

SEGMENTAL RETAINING WALL GENERAL NOTES

THE CONTRACTOR SHALL FOLLOW ALL PROJECT SPECIFICATIONS AND LOCAL CODES AND ORDINANCES FOR PROPER CONSTRUCTION PRACTICES DURING INSTALLATION OF THE RETAINING WALLS. WHERE A CONFLICT BETWEEN THESE DRAWINGS AND THE PROJECT SPECIFICATIONS EXISTS, THE CONTRACTOR SHALL NOTIFY THE RETAINING WALL DESIGNER FOR CLARIFICATION.

USE OF THESE DOCUMENTS TO ANY EXTENT FOR ANY PROJECT OTHER THAN THE ONE IT IS INTENDED IS UNLAWFUL AND SHALL BE CAUSE FOR LEGAL ACTION AGAINST THE PARTIES RESPONSIBLE.

MATERIALS

1. CONCRETE RETAINING WALL UNITS SHALL BE COARSE GRANULAR INFILLED DIAMOND PRO IF ALLOWED BY LOCAL CODES AND ORDINANCES. SEE THE MANUFACTURER'S SPECIFICATIONS FOR UNIT PROPERTY REQUIREMENTS.

2. THE CONTRACTOR SHALL REVIEW AND FOLLOW ALL OF THE MANUFACTURER'S LITERATURE AND RECOMMENDATIONS REGARDING THE PRODUCT AND ITS INSTALLATION AND DETAILING. MITER CUTTING BLOCK AT CORNERS IS NOT PERMITTED.

*COLOR SHALL BE AS SPECIFIED BY THE ARCHITECT OR OWNER. FACE PATTERN GEOMETRY SHALL BE SLOTTED OR STRAIGHT AS SPECIFIED BY THE ARCHITECT OR OWNER.

3. GEOSYNTHETIC REINFORCEMENT SHALL BE PROVIDED AS SPECIFIED IN THE DETAILS BY MANUFACTURER AND PRODUCT.

4. BASE COURSE SHALL BE 6" MINIMUM OF COMPACTED SAND AND GRAVEL (I.D.O.T. SPEC CA-6) OR LEAN CONCRETE AS DETAILED ON THE DRAWINGS.

5. DRAINAGE AGGREGATE AND BLOCK/FILL SHALL BE 3/4" CRUSHED COARSE AGGREGATE.

6. REINFORCED AND FOUNDATION SOILS SHALL BE NON-ORGANIC AND POSSESS A MOISTURE CONTENT THAT ENABLES COMPACTION TO 95% STANDARD PROCTOR DENSITY. UNSATURABLE SOILS ARE CLASSIFIED AS CH, OH, ML, OL OR PT. CL SOILS WITH A PLASTICITY INDEX GREATER THAN 20 ARE CONSIDERED UNSUITABLE. THE SOIL REQUIREMENTS OUTLINED IN THE DRAWING NOTES TO THE RIGHT SHALL BE FOLLOWED AND INVESTIGATED BY A GEOTECHNICAL ENGINEER.

7. DRAIN TILE SHALL BE A PERFORATED OR SLOTTED RIGID PVC PIPE.

EXAMINATION

1. EXAMINE THE AREAS AND CONDITIONS AND NOTIFY THE ENGINEER OF ANY DETRIMENTAL CONDITIONS OR ELEVATION DISCREPANCIES PRIOR TO STARTING THE WORK.

2. THE FOUNDATION SOIL SHALL BE EXAMINED BY A GEOTECHNICAL ENGINEER TO ENSURE THAT THE SOIL PROPERTIES MEET THE REQUIREMENTS OF THE DESIGN.

3. SITE SOIL IN FRONT OF AND BEHIND THE REINFORCED ZONE FOR A MINIMUM DISTANCE OF 3/4 THE WALL HEIGHT SHALL BE EXAMINED BY A GEOTECHNICAL ENGINEER TO VERIFY THAT THE SOIL MEETS OR EXCEEDS THE DESIGN PARAMETERS.

4. ALL PIPES OR CULVERTS PLACED BELOW RETAINING WALLS SHALL HAVE COMPACTED GRANULAR MATERIAL PLACED BELOW THE PIPE AND COMPACTED UP AT A 2:1 MINIMUM UP TO THE BASE COURSE OF THE RETAINING WALL. SETTLEMENT AS A RESULT OF IMPROPER CONSTRUCTION OR MATERIALS AT PRESS BELOW THE RETAINING WALL IS NOT THE RESPONSIBILITY OF THE RETAINING WALL DESIGNER OR RETAINING WALL INSTALLER. IT IS THE INSTALLER'S RESPONSIBILITY TO VERIFY WITH THE GENERAL CONTRACTOR THAT PROPER MATERIALS AND COMPACTION AT PIPES HAVE BEEN PLACED PRIOR TO WALL CONSTRUCTION.

5. IF THE SITE HAS BEEN OR SHALL BE ELEVATED, ALL FILL MATERIALS SHALL MEET THE ELEVATION REQUIREMENTS OF THE RETAINING WALL DESIGN AND SHALL BE COMPACTED TO THE DENSITY REQUIRED BY THE PROJECT SPECIFICATIONS, OR PER MEET A 10% UNDER BACKFILL PLACEMENT, WHICHEVER IS MORE STRINGENT.

EXCAVATION & FOUNDATION PREPARATION

1. THE RETAINING WALL FOUNDATION SOIL IS DEFINED AS THE SOIL AT THE BASE OF THE RETAINING WALL FROM THE FRONT OF THE LEVELING PAD BASE COURSE TO THE BACK OF THE REINFORCED ZONE.

2. EXCAVATE TO THE ELEVATIONS SHOWN ON THE DRAWINGS. PREFERABLE TO THE SITE DRAWINGS FOR LOCAL ELEVATIONS. DO NOT OVEREXCAVATE UNLESS APPROVED SINCE LABOR AND MATERIALS SHALL NOT BE PAID FOR BEYOND THE INITIAL CONTRACT. THE CONTRACTOR IS RESPONSIBLE FOR THE STABILITY OF THE EXCAVATION AND ITS INFLUENCE ON ADJACENT PROPERTIES AND STRUCTURES.

3. EXCAVATIONS SHALL REMAIN Dewatered AT ALL TIMES BY THE CONTRACTOR RESPONSIBLE FOR DEVELOPMENT OF THE SITE.

4. SOIL NOT MEETING THE REQUIRED STRENGTH SHALL BE REMOVED DOWN TO SUITABLE SOIL (SLOPING DOWN AT A 1:1 PITCH) FROM THE FRONT OF THE BASE COURSE TO THE BACK OF THE REINFORCED ZONE AND BACKFILLED WITH COMPACTED CA-6.

5. IF FOUNDATION SOIL IS UNSUITABLE FOR OVEREXCAVATION OCCURS, COMPACTED CA-6 SHALL BE PLACED FROM SUITABLE SOIL AT BOTTOM OF THE EXCAVATION UP TO THE REQUIRED ELEVATION.

6. RETAINING WALLS SHALL NOT BE CONSTRUCTED ON FROZEN GROUND. BACKFILL SOIL COMPACTED IN THE REINFORCED ZONE SHALL NOT BE FROZEN MATERIAL.

BASE COURSE PREPARATION

1. BASE MATERIALS SHALL BE PLACED ON UNDISTURBED SOIL.

2. BASE MATERIAL SHALL BE COMPACTED SO AS TO PROVIDE A HARD, LEVEL SURFACE FOR THE FIRST BLOCK COURSE. GAPS IN THE BASE MATERIAL SHALL NOT BE PERMITTED. IN WATER APPLICATIONS, THE BASE COURSE SHALL BE WRAPPED IN FILTER FABRIC OR A LEAN CONCRETE BASE SHALL BE PROVIDED.

ERECTOR

1. FIRST COURSE OF UNITS ON THE BASE SHALL BE CHECKED FOR LEVEL ALIGNMENT.

2. UNITS SHALL BE PLACED SIDE BY SIDE FOR FULL LENGTH OF WALL BEHIND THE WALL.

3. A MINIMUM OF 18" OF 3/4" DRAINAGE AGGREGATE SHALL BE PLACED BEHIND THE WALL.

4. RIGID PERFORATED PVC DRAIN TILE SHALL BE INSTALLED AT THE LOWEST ELEVATION POSSIBLE TO MAINTAIN GRAVITY FLOW OF WATER TO OUTSIDE OF THE REINFORCED ZONE. COMPACT LOW PERMEABILITY CLAY FROM THE BASE OF THE DRAIN TILE, OR FOR WALLS CONSTRUCTED WITH GRANULAR MATERIAL, SEE THE DETAILS. DAYLIGHT THE DRAIN TILE AT 25' O.C. DO NOT PLACE DRAIN TILE BELOW THE GRADE AT THE TOE OF THE WALL.

5. CLEAN THE TOP OF UNITS PRIOR TO INSTALLATION OF THE NEXT COURSE.

6. AT EACH COURSE OF INSTALLATION, INSTALL BY OFFSETTING THE CENTER OF THE BLOCK OVER THE SEAMS OF THE PREVIOUS COURSE.

7. INSTALL GEOSYNTHETIC REINFORCEMENT IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND THE DESIGN DRAWINGS. SPLICING REINFORCING IS NOT PERMITTED.

BACKFILL PLACEMENT

1. REINFORCED BACKFILL SHALL BE PLACED AND COMPACTED TO MINIMIZE SLACK IN THE GEOSYNTHETIC REINFORCEMENT.

2. SOIL IN REINFORCED ZONE SHALL BE COMPACTED IN INCREMENTS OF 12" OF 95% STANDARD PROCTOR DENSITY. IF A PLATE COMPACTOR OR GRANULAR MATERIAL AND A SHEEPS FOOT COMPACTOR FOR CLAY MATERIAL.

3. ONLY LIGHTWEIGHT HAND OPERATED COMPACTION EQUIPMENT SHALL BE PERMITTED WITHIN SIX FEET OF THE FRONT OF THE WALL DURING INSTALLATION. HEAVY EQUIPMENT SHALL BE PAID FOR BY THE PARTY RESPONSIBLE.

4. SOIL AND COMPACTION TESTING SHALL BE AT THE EXPENSE OF THE OWNER AND THE CONTRACTOR SHALL PROVIDE EVIDENCE THAT THE SOIL IN THE REINFORCED ZONE HAS BEEN COMPACTED TO A MINIMUM OF 95% STANDARD PROCTOR DENSITY FOR WALLS LESS THAN TEN FEET IN TOTAL HEIGHT AND 95% MODIFIED PROCTOR DENSITY FOR WALLS GREATER THAN TEN FEET IN TOTAL HEIGHT. CLAYS SHALL BE COMPACTED AT OPTIMUM MOISTURE CONTENT AND SHALL NOT BE COMPACTED WHILE SATURATED UNDER ANY CIRCUMSTANCES.

CAP UNIT INSTALLATION

1. CAP UNITS SHALL BE ATTACHED WITH EPOXY ADHESIVE TO CLEAN AND DRY SURFACES.

2. DAMAGED UNITS SHALL BE REPLACED WITH NEW UNITS DURING CONSTRUCTION.

QUALITY CONTROL

1. THE WALL CONTRACTOR IS RESPONSIBLE FOR QUALITY CONTROL DURING INSTALLATION. A THIRD PARTY MAY BE CONTRACTED IF REQUIRED.

2. WORK FOUND TO BE DEFICIENT AND NOT CONFORMING TO THESE DRAWINGS AND SPECIFICATIONS MUST BE CORRECTED AT THE CONTRACTOR'S EXPENSE.

3. THE RETAINING WALL WILL NOT BE CONSIDERED COMPLETE UNTIL ACCEPTED BY THE ONLY APPROPRIATE OWNER'S REPRESENTATIVE.

CONSTRUCTION TOLERANCES

*BASE TO EXTEND 8" MINIMUM PAST THE LAST BLOCK

HORIZONTAL: ±1.25 INCH OVER 10 FEET, 3 INCHES MAXIMUM

VERTICAL: ±1.25 INCH OVER 10 FEET, 3 INCHES MAXIMUM

ROTATION: 2" FROM ESTABLISHED PLAN WALL BATTER

BUILDING: 1/8" OVER 10 FEET

FENCE OR GUARDRAIL

1. THE FOLLOWING ARE MINIMUM REQUIREMENTS. IT IS NOT THE RESPONSIBILITY OF THE RETAINING WALL DESIGNER TO SPECIFY OR TO DESIGN GUARDRAILS OR FENCE, OR TO DETERMINE WHERE THEY ARE REQUIRED. CONTACT THE CIVIL ENGINEER OR THE ARCHITECT.

2. SLEEVES SHALL BE PROVIDED FOR FENCE/GUARDRAIL POST PIER. REINFORCEMENT SHALL BE FIELD OUT AROUND THE SLEEVES. AUGERING/DRILLING THROUGH REINFORCING IS NOT PERMITTED.

3. PROVIDE A 14"x24"x4" DEEP CONCRETE PIER AT 8'-0" O.C. MAXIMUM (MIN. 4000 PSI) TO SUPPORT FENCE/GUARDRAIL POSTS.

4. THE RETAINING WALL CONTRACTOR OR OTHERS SHALL PROVIDE A 30"x36"x4" DEEP (BELOW GRADE) MINIMUM SIZE CONCRETE PIER FOUNDATION FOR LIGHT POSTS (700-4000 PSI).

CONSTRUCTION SEQUENCE FOR TYPICAL WALL

STEP 1
EXCAVATE TRENCH FOR A LEVEL BASE. REMOVE ALL ORGANIC AND UNSUITABLE SOILS. COMPACT LOOSE MATERIAL. INSTALL COMPACTED GRANULAR BASE MATERIAL (CA-6) OR CONCRETE LEVELING PAD. CHECK LEVEL OF BASE MATERIAL OR LEVELING PAD.

STEP 2
CHECK ALL GRADE LINES AND CURVES. INSTALL FIRST COURSE OF BLOCK INSURING ALL UNITS ARE LEVEL. BOTH SIDE TO SIDE AND FRONT TO BACK. ALIGN FRONT AND BACK OF UNITS TO INSURE A STRAIGHT INSTALLATION. SET THE UNITS ADJACENT TO EACH OTHER SO THEY ARE TOUCHING. BEGIN PLACEMENT OF 18" WIDE DRAINAGE COLUMN BEHIND THE FIRST COURSE OF BLOCK (IF REQUIRED IN DETAILS). COMPACT SOIL BACKFILL IN FRONT OF FIRST COURSE AND BEHIND THE DRAINAGE COLUMN. SOIL BEHIND THE BLOCK UP TO THE BOTTOM OF THE DRAIN PIPE SHALL BE LOW PERMEABILITY MATERIAL. SWEEP SOIL AND LOOSE MATERIALS OFF THE TOP OF BLOCK.

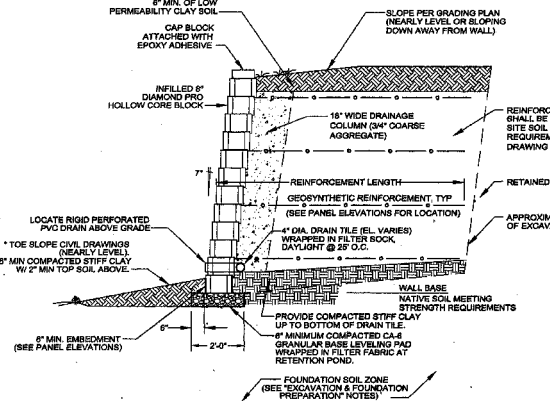
STEP 3
LOCATE RIGID PERFORATED PVC DRAIN ABOVE GRADE.

INSTALL NEXT COURSE BY ALIGNING THE KEYWAY OVER THE SHEAR KEY OF THE PREVIOUS COURSE. COUNTERSINK PLACING COVERS UNTIL GEORGRID INSTALLATION IS REQUIRED. PLACE DRAIN TILE WITH THE DRAINAGE COLUMN BEHIND THE WALL AND ABOVE THE GRADE IN FRONT OF THE WALL. PROVIDE A FILTER SOCK AROUND THE DRAIN TILE PER LOCAL CODE REQUIREMENTS OR IF THE DETAILS REQUIRE IT. DAYLIGHT THE DRAIN TILE @ 25'-0" O.C.

STEP 4
PLACE GEORGRID OVER BLOCK TO WITHIN 2" OF THE FRONT FACE AND LAY OVER COMPACTED BACKFILL. PLACE THE NEXT BLOCK COURSE OVER THE GEORGRID. PULL THE GEORGRID TIGHT, AND APPLY TENSION UNTIL BACKFILL IS PLACED. STAPLES OF STAPLES MAY BE USED TO MAINTAIN TENSION. PLACE COMPACTED BACKFILL BEHIND DRAINAGE COLUMN OVER THE GRID. PLACE ADDITIONAL BLOCK COURSES BY REPEATING STEP 3.

STEP 5
CONTINUE WALL CONSTRUCTION TO FULL HEIGHT. PLACE ADDITIONAL BLOCK COURSES BY REPEATING STEP 3. PLACE GEORGRID AT REQUIRED HEIGHTS AND LENGTHS PER THE DETAIL/ELEVATIONS BY REPEATING STEP 4.

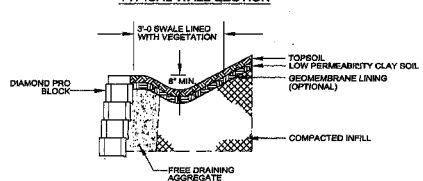
STEP 6
REPEAT STEPS 3 THROUGH 5 UNTIL WALL IS AT REQUIRED HEIGHT. THOROUGHLY CLEAN TOP BLOCK COURSE AND INSTALL CHAPPING UNITS WITH EPOXY ADHESIVE. FINISH GRADE TO THE SITE PLAN REQUIREMENTS.



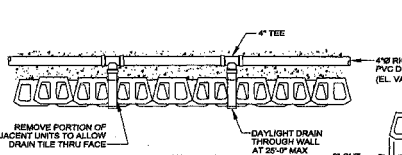
REINFORCEMENT SPACING, REINFORCEMENT LENGTHS, ELEVATIONS, WALL HEIGHTS, AND EMBEDMENT DEPTHS SHOWN ARE CONCEPTUAL ONLY AND SHOULD NOT BE USED FOR CONSTRUCTION. PLEASE REFER TO THE PANEL ELEVATIONS FOR ALL DIMENSIONS, REINFORCEMENT TYPES, REINFORCEMENT LENGTHS, AND REINFORCEMENT SPACING. CORES OMITTED FOR CLARITY.

*SEE ADDITIONAL DETAILS FOR WATER APPLICATIONS.

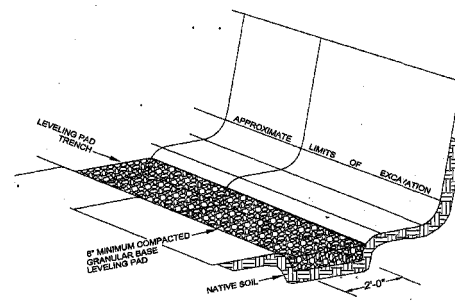
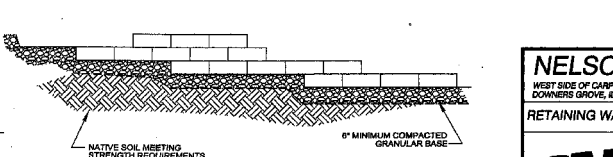
ANCHOR DIAMOND PRO BLOCK TYPICAL WALL SECTION



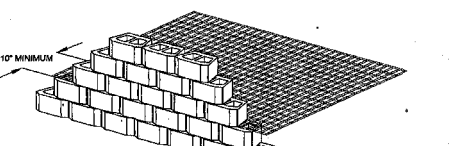
ANCHOR DIAMOND PRO BLOCK DRAINAGE SWALE DETAILS (REF. NCMA DESIGN MANUAL)



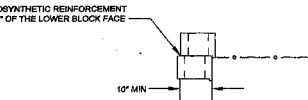
ANCHOR DIAMOND PRO BLOCK DAYLIGHT DRAIN TILE THROUGH WALL



ANCHOR DIAMOND PRO BLOCK TYPICAL BASE PREPARATION DETAIL



NOTES:
1. FOLLOW GEOSYNTHETIC GRID MANUFACTURERS INSTALLATION INSTRUCTIONS AND SPECIFICATIONS.
2. GEORGRID LENGTH AND ELEVATION PLACEMENT SHALL BE PER THE PANEL ELEVATIONS.
3. SPLICING REINFORCING IS NOT PERMITTED.



ANCHOR DIAMOND PRO REINFORCEMENT CONNECTION DETAIL

ANCHOR DIAMOND PRO BLOCK TYPICAL STEP-UP DETAIL

Cardinal Structural Design, Inc.
290 SOUTH MAIN PLACE, SUITE 202
CAROL SPRING, ILLINOIS 61818
PHONE: (830) 865-4164
FAX: (830) 853-8580
LICENSE NO. 154-00000

DRAWING NOTES:

1. DESIGN IS BASED ON C.M. LAVOIE & ASSOCIATES, INC. DRAWING 8 OF 12 DATED 05/18/05. THE CONTRACTOR SHALL REFERENCE THAT DRAWING AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES OR ADDITIONAL INFORMATION (SUCH AS LIGHT POSTS, FENCE OR TREES NOT SHOWN ON THE REFERENCED DRAWING) PRIOR TO CONSTRUCTION.

2. A GLOBAL STABILITY ANALYSIS OF THE RETAINING WALLS HAS BEEN PERFORMED FOR THE PRODUCTION OF THESE RETAINING WALL DOCUMENTS BASED UPON THE SOIL INFORMATION OBTAINED PRIOR TO CONSTRUCTION. THE FACTOR OF SAFETY IS 1.3 MINIMUM.

3. FOR PURPOSES OF DESIGNING THE WALLS FOR INTERNAL, EXTERNAL AND FACING STABILITY, THE SOIL HAS BEEN ASSUMED TO HAVE AN INTERNAL ANGLE OF FRICTION OF 27° WITHOUT THE USE OF ANY CORRECTION. FOR THE GLOBAL STABILITY ANALYSIS, AN ANGLE OF FRICTION OF 27° CORRECTION OF 40 PERCENT HAS BEEN ASSUMED. SITE SOIL SHALL HAVE A MINIMUM ALLOWABLE BEARING CAPACITY OF 4,000 PSF. THE ABOVE PARAMETERS ARE ASSUMED TO EXIST IN THE EXCAVATION, REINFORCED AND RETAINED SOIL ZONES. NO SOIL INFORMATION HAS BEEN PROVIDED TO THE ENGINEER AT THIS TIME. IT IS THE RESPONSIBILITY OF THE OWNER AND/OR THE PROJECT GEOTECHNICAL ENGINEER TO INVESTIGATE AND CONFIRM THE ABOVE VALUES AS APPROPRIATE FOR THE DESIGN, AND TO INFORM THE ENGINEER IF THE DESIGN REQUIRES ALTERATION FOR LESS FAVORABLE PARAMETERS.

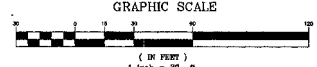
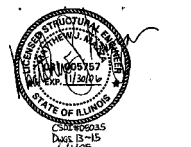
4. THE RETAINING WALLS ARE DESIGNED FOR A UNIFORM PRESSURE LIVE LOAD SURCHARGE OF 50 PSF.

5. GEOSYNTHETIC REINFORCING SHALL BE MIRACET HIRSHED NOT AS INDICATED ON THE PANEL ELEVATIONS.

6. WALLS FOR THE DETENTION BASIN ARE DESIGNED ASSUMING A 3% PERCHED WATER PRESSURE.

7. THE GENERAL CONTRACTOR SHALL FORWARD THESE DRAWINGS TO ALL PARTIES RESPONSIBLE FOR THE DESIGN OF THIS SITE.

CSD NO. 06035



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NELSON MEADOW 11-721-06 PER VILLAGE REVIEW
10-5-23-06 PER VILLAGE REVIEW
WEST SIDE OF CARPENTER STREET 8-44-06 PER VILLAGE REVIEW
DOWNS GROVE, ILLINOIS

RETAINING WALL NOTES & DETAILS

DRAWN BY: MAM CHECKED BY: MAM
SCALE: N.T.S. DATE: 04-06
JOB NUMBER: 04-236 SHEET: 15 OF 17

#	DATE	DESCRIPTION
1	2-16-05	PER VILLAGE REVIEW
2	4-12-05	PER VILLAGE & SANITARY DISTRICT
3	8-02-05	PER VILLAGE REVIEW
4	7-08-05	PER VILLAGE REVIEW
5	8-08-05	PER VILLAGE REVIEW
6	9-15-05	PER VILLAGE REVIEW
7	9-15-05	PER VILLAGE REVIEW
8	12-05-05	PER VILLAGE REVIEW

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