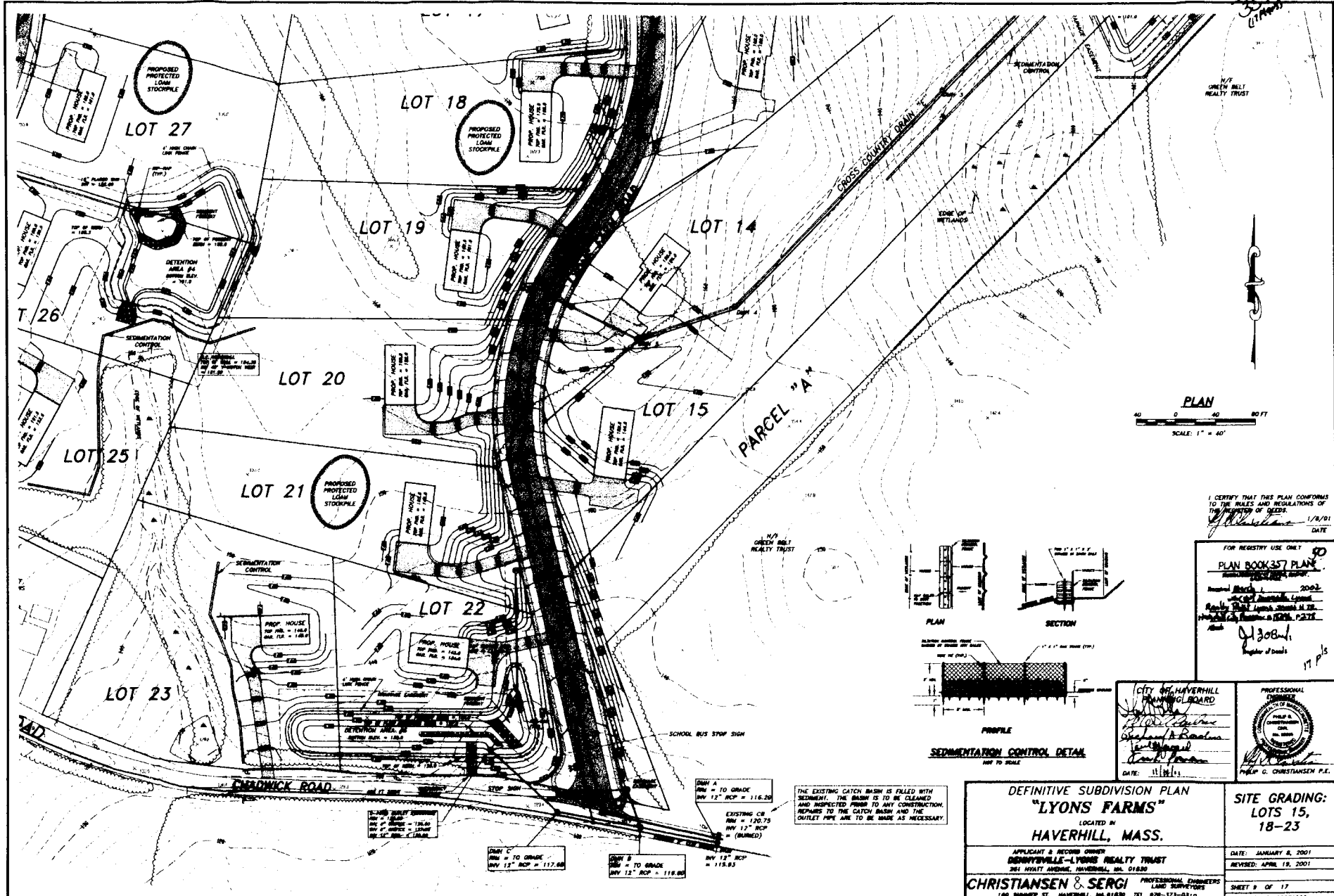


CITY OF HAVERHILL
 PLANNING BOARD
 [Signatures]
 DATE: 8/1/01

PROFESSIONAL ENGINEER
 PHILIP G. CHRISTIANSEN P.E.
 [Seal]
 DATE: 8/1/01

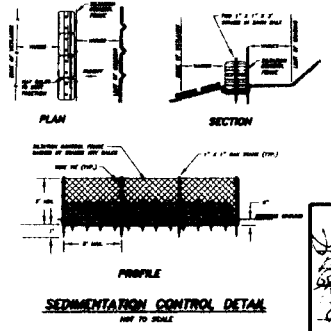
| | | |
|---|--|--|
| DEFINITIVE SUBDIVISION PLAN "LYONS FARMS" LOCATED IN HAVERHILL, MASS. | | SITE GRADING: LOTS 11-14 |
| APPLICANT & RECORD OWNER DORCHESTER-LYONS REALTY TRUST 281 WHITT AVENUE, HAVERHILL, MA 01830 | | DATE: JANUARY 8, 2001 REVISED: APRIL 19, 2001 |
| CHRISTIANSEN & SERGI PROFESSIONAL ENGINEERS LAND SURVEYORS 180 SUMNER ST. HAVERHILL, MA 01830 TEL: 978-373-0310 | | SHEET 8 OF 17 DRAWING NO. 88031028 |

357
 (17/01)



I CERTIFY THAT THIS PLAN CONFORMS TO THE RULES AND REGULATIONS OF THE REGISTER OF DEEDS.
 J. G. Christensen 1/8/01
 DATE

FOR REGISTRY USE ONLY
PLAN BOOK 357 PLAN
 17/01
 2002
 J. G. Christensen
 Register of Deeds



CITY OF HAVERHILL PLANNING BOARD
 PHILIP G. CHRISTENSEN P.E.
 DATE: 1/11/01

TO GRADE
 INV 12" RCP = 116.20

THE EXISTING CATCH BASIN IS FILLED WITH SEDIMENT. THE BASIN IS TO BE CLEANED AND INSPECTED PRIOR TO ANY CONSTRUCTION. REPAIRS TO THE CATCH BASIN AND THE OUTLET PIPE ARE TO BE MADE AS NECESSARY.

TO GRADE
 INV 12" RCP = 117.88

TO GRADE
 INV 12" RCP = 118.85

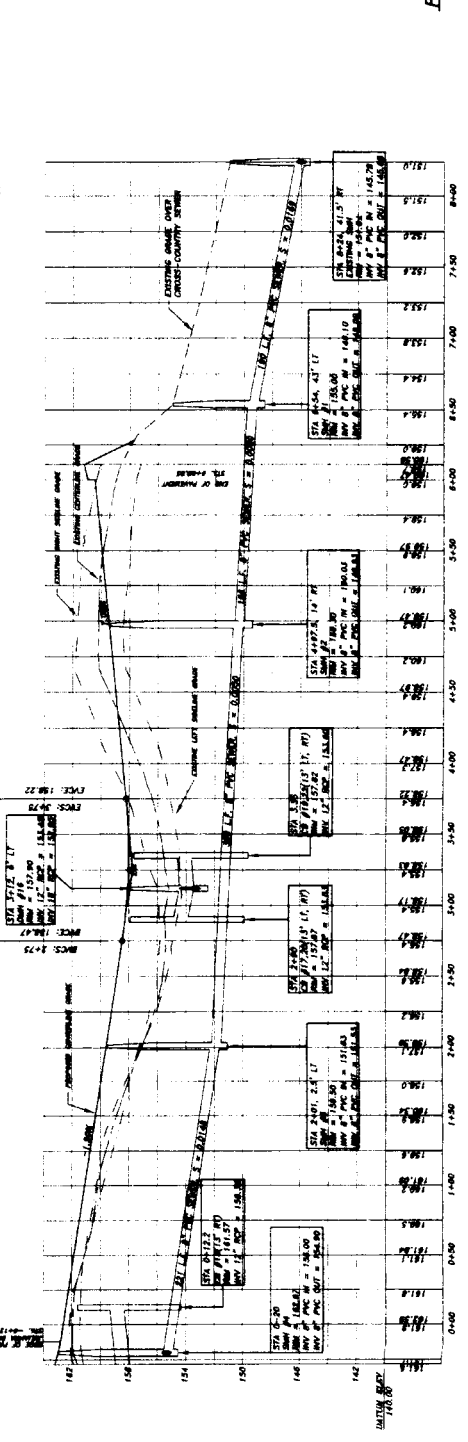
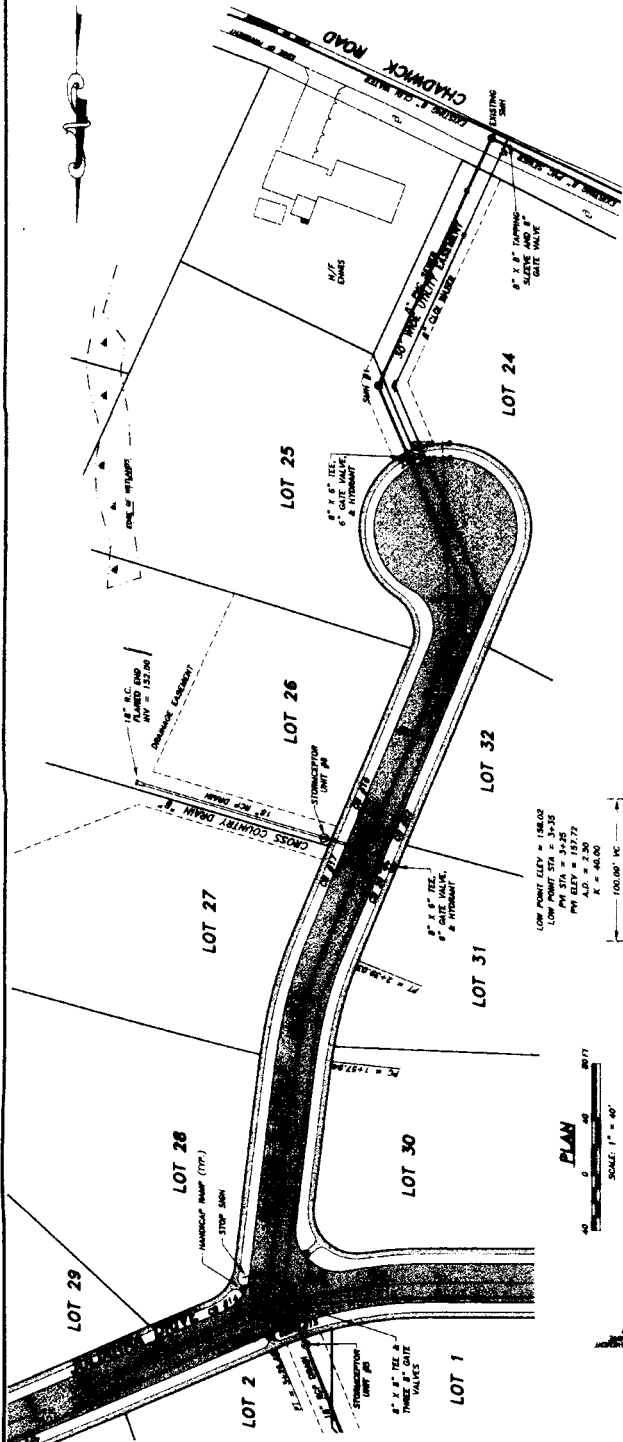
TO GRADE
 INV 12" RCP = 112.83

| | | |
|--|--|---|
| DEFINITIVE SUBDIVISION PLAN "LYONS FARMS" LOCATED IN HAVERHILL, MASS. | | SITE GRADING: LOTS 15, 18-23 |
| APPLICANT & RECORD OWNER BENNINGVILLE-LYONS REALTY TRUST 251 HENRY AVENUE, HAVERHILL, MA 01830 | | DATE: JANUARY 8, 2001 REVISED: APRIL 19, 2001 |
| CHRISTIANSEN & SERGI PROFESSIONAL ENGINEERS LAND SURVEYORS 100 SUMNER ST., HAVERHILL, MA 01830 TEL: 978-373-0810 | | SHEET 9 OF 17 DRAWING NO. 09031028 |

FOR REVISION USE ONLY 50
 PLAN PROPOSED PLAN
 1/18/01

1. ALL DRAINAGE PIPES ARE TO BE 12" CLASS V REINFORCED CONCRETE PIPE UNLESS OTHERWISE NOTED.
 2. ALL SEWER PIPES ARE TO BE 8" PVC PIPE UNLESS OTHERWISE NOTED.
 3. ALL CATCH BASINS ARE TO HAVE VERTICAL GRANITE CURB INLETS.
 4. WATER AND SEWER MAINS SHALL BE INSTALLED A MINIMUM OF 10 FEET APART.
 5. THE LOCATION OF THE MAINS SHALL BE SHOWN BY DASHED LINES. THE HORIZONTAL AND VERTICAL SEPARATION IS TO BE MAINTAINED AS FAR AS POSSIBLE. BOTH MAINS SHALL BE ENCASED IN CONCRETE.
 6. THE STAINING SPECIFICATIONS FOR THE SEWER AND DRAIN MAINS SHALL BE THE SAME AS THE STAINING SPECIFICATIONS FOR THE SEWER AND DRAIN MAINS REFERENCED IN THE SPECIFICATIONS FOR THE SEWER AND DRAIN MAINS. THE STAINING SPECIFICATIONS FOR THE SEWER AND DRAIN MAINS SHALL BE THE SAME AS THE STAINING SPECIFICATIONS FOR THE SEWER AND DRAIN MAINS.
 7. THE LOCATION OF ALL UNDERGROUND UTILITIES SHOWN HEREON ARE APPROXIMATE AND ARE BASED ON A COMPARISON OF FIELD LOCATIONS AND COMPILED INFORMATION. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION. ALL UTILITIES SHALL BE MARKED WITH REFLECTOR PINS AT 100' INTERVALS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS FROM THE APPLICABLE AGENCIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS FROM THE APPLICABLE AGENCIES PRIOR TO CONSTRUCTION.

1. ALL DRAINAGE PIPES ARE TO BE 12" CLASS V REINFORCED CONCRETE PIPE UNLESS OTHERWISE NOTED.
2. ALL SEWER PIPES ARE TO BE 8" PVC PIPE UNLESS OTHERWISE NOTED.
3. ALL CATCH BASINS ARE TO HAVE VERTICAL GRANITE CURB INLETS.
4. WATER AND SEWER MAINS SHALL BE INSTALLED A MINIMUM OF 10 FEET APART.
5. THE LOCATION OF THE MAINS SHALL BE SHOWN BY DASHED LINES. THE HORIZONTAL AND VERTICAL SEPARATION IS TO BE MAINTAINED AS FAR AS POSSIBLE. BOTH MAINS SHALL BE ENCASED IN CONCRETE.
6. THE STAINING SPECIFICATIONS FOR THE SEWER AND DRAIN MAINS SHALL BE THE SAME AS THE STAINING SPECIFICATIONS FOR THE SEWER AND DRAIN MAINS REFERENCED IN THE SPECIFICATIONS FOR THE SEWER AND DRAIN MAINS. THE STAINING SPECIFICATIONS FOR THE SEWER AND DRAIN MAINS SHALL BE THE SAME AS THE STAINING SPECIFICATIONS FOR THE SEWER AND DRAIN MAINS.
7. THE LOCATION OF ALL UNDERGROUND UTILITIES SHOWN HEREON ARE APPROXIMATE AND ARE BASED ON A COMPARISON OF FIELD LOCATIONS AND COMPILED INFORMATION. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION. ALL UTILITIES SHALL BE MARKED WITH REFLECTOR PINS AT 100' INTERVALS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS FROM THE APPLICABLE AGENCIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS FROM THE APPLICABLE AGENCIES PRIOR TO CONSTRUCTION.

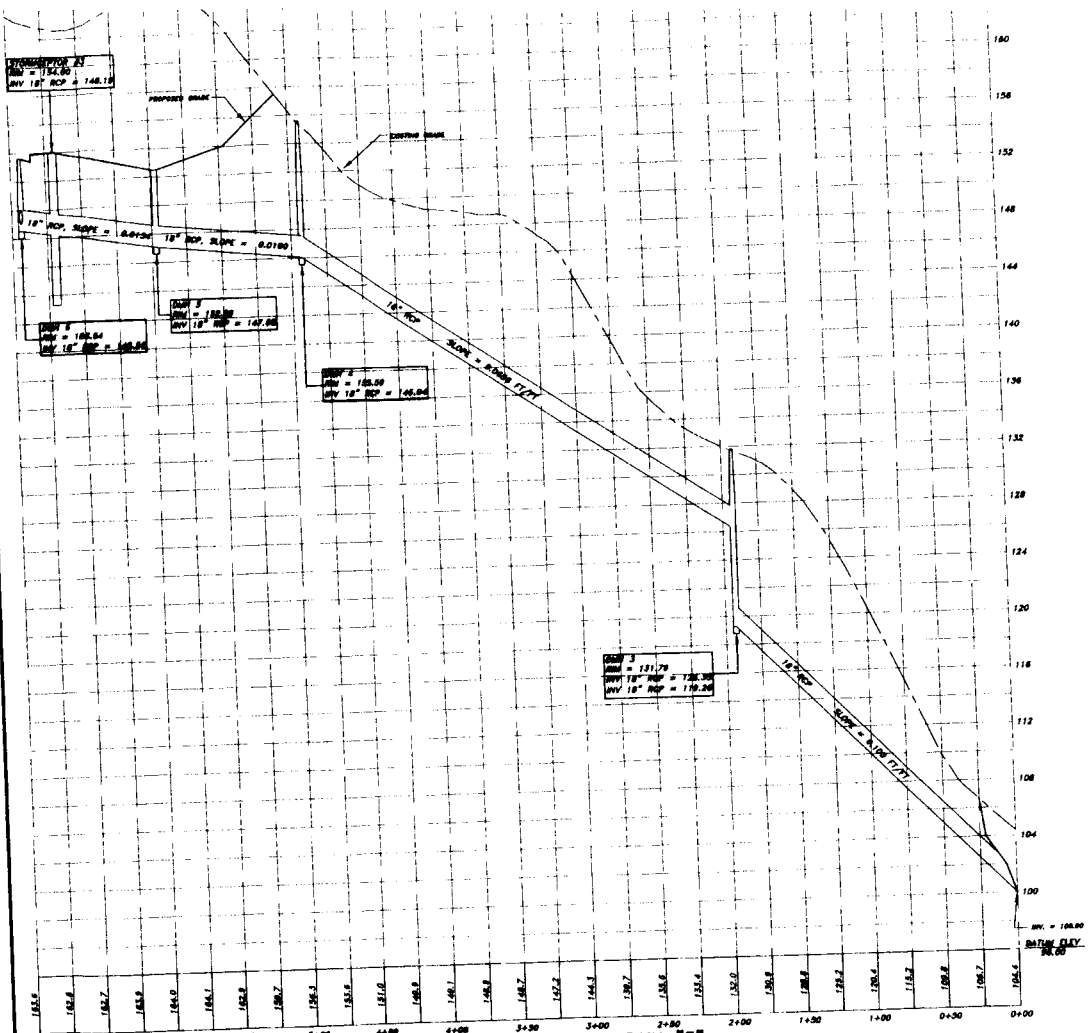


PROFILE ~ ALLISON CIRCLE
 HORIZONTAL SCALE: 1" = 40'
 VERTICAL SCALE: 1" = 4'

PROFILE ~ CROSS-COUNTRY DRAIN "B"
 HORIZONTAL SCALE: 1" = 40'
 VERTICAL SCALE: 1" = 4'

DRAINAGE PIPE SCHEDULE

| ITEM NO. | DESCRIPTION | QUANTITY | UNIT | PRICE | TOTAL |
|----------|--------------------------------------|----------|-------------|--------|---------|
| 1 | 12" CLASS V REINFORCED CONCRETE PIPE | 1000 | LINEAL FEET | 1.50 | 1500.00 |
| 2 | 8" PVC PIPE | 500 | LINEAL FEET | 1.00 | 500.00 |
| 3 | 12" MANHOLE | 10 | PIECES | 100.00 | 1000.00 |
| 4 | 8" MANHOLE | 5 | PIECES | 50.00 | 250.00 |
| 5 | 12" CATCH BASIN | 5 | PIECES | 150.00 | 750.00 |
| 6 | 8" CATCH BASIN | 2 | PIECES | 75.00 | 150.00 |
| 7 | CONCRETE ENCASEMENT | 1000 | LINEAL FEET | 0.50 | 500.00 |
| 8 | REFLECTOR PINS | 1000 | PIECES | 0.10 | 100.00 |
| 9 | GRANITE CURB | 100 | PIECES | 10.00 | 1000.00 |
| 10 | CONCRETE | 1000 | LINEAL FEET | 0.20 | 200.00 |
| 11 | PIPE FITTINGS | 100 | PIECES | 1.00 | 100.00 |
| 12 | LABOR | 1000 | HOURS | 1.00 | 1000.00 |
| 13 | EQUIPMENT | 100 | HOURS | 1.00 | 100.00 |
| 14 | PERMITS | 1 | PIECES | 500.00 | 500.00 |
| 15 | CONSTRUCTION | 1000 | LINEAL FEET | 0.10 | 100.00 |
| 16 | MARKING | 1000 | LINEAL FEET | 0.05 | 50.00 |
| 17 | UTILITY LOCATIONS | 1000 | LINEAL FEET | 0.05 | 50.00 |
| 18 | CONCRETE | 1000 | LINEAL FEET | 0.20 | 200.00 |
| 19 | GRANITE CURB | 100 | PIECES | 10.00 | 1000.00 |
| 20 | REFLECTOR PINS | 1000 | PIECES | 0.10 | 100.00 |
| 21 | CONCRETE ENCASEMENT | 1000 | LINEAL FEET | 0.50 | 500.00 |
| 22 | PIPE FITTINGS | 100 | PIECES | 1.00 | 100.00 |
| 23 | LABOR | 1000 | HOURS | 1.00 | 1000.00 |
| 24 | EQUIPMENT | 100 | HOURS | 1.00 | 100.00 |
| 25 | PERMITS | 1 | PIECES | 500.00 | 500.00 |
| 26 | CONSTRUCTION | 1000 | LINEAL FEET | 0.10 | 100.00 |
| 27 | MARKING | 1000 | LINEAL FEET | 0.05 | 50.00 |
| 28 | UTILITY LOCATIONS | 1000 | LINEAL FEET | 0.05 | 50.00 |
| 29 | CONCRETE | 1000 | LINEAL FEET | 0.20 | 200.00 |
| 30 | GRANITE CURB | 100 | PIECES | 10.00 | 1000.00 |
| 31 | REFLECTOR PINS | 1000 | PIECES | 0.10 | 100.00 |
| 32 | CONCRETE ENCASEMENT | 1000 | LINEAL FEET | 0.50 | 500.00 |
| 33 | PIPE FITTINGS | 100 | PIECES | 1.00 | 100.00 |
| 34 | LABOR | 1000 | HOURS | 1.00 | 1000.00 |
| 35 | EQUIPMENT | 100 | HOURS | 1.00 | 100.00 |
| 36 | PERMITS | 1 | PIECES | 500.00 | 500.00 |
| 37 | CONSTRUCTION | 1000 | LINEAL FEET | 0.10 | 100.00 |
| 38 | MARKING | 1000 | LINEAL FEET | 0.05 | 50.00 |
| 39 | UTILITY LOCATIONS | 1000 | LINEAL FEET | 0.05 | 50.00 |
| 40 | CONCRETE | 1000 | LINEAL FEET | 0.20 | 200.00 |
| 41 | GRANITE CURB | 100 | PIECES | 10.00 | 1000.00 |
| 42 | REFLECTOR PINS | 1000 | PIECES | 0.10 | 100.00 |
| 43 | CONCRETE ENCASEMENT | 1000 | LINEAL FEET | 0.50 | 500.00 |
| 44 | PIPE FITTINGS | 100 | PIECES | 1.00 | 100.00 |
| 45 | LABOR | 1000 | HOURS | 1.00 | 1000.00 |
| 46 | EQUIPMENT | 100 | HOURS | 1.00 | 100.00 |
| 47 | PERMITS | 1 | PIECES | 500.00 | 500.00 |
| 48 | CONSTRUCTION | 1000 | LINEAL FEET | 0.10 | 100.00 |
| 49 | MARKING | 1000 | LINEAL FEET | 0.05 | 50.00 |
| 50 | UTILITY LOCATIONS | 1000 | LINEAL FEET | 0.05 | 50.00 |
| 51 | CONCRETE | 1000 | LINEAL FEET | 0.20 | 200.00 |
| 52 | GRANITE CURB | 100 | PIECES | 10.00 | 1000.00 |
| 53 | REFLECTOR PINS | 1000 | PIECES | 0.10 | 100.00 |
| 54 | CONCRETE ENCASEMENT | 1000 | LINEAL FEET | 0.50 | 500.00 |
| 55 | PIPE FITTINGS | 100 | PIECES | 1.00 | 100.00 |
| 56 | LABOR | 1000 | HOURS | 1.00 | 1000.00 |
| 57 | EQUIPMENT | 100 | HOURS | 1.00 | 100.00 |
| 58 | PERMITS | 1 | PIECES | 500.00 | 500.00 |
| 59 | CONSTRUCTION | 1000 | LINEAL FEET | 0.10 | 100.00 |
| 60 | MARKING | 1000 | LINEAL FEET | 0.05 | 50.00 |
| 61 | UTILITY LOCATIONS | 1000 | LINEAL FEET | 0.05 | 50.00 |
| 62 | CONCRETE | 1000 | LINEAL FEET | 0.20 | 200.00 |
| 63 | GRANITE CURB | 100 | PIECES | 10.00 | 1000.00 |
| 64 | REFLECTOR PINS | 1000 | PIECES | 0.10 | 100.00 |
| 65 | CONCRETE ENCASEMENT | 1000 | LINEAL FEET | 0.50 | 500.00 |
| 66 | PIPE FITTINGS | 100 | PIECES | 1.00 | 100.00 |
| 67 | LABOR | 1000 | HOURS | 1.00 | 1000.00 |
| 68 | EQUIPMENT | 100 | HOURS | 1.00 | 100.00 |
| 69 | PERMITS | 1 | PIECES | 500.00 | 500.00 |
| 70 | CONSTRUCTION | 1000 | LINEAL FEET | 0.10 | 100.00 |
| 71 | MARKING | 1000 | LINEAL FEET | 0.05 | 50.00 |
| 72 | UTILITY LOCATIONS | 1000 | LINEAL FEET | 0.05 | 50.00 |
| 73 | CONCRETE | 1000 | LINEAL FEET | 0.20 | 200.00 |
| 74 | GRANITE CURB | 100 | PIECES | 10.00 | 1000.00 |
| 75 | REFLECTOR PINS | 1000 | PIECES | 0.10 | 100.00 |
| 76 | CONCRETE ENCASEMENT | 1000 | LINEAL FEET | 0.50 | 500.00 |
| 77 | PIPE FITTINGS | 100 | PIECES | 1.00 | 100.00 |
| 78 | LABOR | 1000 | HOURS | 1.00 | 1000.00 |
| 79 | EQUIPMENT | 100 | HOURS | 1.00 | 100.00 |
| 80 | PERMITS | 1 | PIECES | 500.00 | 500.00 |
| 81 | CONSTRUCTION | 1000 | LINEAL FEET | 0.10 | 100.00 |
| 82 | MARKING | 1000 | LINEAL FEET | 0.05 | 50.00 |
| 83 | UTILITY LOCATIONS | 1000 | LINEAL FEET | 0.05 | 50.00 |
| 84 | CONCRETE | 1000 | LINEAL FEET | 0.20 | 200.00 |
| 85 | GRANITE CURB | 100 | PIECES | 10.00 | 1000.00 |
| 86 | REFLECTOR PINS | 1000 | PIECES | 0.10 | 100.00 |
| 87 | CONCRETE ENCASEMENT | 1000 | LINEAL FEET | 0.50 | 500.00 |
| 88 | PIPE FITTINGS | 100 | PIECES | 1.00 | 100.00 |
| 89 | LABOR | 1000 | HOURS | 1.00 | 1000.00 |
| 90 | EQUIPMENT | 100 | HOURS | 1.00 | 100.00 |
| 91 | PERMITS | 1 | PIECES | 500.00 | 500.00 |
| 92 | CONSTRUCTION | 1000 | LINEAL FEET | 0.10 | 100.00 |
| 93 | MARKING | 1000 | LINEAL FEET | 0.05 | 50.00 |
| 94 | UTILITY LOCATIONS | 1000 | LINEAL FEET | 0.05 | 50.00 |
| 95 | CONCRETE | 1000 | LINEAL FEET | 0.20 | 200.00 |
| 96 | GRANITE CURB | 100 | PIECES | 10.00 | 1000.00 |
| 97 | REFLECTOR PINS | 1000 | PIECES | 0.10 | 100.00 |
| 98 | CONCRETE ENCASEMENT | 1000 | LINEAL FEET | 0.50 | 500.00 |
| 99 | PIPE FITTINGS | 100 | PIECES | 1.00 | 100.00 |
| 100 | LABOR | 1000 | HOURS | 1.00 | 1000.00 |
| 101 | EQUIPMENT | 100 | HOURS | 1.00 | 100.00 |
| 102 | PERMITS | 1 | PIECES | 500.00 | 500.00 |
| 103 | CONSTRUCTION | 1000 | LINEAL FEET | 0.10 | 100.00 |
| 104 | MARKING | 1000 | LINEAL FEET | 0.05 | 50.00 |
| 105 | UTILITY LOCATIONS | 1000 | LINEAL FEET | 0.05 | 50.00 |
| 106 | CONCRETE | 1000 | LINEAL FEET | 0.20 | 200.00 |
| 107 | GRANITE CURB | 100 | PIECES | 10.00 | 1000.00 |
| 108 | REFLECTOR PINS | 1000 | PIECES | 0.10 | 100.00 |
| 109 | CONCRETE ENCASEMENT | 1000 | LINEAL FEET | 0.50 | 500.00 |
| 110 | PIPE FITTINGS | 100 | PIECES | 1.00 | 100.00 |
| 111 | LABOR | 1000 | HOURS | 1.00 | 1000.00 |
| 112 | EQUIPMENT | 100 | HOURS | 1.00 | 100.00 |
| 113 | PERMITS | 1 | PIECES | 500.00 | 500.00 |
| 114 | CONSTRUCTION | 1000 | LINEAL FEET | 0.10 | 100.00 |
| 115 | MARKING | 1000 | LINEAL FEET | 0.05 | 50.00 |
| 116 | UTILITY LOCATIONS | 1000 | LINEAL FEET | 0.05 | 50.00 |
| 117 | CONCRETE | 1000 | LINEAL FEET | 0.20 | 200.00 |
| 118 | GRANITE CURB | 100 | PIECES | 10.00 | 1000.00 |
| 119 | REFLECTOR PINS | 1000 | PIECES | 0.10 | 100.00 |
| 120 | CONCRETE ENCASEMENT | 1000 | LINEAL FEET | 0.50 | 500.00 |
| 121 | PIPE FITTINGS | 100 | PIECES | 1.00 | 100.00 |
| 122 | LABOR | 1000 | HOURS | 1.00 | 1000.00 |
| 123 | EQUIPMENT | 100 | HOURS | 1.00 | 100.00 |
| 124 | PERMITS | 1 | PIECES | 500.00 | 500.00 |
| 125 | CONSTRUCTION | 1000 | LINEAL FEET | 0.10 | 100.00 |
| 126 | MARKING | 1000 | LINEAL FEET | 0.05 | 50.00 |
| 127 | UTILITY LOCATIONS | 1000 | LINEAL FEET | 0.05 | 50.00 |
| 128 | CONCRETE | 1000 | LINEAL FEET | 0.20 | 200.00 |
| 129 | GRANITE CURB | 100 | PIECES | 10.00 | 1000.00 |
| 130 | REFLECTOR PINS | 1000 | PIECES | 0.10 | 100.00 |
| 131 | CONCRETE ENCASEMENT | 1000 | LINEAL FEET | 0.50 | 500.00 |
| 132 | PIPE FITTINGS | 100 | PIECES | 1.00 | 100.00 |
| 133 | LABOR | 1000 | HOURS | 1.00 | 1000.00 |
| 134 | EQUIPMENT | 100 | HOURS | 1.00 | 100.00 |
| 135 | PERMITS | 1 | PIECES | 500.00 | 500.00 |
| 136 | CONSTRUCTION | 1000 | LINEAL FEET | 0.10 | 100.00 |
| 137 | MARKING | 1000 | LINEAL FEET | 0.05 | 50.00 |
| 138 | UTILITY LOCATIONS | 1000 | LINEAL FEET | 0.05 | 50.00 |
| 139 | CONCRETE | 1000 | LINEAL FEET | 0.20 | 200.00 |
| 140 | GRANITE CURB | 100 | PIECES | 10.00 | 1000.00 |
| 141 | REFLECTOR PINS | 1000 | PIECES | 0.10 | 100.00 |
| 142 | CONCRETE ENCASEMENT | 1000 | LINEAL FEET | 0.50 | 500.00 |
| 143 | PIPE FITTINGS | 100 | PIECES | 1.00 | 100.00 |
| 144 | LABOR | 1000 | HOURS | 1.00 | 1000.00 |
| 145 | EQUIPMENT | 100 | HOURS | 1.00 | 100.00 |
| 146 | PERMITS | 1 | PIECES | 500.00 | 500.00 |
| 147 | CONSTRUCTION | 1000 | LINEAL FEET | 0.10 | 100.00 |
| 148 | MARKING | 1000 | LINEAL FEET | 0.05 | 50.00 |
| 149 | UTILITY LOCATIONS | 1000 | LINEAL FEET | 0.05 | 50.00 |
| 150 | CONCRETE | 1000 | LINEAL FEET | 0.20 | 200.00 |
| 151 | GRANITE CURB | 100 | PIECES | 10.00 | 1000.00 |
| 152 | REFLECTOR PINS | 1000 | PIECES | 0.10 | 100.00 |
| 153 | CONCRETE ENCASEMENT | 1000 | LINEAL FEET | 0.50 | 500.00 |
| 154 | PIPE FITTINGS | 100 | PIECES | 1.00 | 100.00 |
| 155 | LABOR | 1000 | HOURS | 1.00 | 1000.00 |
| 156 | EQUIPMENT | 100 | HOURS | 1.00 | 100.00 |
| 157 | PERMITS | 1 | PIECES | 500.00 | 500.00 |
| 158 | CONSTRUCTION | 1000 | LINEAL FEET | 0.10 | 100.00 |
| 159 | MARKING | 1000 | LINEAL FEET | 0.05 | 50.00 |
| 160 | UTILITY LOCATIONS | 1000 | LINEAL FEET | 0.05 | 50.00 |
| 161 | CONCRETE | 1000 | LINEAL FEET | 0.20 | 200.00 |
| 162 | GRANITE CURB | 100 | PIECES | 10.00 | 1000.00 |
| 163 | REFLECTOR PINS | 1000 | PIECES | 0.10 | 100.00 |
| 164 | CONCRETE ENCASEMENT | 1000 | LINEAL FEET | 0.50 | 500.00 |
| 165 | PIPE FITTINGS | 100 | PIECES | 1.00 | |

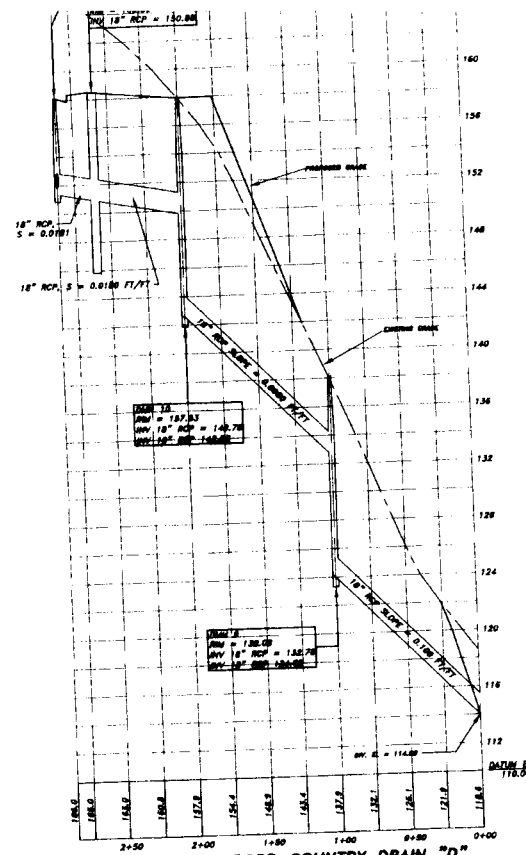


PROFILE ~ CROSS-COUNTRY DRAIN "E"
 HORIZONTAL SCALE: 1" = 40'
 VERTICAL SCALE: 1" = 4'

SEE SHEET 8 FOR PLAN VIEW

DRAINAGE PIPE SCHEDULE

| LINE NO. | START STATION | END STATION | LENGTH (FT) | DIAMETER (IN) | DEPTH (IN) | VELOCITY (FPS) | VELOCITY (MPH) |
|----------|---------------|-------------|-------------|---------------|------------|----------------|----------------|
| 1001 | 7+00 | 8+00 | 100.00 | 18 | 12 | 1.20 | 2.68 |
| 1002 | 8+00 | 9+00 | 100.00 | 18 | 12 | 1.20 | 2.68 |
| 1003 | 9+00 | 10+00 | 100.00 | 18 | 12 | 1.20 | 2.68 |
| 1004 | 10+00 | 11+00 | 100.00 | 18 | 12 | 1.20 | 2.68 |
| 1005 | 11+00 | 12+00 | 100.00 | 18 | 12 | 1.20 | 2.68 |
| 1006 | 12+00 | 13+00 | 100.00 | 18 | 12 | 1.20 | 2.68 |
| 1007 | 13+00 | 14+00 | 100.00 | 18 | 12 | 1.20 | 2.68 |
| 1008 | 14+00 | 15+00 | 100.00 | 18 | 12 | 1.20 | 2.68 |
| 1009 | 15+00 | 16+00 | 100.00 | 18 | 12 | 1.20 | 2.68 |
| 1010 | 16+00 | 17+00 | 100.00 | 18 | 12 | 1.20 | 2.68 |
| 1011 | 17+00 | 18+00 | 100.00 | 18 | 12 | 1.20 | 2.68 |
| 1012 | 18+00 | 19+00 | 100.00 | 18 | 12 | 1.20 | 2.68 |
| 1013 | 19+00 | 20+00 | 100.00 | 18 | 12 | 1.20 | 2.68 |



PROFILE ~ CROSS-COUNTRY DRAIN "D"
 HORIZONTAL SCALE: 1" = 40'
 VERTICAL SCALE: 1" = 4'

SEE SHEET 7 FOR PLAN VIEW

DRAINAGE PIPE SCHEDULE

| LINE NO. | START STATION | END STATION | LENGTH (FT) | DIAMETER (IN) | DEPTH (IN) | VELOCITY (FPS) | VELOCITY (MPH) |
|----------|---------------|-------------|-------------|---------------|------------|----------------|----------------|
| 1014 | 2+50 | 3+00 | 50.00 | 18 | 12 | 1.20 | 2.68 |
| 1015 | 3+00 | 4+00 | 100.00 | 18 | 12 | 1.20 | 2.68 |
| 1016 | 4+00 | 5+00 | 100.00 | 18 | 12 | 1.20 | 2.68 |
| 1017 | 5+00 | 6+00 | 100.00 | 18 | 12 | 1.20 | 2.68 |
| 1018 | 6+00 | 7+00 | 100.00 | 18 | 12 | 1.20 | 2.68 |
| 1019 | 7+00 | 8+00 | 100.00 | 18 | 12 | 1.20 | 2.68 |
| 1020 | 8+00 | 9+00 | 100.00 | 18 | 12 | 1.20 | 2.68 |
| 1021 | 9+00 | 10+00 | 100.00 | 18 | 12 | 1.20 | 2.68 |
| 1022 | 10+00 | 11+00 | 100.00 | 18 | 12 | 1.20 | 2.68 |
| 1023 | 11+00 | 12+00 | 100.00 | 18 | 12 | 1.20 | 2.68 |
| 1024 | 12+00 | 13+00 | 100.00 | 18 | 12 | 1.20 | 2.68 |
| 1025 | 13+00 | 14+00 | 100.00 | 18 | 12 | 1.20 | 2.68 |
| 1026 | 14+00 | 15+00 | 100.00 | 18 | 12 | 1.20 | 2.68 |
| 1027 | 15+00 | 16+00 | 100.00 | 18 | 12 | 1.20 | 2.68 |
| 1028 | 16+00 | 17+00 | 100.00 | 18 | 12 | 1.20 | 2.68 |
| 1029 | 17+00 | 18+00 | 100.00 | 18 | 12 | 1.20 | 2.68 |
| 1030 | 18+00 | 19+00 | 100.00 | 18 | 12 | 1.20 | 2.68 |
| 1031 | 19+00 | 20+00 | 100.00 | 18 | 12 | 1.20 | 2.68 |

J. J. Roberts
 Register No. 1715
 I CERTIFY THAT THIS PLAN CONFORMS TO THE RULES AND REGULATIONS OF THE BOARD OF DEEDS.
 DATE: 1/8/01

CITY OF HAVERHILL
 PLANNING BOARD
 [Signature]
 [Signature]
 [Signature]
 DATE: 1/18/01

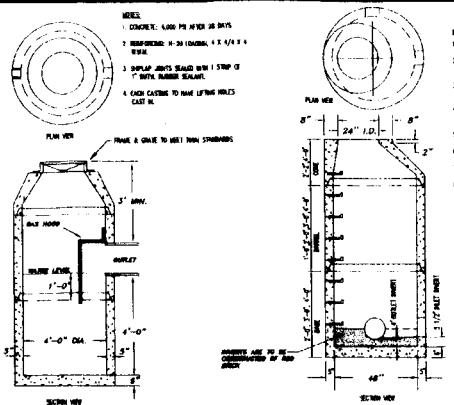


DEFINITIVE SUBDIVISION PLAN "LYONS FARMS"
 LOCATED IN HAVERHILL, MASS.
 APPLICANT & RECORD OWNER: GIBSONVILLE-LYONS REALTY TRUST
 201 HWY 1A AVENUE, HAVERHILL, MA 01830
CHRISTIANSEN & SERGI PROFESSIONAL ENGINEERS & LAND SURVEYORS
 120 SHANNON ST., HAVERHILL, MA 01830 TEL. 978-373-0310

PROFILES ~ CROSS-COUNTRY DRAINS "D" & "E"
 DATE: JANUARY 8, 2001
 REVISED: APRIL 18, 2001
 SHEET 14 OF 17
 DRAWING NO. 00012000

FOR REGISTRY USE ONLY
PLAN BOOK 357 PLAN
 357
 1/18/01
 DATE

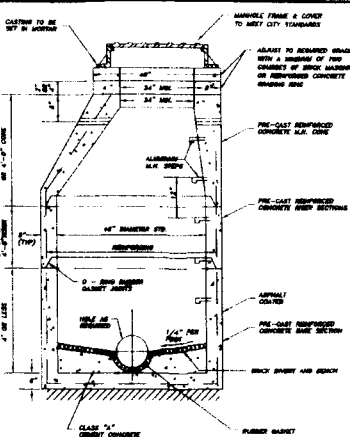
I CERTIFY THAT THIS PLAN CONFORMS TO THE RULES AND REGULATIONS OF THE REGISTER OF DEEDS.
 DATE 1/18/01



CATCH BASIN
NOT TO SCALE

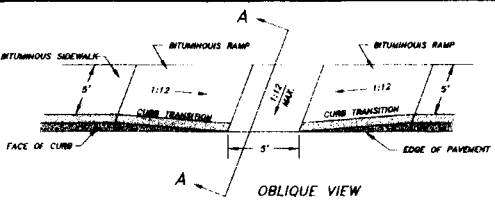
DRAIN MANHOLE
NOT TO SCALE

- NOTES:**
1. CAST IRON FRAME AND HOUSING ARE TO MEET CITY REQUIREMENTS. THE STEEL FRAME VARIANT SHALL BE 300 LBS.
 2. FRAME SHALL BE AN 18" HUBBARD BRIDGE AND BEARING ALIGNMENT ON ALL SPOUNGE STRUCTURES.

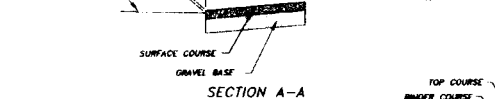


SEWER MANHOLE
NOT TO SCALE

- NOTES:**
1. CAST IRON FRAME AND HOUSING ARE TO MEET CITY REQUIREMENTS. THE STEEL FRAME VARIANT SHALL BE 300 LBS.
 2. FRAME SHALL BE AN 18" HUBBARD BRIDGE AND BEARING ALIGNMENT ON ALL SPOUNGE STRUCTURES.

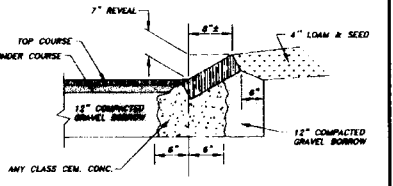


HANDICAP RAMP
NOT TO SCALE

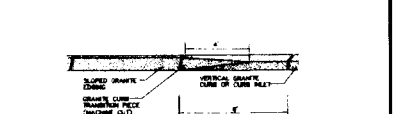


SECTION A-A
HANDICAP RAMP
NOT TO SCALE

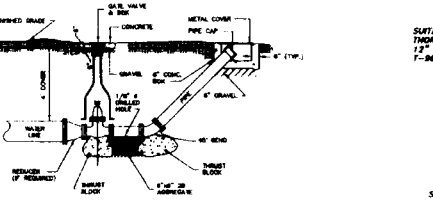
- NOTES:**
1. CONSTRUCTION MATERIALS FOR HANDICAP RAMP TO BE SIMILAR TO ADJACENT SIDEWALK.



SLOPED GRANITE EDGING
NOT TO SCALE

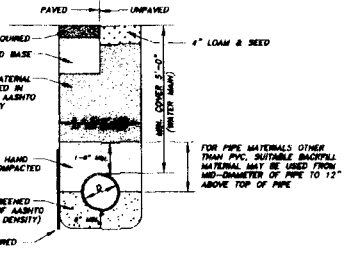


GRANITE CURB TRANSITION PIECE
NOT TO SCALE



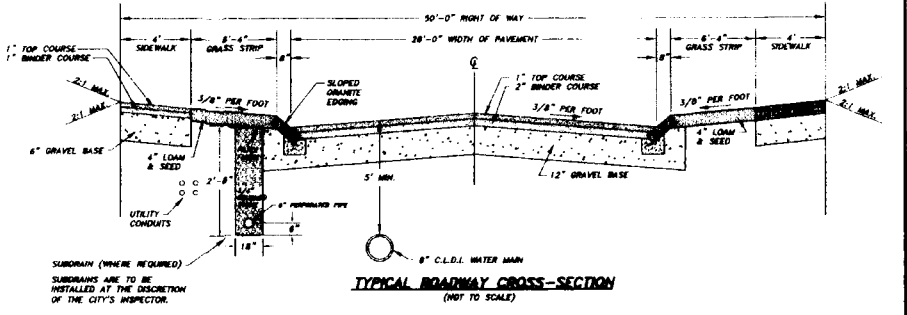
BLOW-OFF INSTALLATION
NOT TO SCALE

- WATER MAIN INSTALLATION NOTES:**
1. IF SPLITTING IS USED, IT SHALL BE CUT OFF NO MORE THAN 12" ABOVE THE TOP OF THE PIPE.
 2. ALL PIPES SHALL BE TESTED TO A PRESSURE 1.5 TIMES WORKING PRESSURE FOR A ONE HOUR MINIMUM DURATION.
 3. THE WATER SYSTEM IS TO BE DISCONNECTED TO 80 PPM AVAILABLE CHLORINE AND, AFTER 24 HOURS, TO 25 PPM OR AS REQUIRED BY THE CITY OF HAVERHILL WATER SUPERINTENDENT. TESTING WILL BE PERFORMED BY THE CITY OF HAVERHILL LABORATORY.
 4. ALL WATER PIPE IS TO BE CEMENT LINED DUCTILE IRON WITH TYPICAL OR EQUAL TYPE JOINT, CONFORMING TO A.S.S.I./A.W.W.A. CLASS APT. 50, CLASS 80, AS APPROVED BY THE CITY OF HAVERHILL WATER SUPERINTENDENT.
 5. ALL PIPING SHALL BE INSTALLED AND TESTED ACCORDING TO A.W.W.A. STANDARDS PRIOR TO PAVING.
 6. BACKFILL MATERIAL IS TO BE COMPACTED TO 90% MAXIMUM CITY DENSITY AS PER A.S.S.I.F.O. 1-180 D.
 7. ALL WATER PIPES SHALL BE LAB WITH A MINIMUM OF 3 FEET OF COVER WITH APPROVED MATERIALS.
 8. HYDRANT LOCATION IS TO BE APPROVED BY THE DEPARTMENT.
 9. RESULTS FROM PRESSURE TESTING AND OBSERVATION SHALL BE FURNISHED TO THE DIRECTOR OF PUBLIC WORKS FOR APPROVAL PRIOR TO WATER BEING TURNED ON.
 10. ALL GATES SHALL OPEN RIGHT.
 11. A.S.R. HEIGHTS OUTSIDE WATER METERS AND BOXES WILL BE PROVIDED BY THE DEVELOPER.
 12. ALL WORK SHALL CONFORM TO HAVERHILL WATER DEPARTMENT STANDARDS.
 13. AS-BUILT DRAWINGS SHALL BE PROVIDED TO THE HAVERHILL WATER DEPARTMENT.
 14. NO BUILDING PERMITS WILL BE ISSUED UNTIL ALL OF THE UTILITIES SHOWN ON THE PLANS ARE INSTALLED AND TESTED TO THE SATISFACTION OF THE CITY OF HAVERHILL.
 15. ALL PERMITS REQUIRED FOR STREET CLOSURES AND WATER MAIN TAPPING MUST BE OBTAINED.
 16. NO WATER SHALL BE TURNED ON IN THE PROJECT WITHOUT WATER DEPARTMENT APPROVAL.
 17. THE DEVELOPER SHALL PROVIDE THE WATER DEPARTMENT WITH THE COST OF INSTALLING A WATER MAIN FROM ITS PRESENT LOCATION TO THE PROPERTY LINE. THE MAIN SHALL INCLUDE APPROXIMATELY 1.000 FEET OF A 24" WATER MAIN ALONG WITH PIPING TO COMPLETE A LOOP FROM THE EXISTING MAIN NEAR JARVIS DRIVE TO THE EXISTING WATER MAIN ON HOLLY LANE AND THE EXISTING MAIN ON FIRST AVENUE APPROXIMATELY TO HOLLY LANE. WATER SHALL NOT BE PROVIDED TO THE SUBDIVISION UNTIL THIS WATER MAIN IS IN SERVICE.



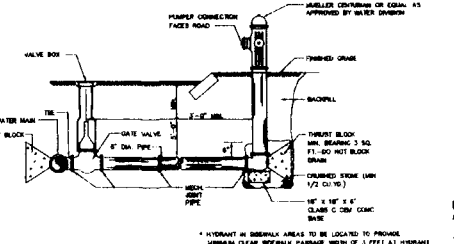
TYPICAL TRENCH
NOT TO SCALE

- FOR PIPE MATERIALS OTHER THAN PVC, SUITABLE BRICK/PREFABRICATED MATERIAL MAY BE USED FROM MID-DIAMETER OF PIPE TO 12" ABOVE TOP OF PIPE.**

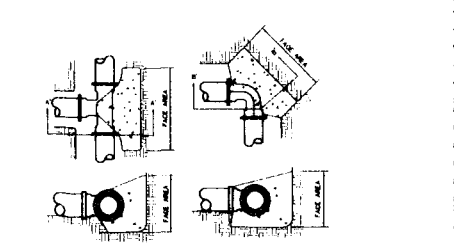


TYPICAL ROADWAY CROSS-SECTION
NOT TO SCALE

- WATER SERVICE NOTES:**
1. THE DEVELOPER SHALL PROVIDE INDIVIDUAL WATER BOOSTER PUMPS IN EACH HOUSE TO INCREASE PRESSURE FOR DOMESTIC USE. AT THE TIME OF WATER SERVICE APPLICATION THE DEVELOPER MAY REQUEST THAT THE WATER DEPARTMENT REVIEW THE PUMP BASIS ON HYDRAULIC APPROXIMATELY TO COMPLETION OF THE 24-INCH PIPELINE FROM MAINLINE STREET TO SUBDIVISION STREET.
 2. THE DEVELOPER SHALL PAY A \$1000 BOND WHEN APPROVED FOR EACH WATER SERVICE. THE FEE SHALL BE PAID TO THE WATER DEPARTMENT AT THE TIME OF EACH WATER SERVICE APPLICATION.



HYDRANT CONNECTION
NOT TO SCALE



STANDARD THRUST BLOCKING
NOT TO SCALE

- NOTE:** ALL WATER PLUMBING WORK SHALL BE ALLOWED AGAINST PIPE WITH 45 DEGREE ANGLE.

THRUST BLOCKS ARE TO BE INSTALLED AT ALL BENDS, TEES, PLUGS, AND HYDRANTS.

CITY OF HAVERHILL
 PROFESSIONAL
 G. CHRISTIANSEN P.E.
 DATE: 1/18/01

DEFINITIVE SUBDIVISION PLAN
"LYONS FARMS"
 LOCATED IN
HAVERHILL, MASS.
 APPLICANT & RECORD OWNER
DENNYVILLE-LYONS REALTY TRUST
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CHRISTIANSEN & SERGI PROFESSIONAL ENGINEERS
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 180 SUMNER ST., HAVERHILL, MA. 01830 TEL. 878-373-8310
 DATE: JANUARY 8, 2001
 REVISION: 4/19/01
 SHEET 18 OF 17
 DRAWING NO. 2001007

