

STORM SEWER STRUCTURE CASTINGS

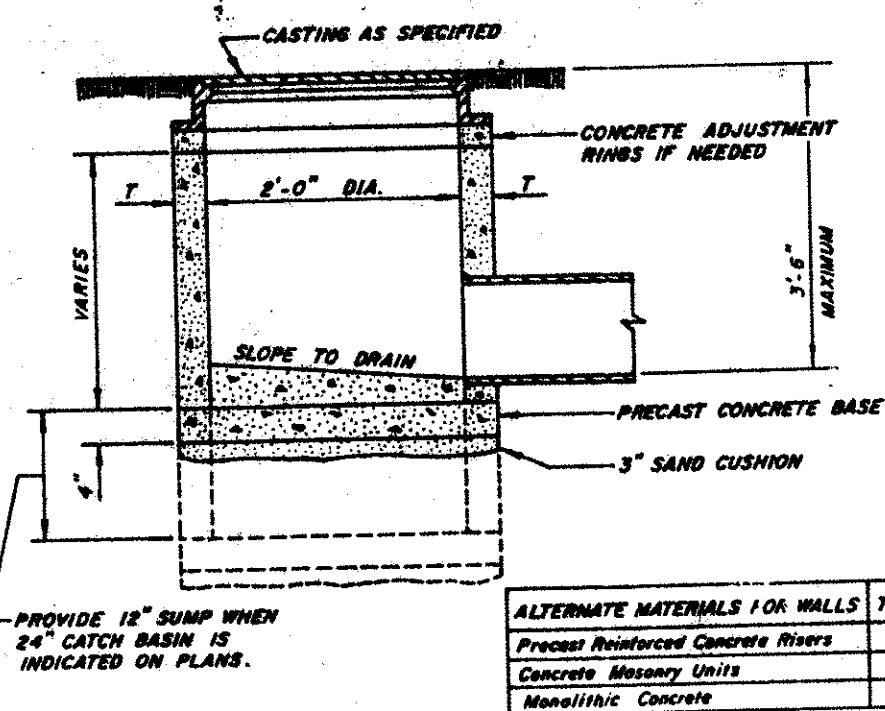
TYPE OF CASTING TO BE PROVIDED FOR EACH STRUCTURE SHALL BE AS INDICATED ON PLANS IN THE FOLLOWING MANNER.

C.B. 16 (T3)
TYPE OF CASTING
STRUCTURE NUMBER
STRUCTURE TYPE

CASTING NO. NEEDHAM CATALOG NUMBER

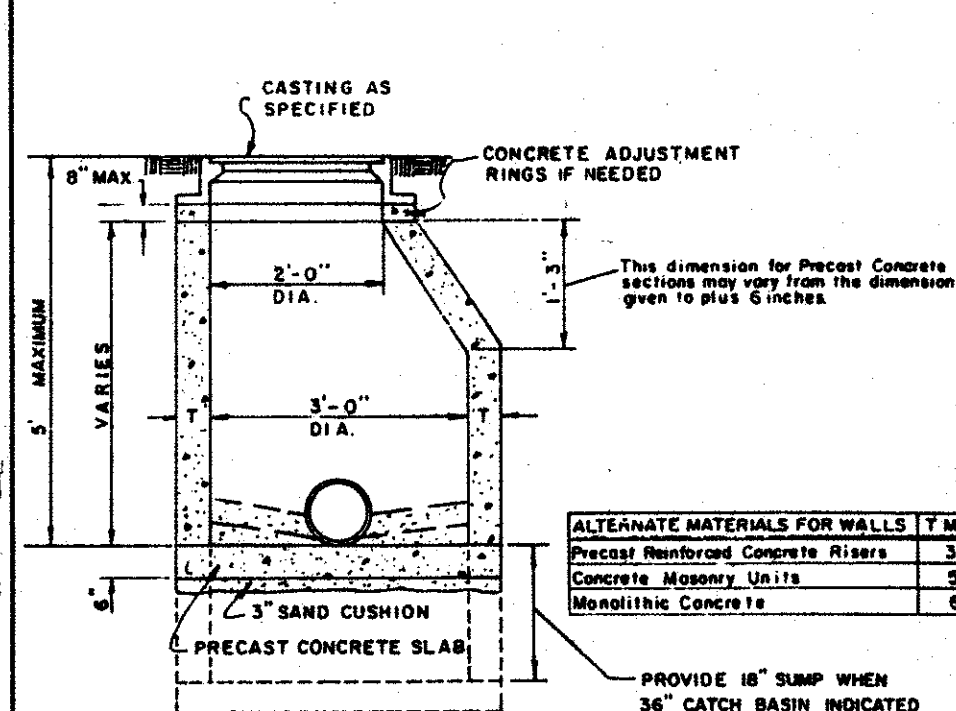
T1.....R-1077-B W/WORD "STORM" ON LID
T2.....R-2077-B TYPE D GRATE
T3.....R-3015
T4.....R-3170
T5.....R-3501-P
T6.....R-3505-A
T7.....R-4340-B
T8.....STEEL GRATE (SEE DETAIL THIS SHEET).

24" INLET 5' CATCH BASIN



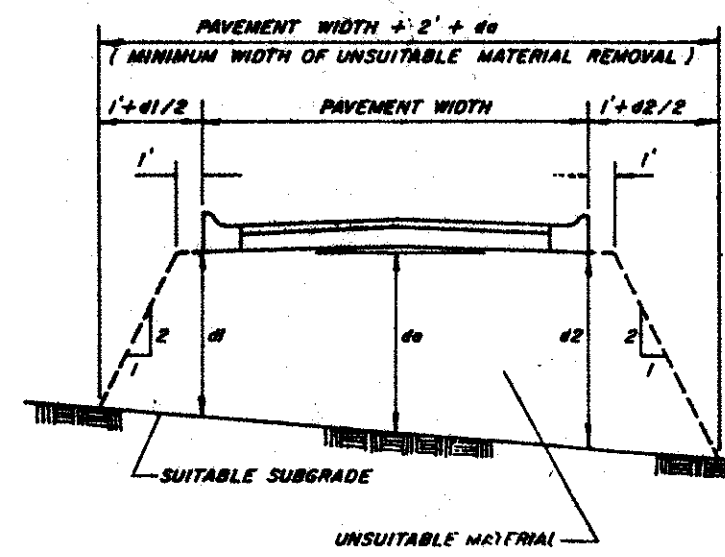
- NOTES:
- STRUCTURES SHALL BE OF PRECAST CONCRETE SECTIONS UNLESS OTHERWISE NOTED ON THE PLANS.
 - PIPE OPENINGS SHALL BE CAST INTO WALL.
 - ALL JOINTS BETWEEN PRECAST RISER SECTIONS, ADJUSTMENT RINGS AND FRAME SHALL BE SEALED WITH A BITUMASTIC MATERIAL.
 - FRAME AND/OR GRATE CASTING SHALL BE AS SPECIFIED ON THE PLANS.
 - THE CONTRACT UNIT PRICE PER STRUCTURE SHALL INCLUDE THE FRAME AND/OR GRATE SPECIFIED AND THE SAND CUSHION.

36" INLET 5' CATCH BASIN



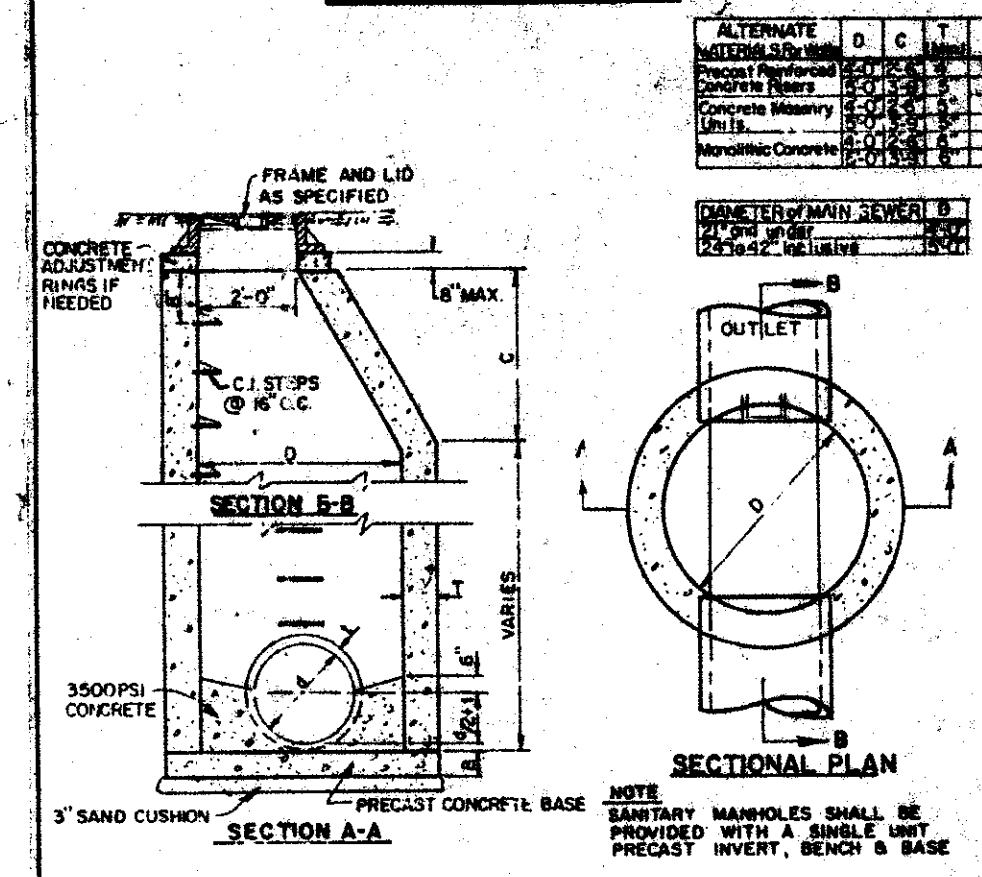
- NOTES:
- STRUCTURES SHALL BE OF PRECAST CONCRETE SECTIONS UNLESS OTHERWISE NOTED ON THE PLANS.
 - PIPE OPENINGS SHALL BE CAST INTO WALL.
 - ALL JOINTS BETWEEN PRECAST RISER SECTIONS, ADJUSTMENT RINGS AND FRAME SHALL BE SEALED WITH A BITUMASTIC MATERIAL.
 - SLOPE INVERT TO DRAIN, PROVIDE CIRCULAR FLOW CHANNEL IN STRUCTURES THAT HAVE BOTH INLET AND OUTLET PIPES.
 - FRAME AND/OR GRATE CASTING SHALL BE AS SPECIFIED ON THE PLANS.
 - THE CONTRACT UNIT PRICE PER STRUCTURE SHALL INCLUDE THE FRAME AND/OR GRATE SPECIFIED AND THE SAND CUSHION.

UNSATURABLE MATERIAL EXCAVATION



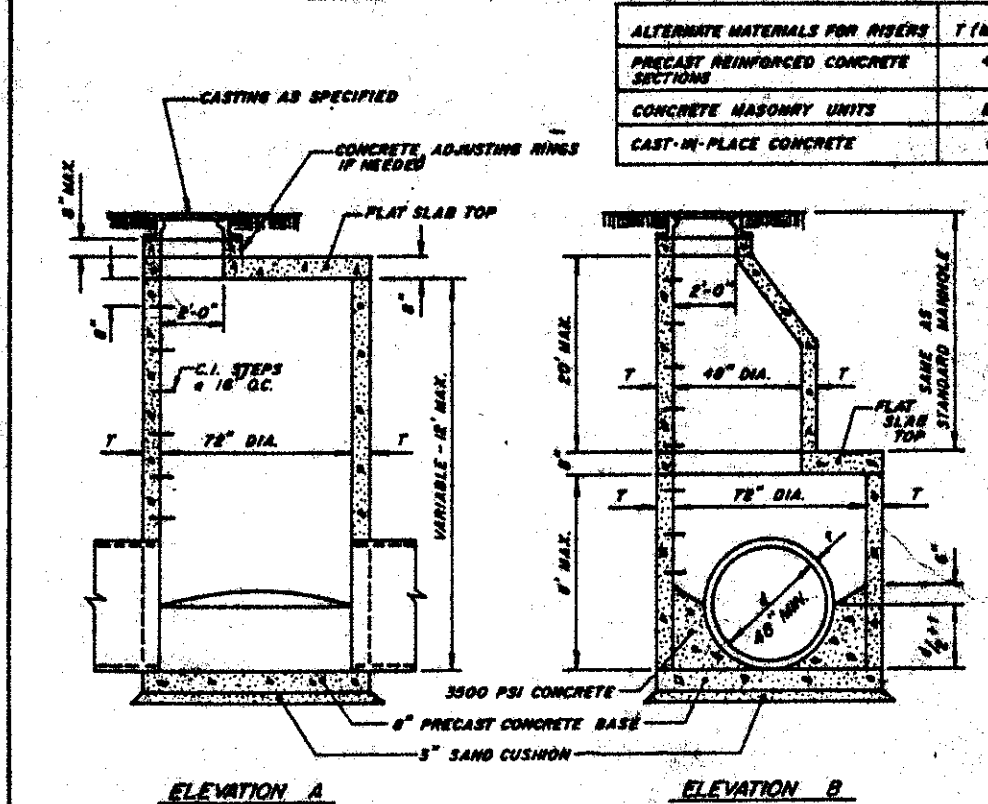
4' = DEPTH OF UNSATURABLE MATERIAL MEASURED FROM BOTTOM OF EXCAVATION

STANDARD MANHOLE



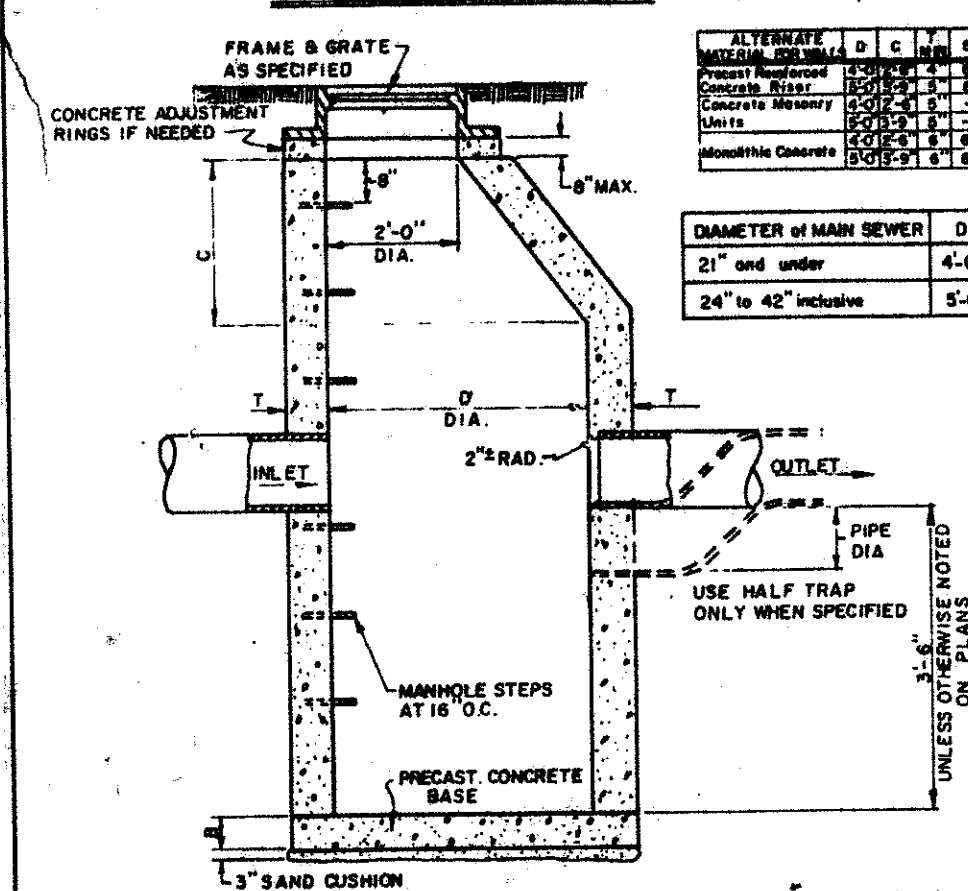
- NOTES:
- MANHOLES SHALL BE OF PRECAST CONCRETE SECTIONS UNLESS OTHERWISE NOTED ON PLANS.
 - PIPE OPENINGS SHALL BE CAST INTO WALL.
 3. DIMENSION "C" FOR PRECAST CONCRETE RISERS MAY VARY FROM THAT GIVEN TO PLUS 6 INCHES.
 - ALL JOINTS BETWEEN PRECAST RISER & TOP SLAB SECTIONS, ADJUSTMENT RINGS AND CASTINGS SHALL BE SEALED WITH A BITUMASTIC MATERIAL OR A RUBBER GASKET.
 - STEPS SHALL BE EMBEDDED INTO THE WALL A MINIMUM OF 3" AND SHALL NOT BE EXTENDED TO THE OUTSIDE.
 - FRAME AND LID CASTING AND MANHOLE STEPS SHALL BE AS SPECIFIED ON THE PLANS OR IN THE SPECIAL PROVISIONS.
 - THE CONTRACT UNIT PRICE FOR MANHOLES SHALL INCLUDE THE FRAME AND LID, AND STEPS SPECIFIED AND THE SAND CUSHION.

MANHOLE - 6 FT. DIAMETER



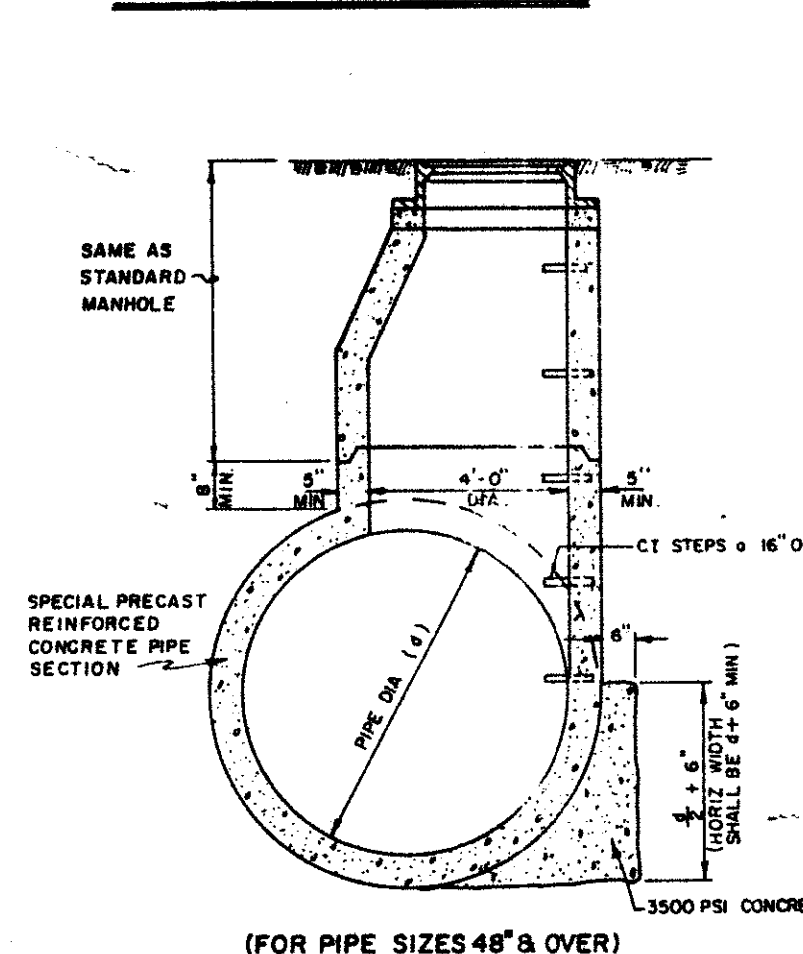
- NOTES:
- MANHOLES SHALL BE OF PRECAST CONCRETE UNLESS OTHERWISE NOTED.
 - PIPE OPENINGS SHALL BE CAST INTO WALL.
 - JOINT CONFIGURATION & DIMENSIONS OF FLAT SLAB TOP SHALL MATCH AND FIT THE RISER JOINT LID.
 - ALL JOINTS BETWEEN PRECAST RISER & TOP SLAB SECTIONS, ADJUSTMENT RINGS AND CASTINGS SHALL BE SEALED WITH A BITUMASTIC MATERIAL OR A RUBBER GASKET.
 - STEPS SHALL BE EMBEDDED INTO THE WALL A MINIMUM OF 3" AND SHALL NOT BE EXTENDED TO THE OUTSIDE.
 - FRAME AND LID CASTING AND MANHOLE STEPS SHALL BE AS SPECIFIED ON THE PLANS OR IN THE SPECIAL PROVISIONS.
 - THE CONTRACT UNIT PRICE FOR MANHOLES SHALL INCLUDE THE FRAME AND LID, AND STEPS SPECIFIED, THE FLAT SLAB TOP AND THE SAND CUSHION.

STANDARD CATCH BASIN



- NOTES:
- CATCH BASINS SHALL BE OF PRECAST CONCRETE SECTIONS UNLESS OTHERWISE NOTED ON THE PLANS.
 - PIPE OPENINGS SHALL BE CAST INTO WALL.
 3. DIMENSION "C" FOR PRECAST CONCRETE RISERS MAY VARY FROM THAT GIVEN TO PLUS 6 INCHES.
 - ALL JOINTS BETWEEN PRECAST RISER AND TOP SLAB SECTIONS, ADJUSTMENT RINGS AND CASTINGS SHALL BE SEALED WITH A BITUMASTIC MATERIAL.
 - STEPS SHALL BE EMBEDDED INTO THE WALL A MINIMUM OF 4 INCHES AND SHALL NOT BE EXTENDED TO THE OUTSIDE.
 - FRAME AND LID OR GRATE CASTING AND MANHOLE STEPS SHALL BE AS SPECIFIED ON THE PLANS.
 - THE CONTRACT UNIT PRICE FOR CATCH BASINS SHALL INCLUDE THE FRAME AND LID OR GRATE AND STEPS SPECIFIED AND THE SAND CUSHION.

PIPE SECTION MANHOLE



- NOTES:
- ADDITIONAL PIPE OPENINGS, IF INDICATED ON PLANS, SHALL BE CAST INTO WALLS OF PIPE SECTION OR MANHOLE RISER.
 - THE CONTRACT UNIT PRICE FOR PIPE SECTION MANHOLES SHALL INCLUDE THE SPECIAL PIPE SECTION, CONCRETE MANHOLE AND STANDARD MANHOLE SECTION COMPLETE WITH CASTING AND STEPS SPECIFIED.

CONCRETE STRUCTURES

- CONSTRUCTION OF CAST-IN-PLACE CONCRETE STRUCTURES SUCH AS RETAINING WALLS AND CULVERT HEADWALLS SHALL BE IN ACCORDANCE WITH SECTIONS 501, 504, AND 512 OF THE ILLINOIS DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION".

- CONCRETE SHALL BE 100T CLASS X WITH A COMPRESSIVE STRENGTH OF NOT LESS THAN 3500 PSI (AT 14 DAYS), 5 TO 8 PERCENT AIR ENTRAINMENT AND A 3/4" TO 1" SLUMP. READY-MIX CONCRETE SHALL BE PROVIDED. SUBMIXED CONCRETE WILL NOT BE ALLOWED.

- THE CONTRACTOR SHALL SUBMIT A MATERIAL MIX DESIGN AND OBTAIN THE ENGINEER'S APPROVAL OF SUCH DESIGN PRIOR TO PLACEMENT OF ANY CONCRETE. ADMIXTURES FOR INCREASING WORKABILITY, REDUCING WATER CONTENT OR RETARDING OR ACCELERATING HARDENING OF THE CONCRETE SHALL BE PERMITTED ONLY WHEN APPROVED BY THE ENGINEER.

- REINFORCEMENT BARS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M31, M32, OR M33 GRADE 60 DEFORMED STEEL BARS. INSTALLATION REQUIREMENTS SHALL BE IN ACCORDANCE WITH SECTION 511 OF THE STANDARD SPECIFICATIONS. THE CONTRACTOR SHALL SUBMIT AND OBTAIN ENGINEER'S APPROVAL OF REINFORCING BAR FABRICATION AND PLACEMENT DRAWINGS BEFORE INSTALLING ANY REINFORCING BARS.

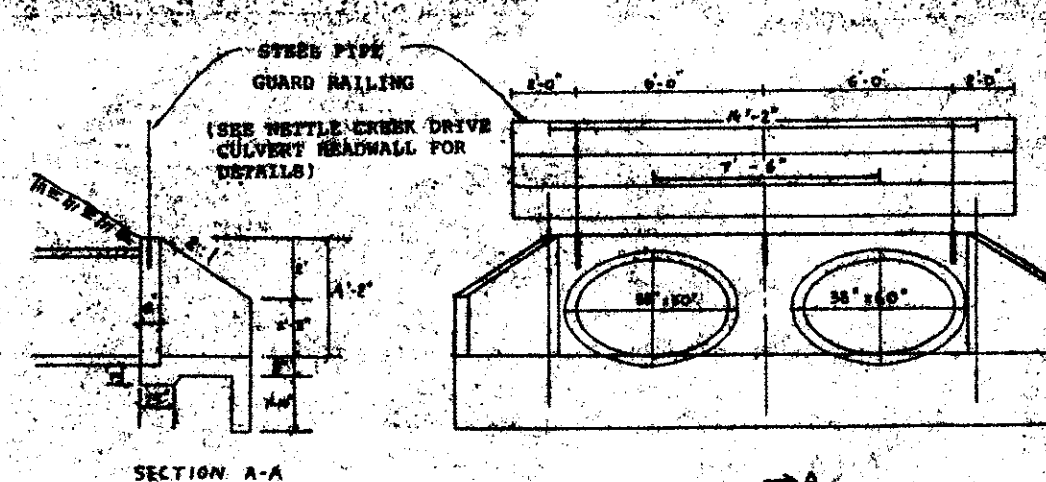
- CONSTRUCTION JOINTS SHALL BE PROVIDED (USING 1" DEEP PRECASTED TRIANGULAR INSERTS OR FORM ATTACHMENTS ON BOTH WALL FACES) AT THE LOCATIONS SHOWN ON THE PLANS. ALTERNATE HORIZONTAL REINFORCING BARS SHALL BE EXTENDED CONTINUOUS THROUGH THE JOINT.
- CONSTRUCTION JOINTS SHALL NOT BE PERMITTED WITHOUT SPECIFIC APPROVAL OF THE ENGINEER. THE CONTRACTOR SHALL SUBMIT INFORMATION REGARDING JOINT LOCATIONS AND DETAILS.

- ISOLATION JOINTS SHALL BE PROVIDED WHERE NOTED ON THE PLANS AND CONTAIN A PREFORMED NON-EXTENDING FILLER (ASTM-D1751).
- ALL SURFACES THAT WILL BE EXPOSED TO VIEW AFTER COMPLETION OF THE WORK SHALL BE GIVEN A NORMAL FINISH IN CONFORMANCE WITH ACTUAL 90.15 OF THE STANDARD SPECIFICATIONS.

- ALL CONCRETE SHALL BE CURED FOR NOT LESS THAN 7 DAYS AFTER THE CONCRETE HAS BEEN PLACED. FORMS SHALL REMAIN IN PLACE AT LEAST 24 HOURS AFTER WHICH THEY MAY BE REMOVED, PROVIDED THAT CONTINUED CURING PROCEDURES ARE IMPLEMENTED WITHIN 2 HOURS FROM THE TIME OF START OF FORM REMOVAL. EXPOSED SURFACES SHALL BE SEALED WITH MEMBRANE CURING COMPOUND.

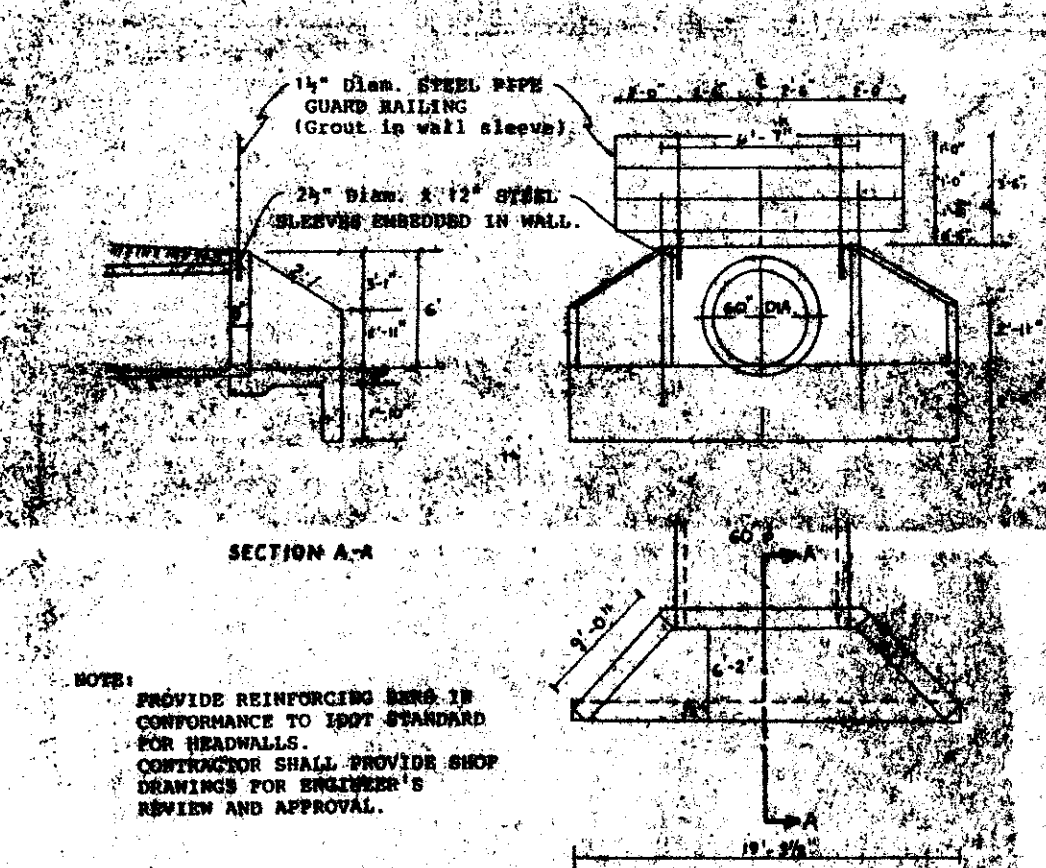
CULVERT HEADWALL GUARDRAIL

- THE GUARDRAIL TO BE INSTALLED ON THE RETAINING WALL SHALL BE FABRICATED FROM 1-1/2" DIAMETER SCHEDULE 40 WELDED OR SEAMLESS STEEL PIPE.
- RAIL POSTS SHALL BE PLACED IN 2-1/2" DIAMETER BY 12" LONG STEEL SLEEVES CAST INTO THE TOP OF THE CONCRETE WALL.
- ALL GUARDRAIL SURFACES SHALL BE PAINTED WITH ONE SHOP COAT OF PAINT AFTER BEING FABRICATED AND TWO FIELD COATS OF PAINT AFTER BEING INSTALLED.
- MATERIAL FABRICATOR AND INSTALLATION REQUIREMENTS SHALL BE IN ACCORDANCE WITH 100T SPECIFICATIONS - SECTION 511.
- THE CONTRACTOR SHALL SUBMIT DETAILED SHOP DRAWINGS AND OBTAIN ENGINEER'S APPROVAL BEFORE STARTING FABRICATION.



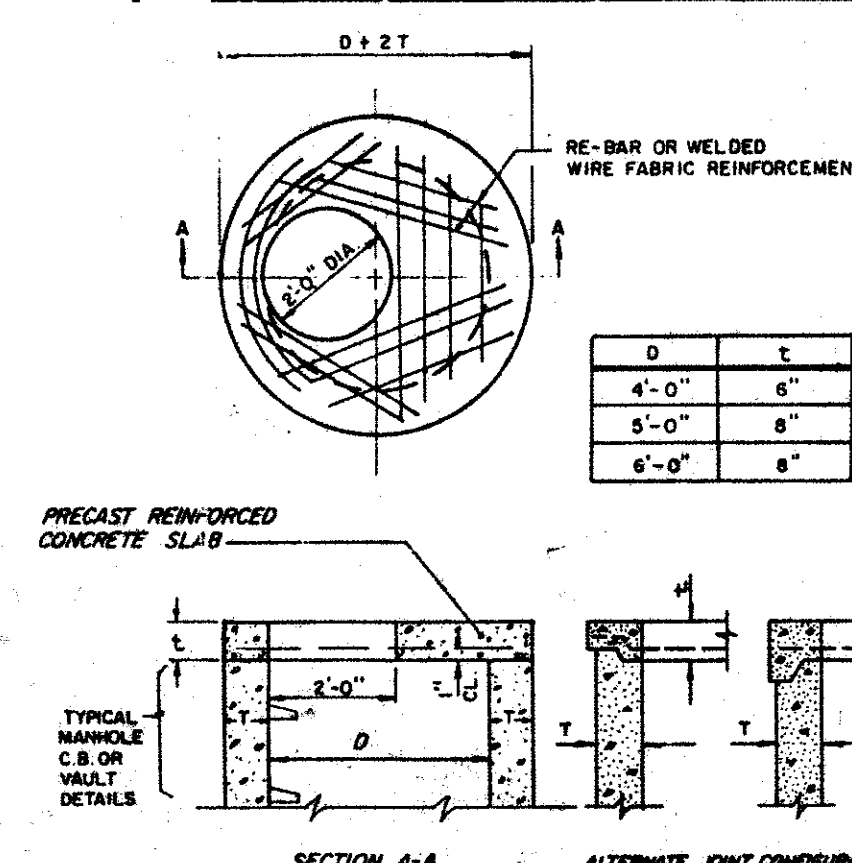
- NOTE: PROVIDE REINFORCING BARS TO CONFORMANCE TO 100T STANDARD FOR HEADWALLS. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR ENGINEER'S REVIEW AND APPROVAL.

COUNTRY CLUB LANE CULVERT HEADWALL



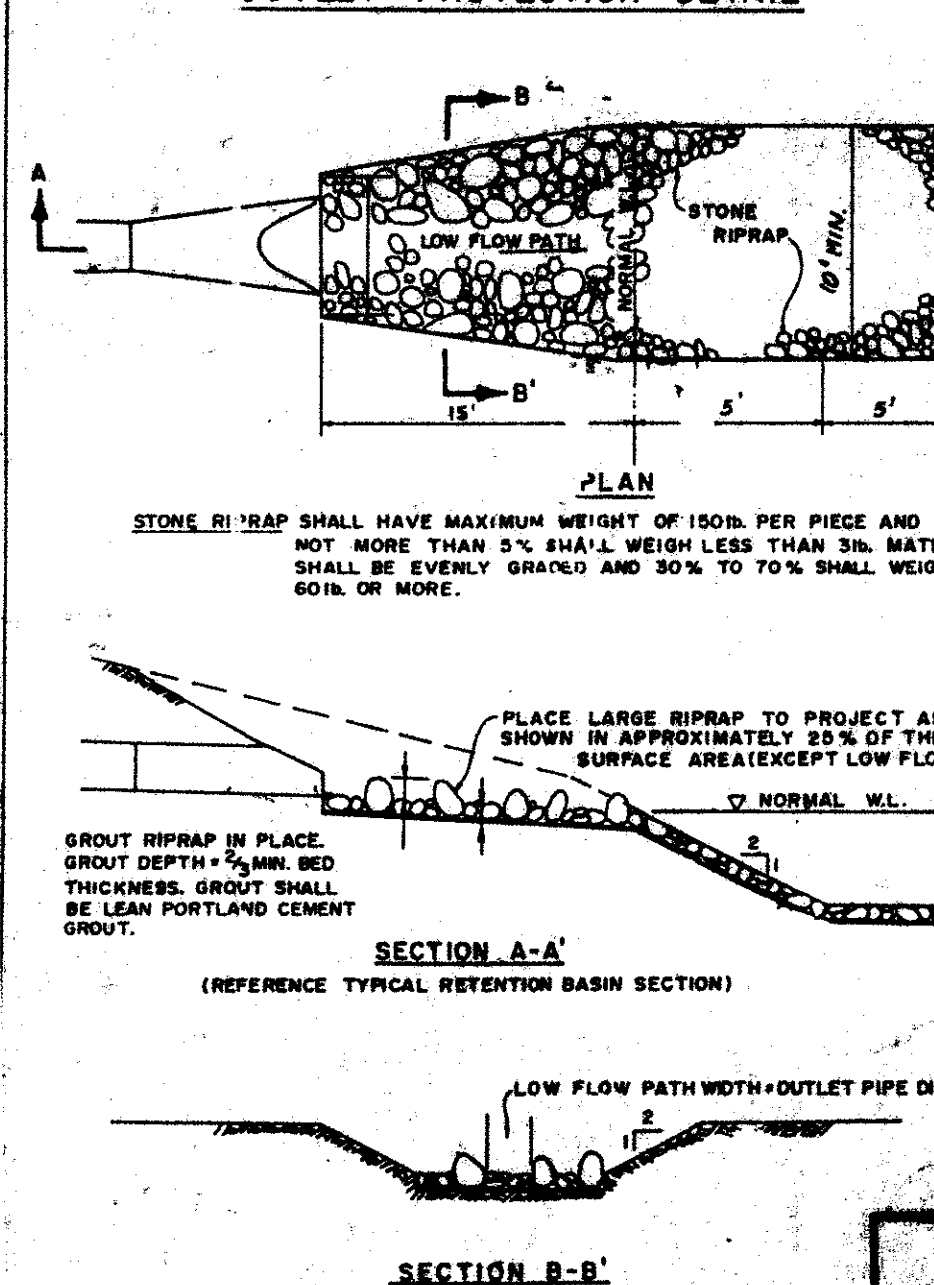
NETTLE CREEK DRIVE CULVERT HEADWALL

FLAT SLAB TOP FOR MANHOLES, CATCH BASINS & VALVE VAULTS

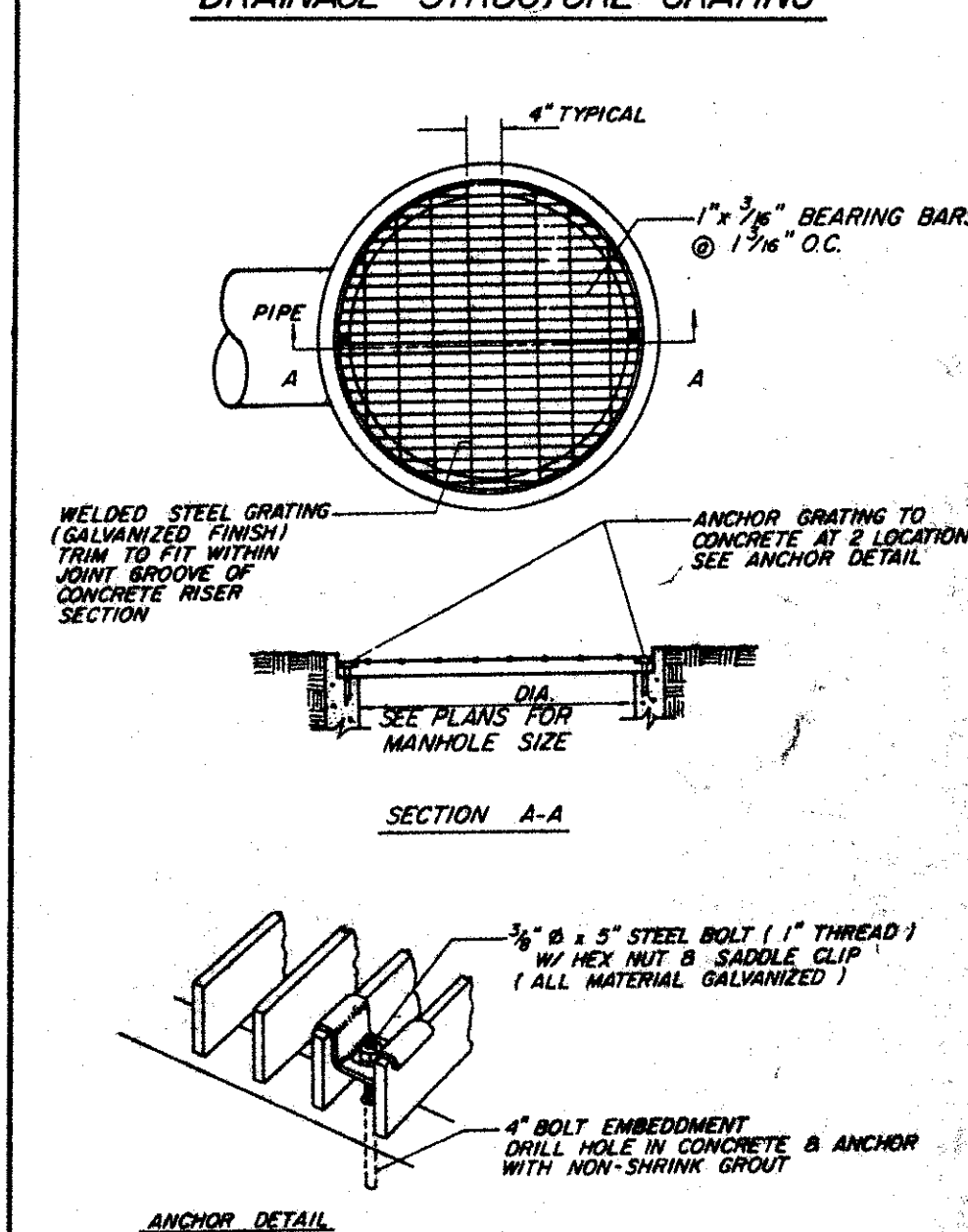


- NOTES:
- A FLAT SLAB TOP MAY BE USED ON THE MANHOLES, CATCH BASINS AND VALVE VAULTS WHEN FIELD CONDITIONS PREVENT THE USE OF A CONE SECTION OR WHEN REQUESTED OR PERMITTED BY THE ENGINEER.
 - SLAB DETAILS, CONCRETE QUALITY, & REINFORCING SHALL BE IN ACCORDANCE WITH 100T STANDARD NO. 2354 & 2395.
 - THE COST OF FURNISHING & INSTALLING A FLAT SLAB TOP SHALL BE INCLUDED IN THE UNIT PRICE FOR MANHOLES, CATCH BASINS OR VALVE VAULTS AND SHALL NOT BE IN PAY ITEM.

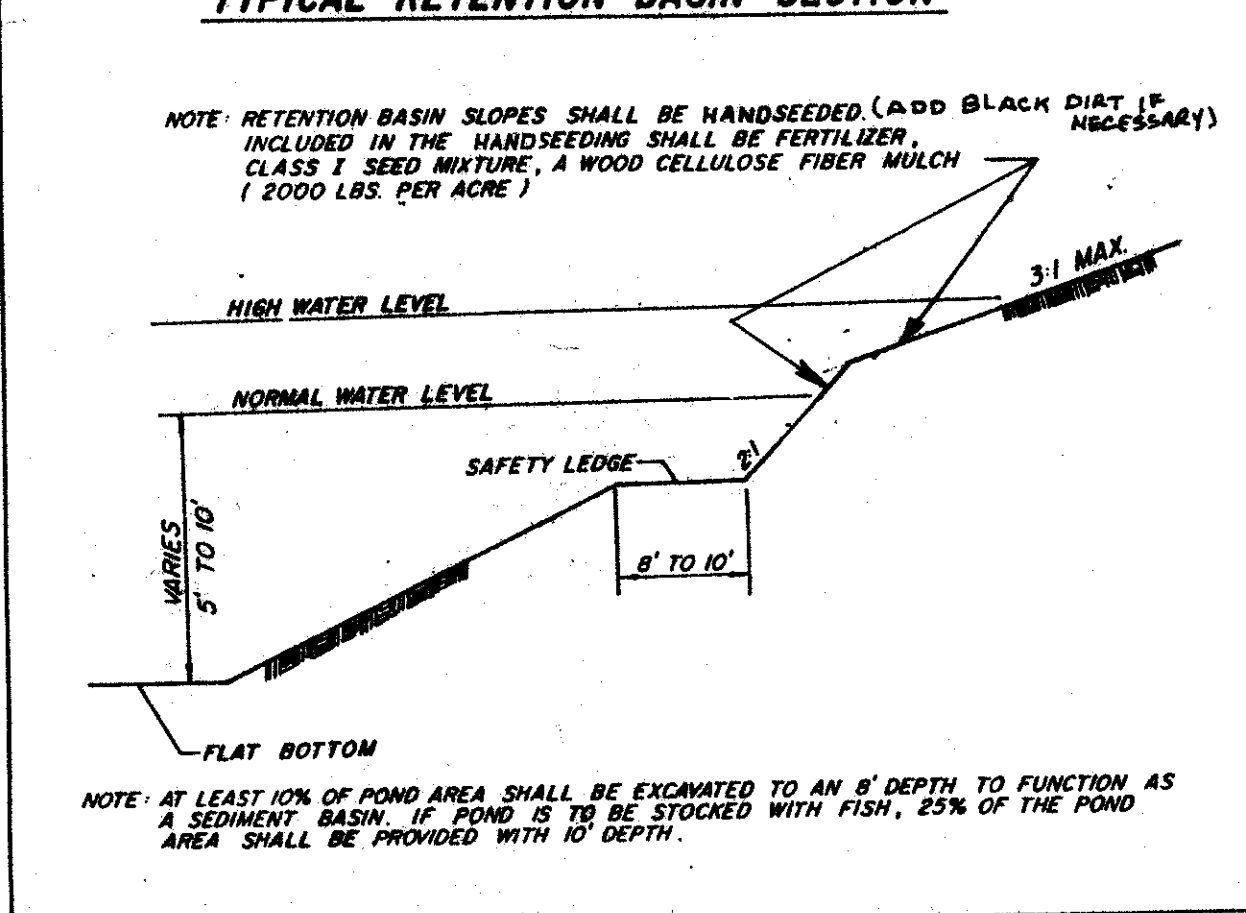
OUTLET PROTECTION DETAIL



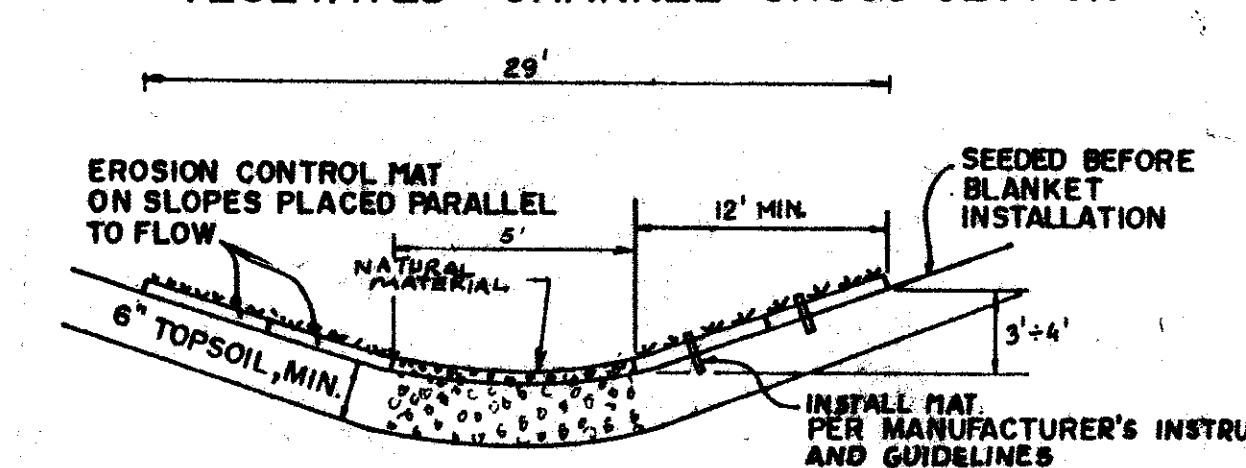
DRAINAGE STRUCTURE GRATING



TYPICAL RETENTION BASIN SECTION



VEGETATED CHANNEL CROSS SECTION



EROSION CONTROL MAT SHALL BE MIRAFAT EROSION CONTROL MATTING / REVEGETATION MAT BY MIRAFI INC. OR APPROVED EQUAL.

NETTLE CREEK GOLF COURSE STOCKDALE RD. & SARATOGA RD. ERIENNA TOWNSHIP, ILLINOIS CONSTRUCTION STANDARDS

SCALE: APPROVED BY: DRAWN BY:
DATE: 10/1/2014
RAYMOND E. DERBAS & ASSOCIATES
1000 N. LEXINGTON AVE., SUITE 100, CHICAGO, IL 60610
TEL: 312.467.1000 FAX: 312.467.1001
WWW.DERBAS.COM