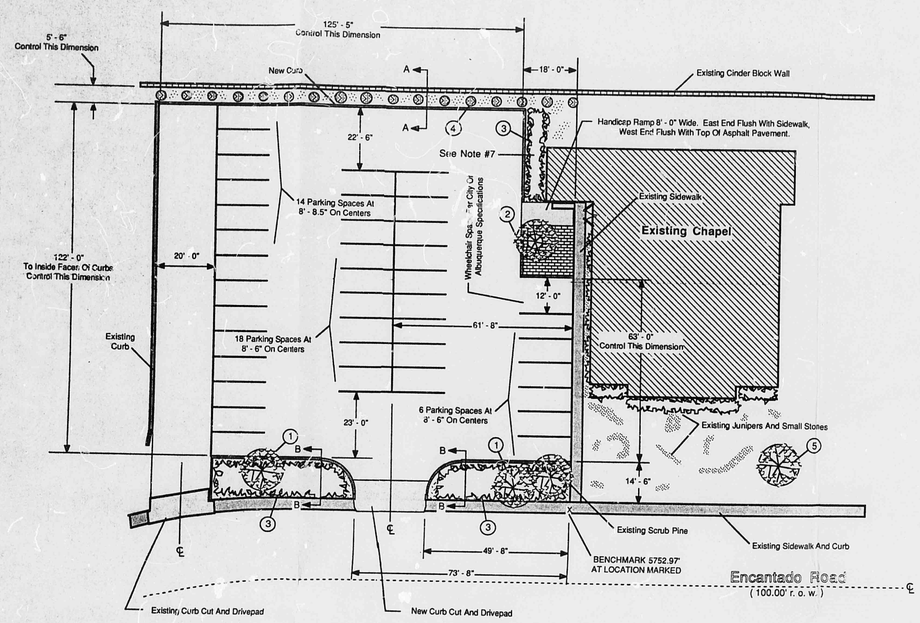
HYDROLOGY K23/D24 4 PLANS

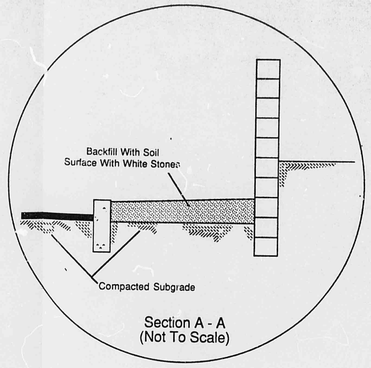
1 of 2

K23/D24

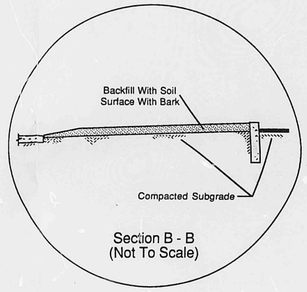
4 Plans

CITY OF ALBUQUERQUE





Section A - A
(Not To Scale)



Section B - B
(Not To Scale)

Legend

- Shrubs
- Red Brick
- Decidious Tree
- Piracantha
- White Stones
- Parking Space Stripes
- New Curbs
- New Construction
- Existing Facilities
- Bark

General Notes

1. Site Located On Zone Atlas Index No. K-23-Z.
2. Planning History: File Z-76-24 And File Z-86-4.
3. Traffic Pattern And Striping Approved By Traffic Engineering November 8, 1985.
4. Plant The Trees By The End Of June Or Plant After Mid September.
5. Mix "Soil Builder" With Soil Backfill In Vicinity Of Trees And Shrubs.
6. Lay Red Brick On Its Side Over A Bed Of Sand As Per Standard Practice. Allow 5' Dia. Opening For Tree.
7. Backfill Between Curb And Building As In Section A - A, But Surface With Bark.

SPECIFICATIONS

SECTION 7. STRIPING OF ASPHALT PAVEMENT

A. The asphalt pavement shall be striped with a durable white paint made for this purpose. The paint shall be applied per the manufacturer's recommendations. The length of the stripe separating each parking space shall be 18 feet.

B. The wheelchair parking space shall be 12 feet in width and shall contain the appropriate wheelchair symbol as per City of Albuquerque Specifications.

Scale: 1" = 20'

0 20 40 60

RAY R. MONDRAGON
NEW MEXICO
7600
REGISTERED PROFESSIONAL ENGINEER
6/20/86

Landscape Schedule				
Number	Name	Container	Remarks	Quantity
1	Arizona Ash	15 Gal.	1" Diameter	2
2	Goldenrain	15 Gal.	1" Diameter	1
3	Tam, Blue Chip, And Old Gold Junipers	1 Gal.	Appropriate Assortment, 3' To Edge Tam 5' O. C., Chip & Gold 3' O. C.	45
4	Piracantha	1 Gal.	9' 0. C.	17
5	Silver Maple Or Arizona Ash	15 Gal.	1" Diameter	1

Drawing No. 5: Layout Of Parking Stripes And Landscaping.

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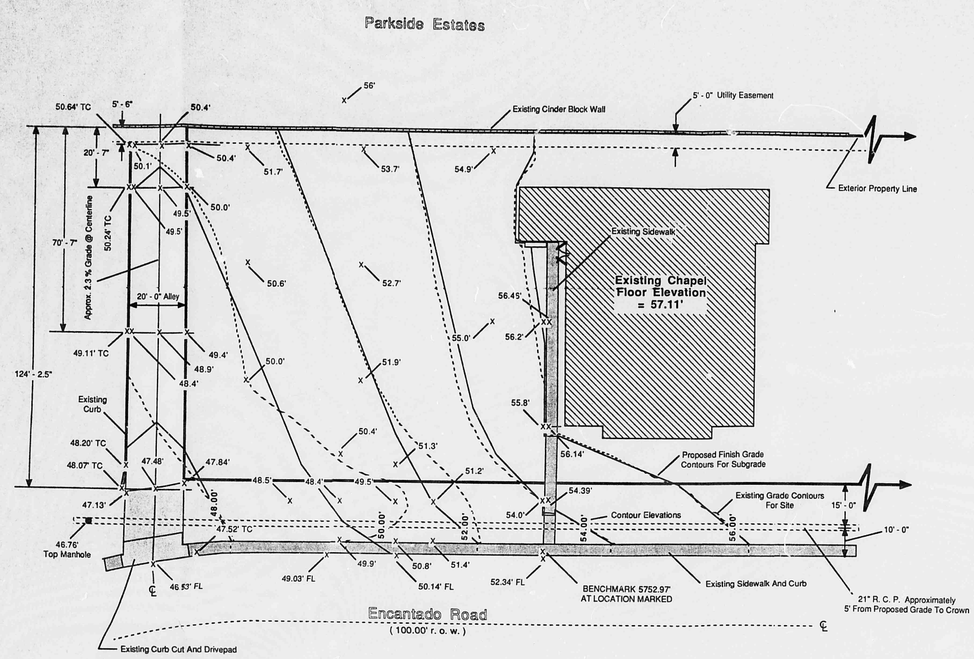

Legend

- 51.14' — Existing Elevation
- Exterior Property Line
- Existing Facilities And Proposed Contours
- Existing Contours
- 54.00' — Contour Elevation

General Notes

1. Existing Alley Grades From City Project Number 2709.
2. Site Located On Zone Atlas Index No. K-23-Z.
3. Planning History: File Z-76-24 And File Z-86-4.

Scale: 1" = 20'

0 20 40 60

RAY R. MONDRAGON NEW MEXICO 7682 REGISTERED PROFESSIONAL ENGINEER 6/2/86

Drawing No. 2: Existing Site Elevations, Grades, And Facilities.

SPECIFICATIONS FOR THE EARTHWORK, CONCRETEWORK, AND ASPHALT PAVING OF PARKING LOT LOCATED AT

AGAPE COMMUNITY CHAPEL
13801 Encantada Road, NE
Albuquerque, NM 78123

SECTION 1. GENERAL

1.1 SCOPE:

A. The specifications in Section 1 apply to all Contractors and the work specified in Sections 2 through 7 as outlined on Drawings 2 through 5.

1.2 WORKMANSHIP:

A. All work detailed on these plans shall, except as otherwise stated or provided for hereon, be constructed in accordance with the City of Albuquerque Interim Standard Specifications - Public Works Construction - 1985.

1.3 LICENSE AND BONDING:

A. Contractor shall be licensed and bonded. Licensing and bonding fees shall be paid by the Contractor. Its workers shall be fully covered by Workman's Compensation Insurance.

1.4 SITE EXAMINATION:

A. It shall be the responsibility of the contractor to examine the site and to determine for himself all site conditions which might have bearing upon the work to be done or the conditions under which it must be done. Contractor shall inform Owner of any unforseen problems before any work is accomplished.

1.5 LAYOUT WORK:

A. Check and verify all major dimensions, grades, and control points before actual construction is begun.

B. Any major discrepancies that would affect the work or its cost shall be brought to the attention of the Owner for clarification and/or correction before any actual construction is begun; otherwise, the responsibility for the cost of correction shall rest with the Contractor.

1.6 COORDINATION OF WORK:

A. Owner will coordinate the scheduling of the work of different contractors.

1.7 TESTING:

A. All testing specified in the following sections shall be performed by an independent testing laboratory selected by the Owner. Cost of all tests shall be paid by the Owner.

B. If any density test on fill, subgrade, or asphalt course indicates a density below that specified, the area shall be recompacted as required and additional tests by the Owner's testing laboratory will be made at Contractor's expense until specified density is achieved.

C. At the Owner's direction, the Contractor may schedule specified testing work with the testing laboratory so as to minimize delays in accomplishing work.

1.8 WASTE REMOVAL:

A. Upon completion of his work, the Contractor shall remove waste materials, trash, and debris, and dispose of it at an appropriate location off Owner's property.

SECTION 2. EARTHWORK

2.1 REMOVAL OF GROWTH AND DEBRIS:

A. All growth and debris in the work area shall be disposed of by the Contractor.

2.2 EROSION CONTROL:

A. The Contractor will control erosion from the site during earthwork operations. This may be done by setting up a temporary barrier at the existing drivepad to meet City requirements.

2.3 SITE GRADING:

A. Rough Grading:

1. Shall be reasonably smooth, compacted to 95% of the modified proctor, and free from abrupt surface changes.

2. Fill to be free of decayable materials, large rocks and debris.

a. Compact after adequate processing with moisture and mixing per standard practices.

b. Place backfill material in layers of not more than 6" in loose depth for material compacted by heavy compaction equipment, and not more than 4" in loose depth for material compacted by hand-operated tampers.

3. At the Owner's direction, the testing laboratory will perform a field density test in each compacted fill layer at a location selected by the Owner. The Contractor will coordinate testing with the Owner.

B. Finish Grading:

1. Slope finish grades and provide drainage for all surface water.

2. Finish grading shall bring the site to the specified finish elevations and conform to the finish contours shown.

SECTION 3. SUBGRADE PREPARATION

A. Subgrade shall be compacted to 95% of the modified proctor.

B. At the direction of the Owner, the testing laboratory will make field density tests of the subgrade at locations selected by the Owner.

C. Soil sterilant shall be applied to the compacted subgrade according to manufacturers recommendations. Care will be taken to not apply the sterilant outside the perimeter of the curb and asphalt pavement.

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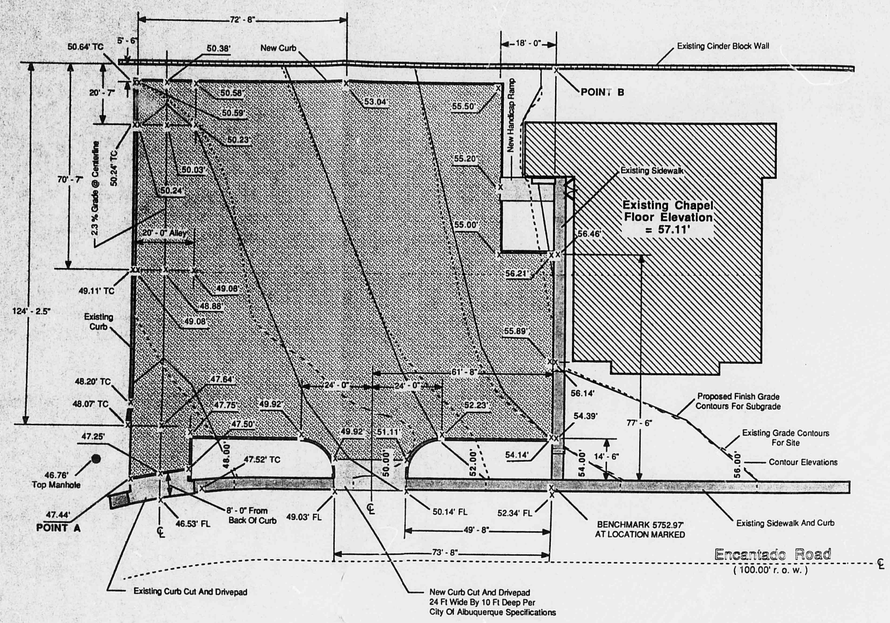

DRAINAGE PLAN

For purposes of computing the peak runoff from the developed and existing site, the watershed is considered to be rectangular in shape and bounded by the existing curb on the west, the west edge of the existing sidewalk on the east, the existing cinder block wall on the north, and the north edge of the existing sidewalk on the south. The dimensions of the watershed are 143.42' (east-west) by 142' (north-south).

A. COMPUTATION OF PEAK RUNOFF FROM DEVELOPED SITE

To compute the peak runoff, the slope of the developed watershed is taken as the representative slope along a line from the most hydraulically remote point (Point "B" - the northeast corner of the watershed) to the analysis point (Point "A" - the southwest corner of the watershed). The slope, S, along this line is 4.9 %. The distance, L, between Points "A" and "B" is 205 feet.

The time of concentration, T_C, computed using the Kirpich equation, is given as

$$T_C = \frac{0.0078\ L^{0.77}}{S^{0.385}} = \frac{0.0078\ (205)^{0.77}}{(0.049)^{0.385}} = 1.50 \text{ minutes}$$

Since the value of T_C is less than the 10 minute minimum, use T_C = 10 minutes to compute the peak rate of runoff. This rate is computed using the Rational Formula

$$Q = C\ i\ A$$

The rainfall intensity, i, from Plate 22.2 D-2 is

$$i = (\text{ 6 hr. rainfall volumes from Plate 22.2 D-1 }) \ 6.84\ T_C^{-0.51}$$

By interpolation, the 6 hour rainfall volume-100 year frequency from Plate 22.2 D-1 is 2.51 inches. Therefore, the rainfall intensity for the 100 year frequency is

$$i = (\ 2.51\ )\ 6.84\ (10)^{-0.51} = 5.31 \text{ in/hr}$$

The rainfall intensity for the 10 year frequency (using a factor of 0.657 from Plate 22.2 D-1) is

$$i = (\ 0.657\ )(\ 2.51\ )\ 6.84\ (\ 10\ )^{-0.51} = 3.49 \text{ in/hr}$$

Per Mayor Schultz's Notice of Emergency Rule, dated 1/14/86, use a runoff coefficient, C, of 0.95 for the asphalt pavement and drives, and 0.25 for the landscaped areas. The total area of the watershed is 0.4675 acres. This consists of different parts for which a composite index may be computed as follows.

Item	Area	Runoff coefficient	Area-Coefficient
Asphalt pavement, drives, curbs, etc.	0.4046 acres	0.95	0.3844
Landscaping	0.0629 acres	0.25	0.0157
		Total	0.4001

$$\text{Composite index} = \frac{0.4001}{0.4675} = 0.86$$

Therefore, the peak rate of runoff for 100 year frequency is

$$Q = 0.86\ (\ 5.31\ )\ 0.4675 = 2.13 \text{ cfs}$$

The peak rate of runoff for 10 year frequency is

$$Q = 0.86\ (\ 3.49\ )\ 0.4675 = 1.40 \text{ cfs}$$

The peak 6 hour volume of runoff for 100 year frequency is

$$V = 2.13 \text{ cfs } (21{,}600 \text{ sec}) = 46{,}008 \text{ cf}$$

The peak 6 hour volume of runoff for 10 year frequency is

$$V = 1.40\ (21{,}600) = 30{,}240 \text{ cf}$$

B. COMPUTATION OF PEAK RUNOFF FROM EXISTING SITE

To compute the peak runoff, the slope of the existing watershed is taken as the representative slope along a line from the most hydraulically remote point (Point "B" - the northeast corner of the watershed) to the analysis point (Point "A" - the southwest corner of the watershed). The slope, S, along this line is 4.9 %, which is the same as the slope of the developed watershed. The distance, L, between Points "A" and "B" is 205 feet.

Since the slope and distance are the same as in part A, the time of concentration and the rainfall intensity are also the same.

The total area of the existing watershed is 0.4675 acres. This area consists of the drivepad, a portion of the building, but mostly very hard soil compacted over the last 10 years in use as the parking lot for the Chapel. The the dense soil is relatively impermeable and the runoff coefficient is taken as 0.86. A composite index may be computed for the watershed as follows.

Item	Area	Runoff coefficient	Area-Coefficient
Drive, building	0.0143 acres	0.95	0.0136
Dense soil	0.4532 acres	0.86	0.3898
		Total	0.4034

$$\text{Composite index} = \frac{0.4034}{0.4675} = 0.86$$

Since the time of concentration, the rainfall intensity, and the composite index are the same as in part A, the peak rate and volume of runoff are also the same as the values computed in part A for the developed watershed.

Legend

- Asphalt Pavement
- 50.32' — Finish Elevation
- 51.14' — Existing Elevation
- New Construction And Proposed Contours
- Existing Facilities
- Existing Contours
- New Curb

General Notes

1. Alley Grades Approved By City Project Number 2709.
2. Alley Grades To Be Constructed Per Agreement And Covenant No. 86 206 Filed With County Of Bernalillo, C 915 To C 922, January 2, 1986.
3. South End Of Parking Lot To Be Constructed On City Right-Of-Way Per Real Property Encroachment Agreement And Covenant Upon Real Estate No. 86 320 Filed With County Of Bernalillo, 00 33 To 0038, January 2, 1986.
4. Site Located On Zone Atlas Index No. K-23-Z.
5. Planning History: File Z-76-24 And File Z-86-4.

Scale: 1" = 20'

0 20 40 60

RAY R. MONDRAGON NEW MEXICO 169 REGISTERED PROFESSIONAL ENGINEER

SPECIFICATIONS

SECTION 4. PAVING AND SURFACING

4.1 GENERAL:

A. Provide asphalt-aggregate mixture as specified in the City of Albuquerque Interim Specifications, Grading C. A Marshall Stability of 1500 lbs or more and a Marshall flow of less than 16 is acceptable.

B. Apply tack coat of emulsified asphalt to contact surfaces of concrete surfaces abutting or projecting into the asphalt pavement. Apply when ambient temperature is above 40° F and base is dry.

C. Construct the asphalt concrete surface course only when the subgrade is dry and the ambient temperature is at least 40° F and rising.

4.2 PAVING AND SURFACING:

A. Place and roll asphalt concrete surface coarse as per City of Albuquerque specifications. Joints shall be carefully made in such manner as to insure a thorough and continuous bond between the surfaces. Upon completion, any spots indicating puddling of water shall be reworked until eliminated.

B. Asphalt concrete surface coarse shall be compacted to 95% of calculated density.

C. After final rolling, the asphalt concrete surface course shall be two (2) inches in thickness, smooth, free of abnormal irregularities, and the surface shall not puddle water.

D. After final rolling, do not permit vehicular traffic of any kind on the pavement until it has cooled and hardened.

E. At the direction of the Owner, the testing laboratory will test in-place asphalt concrete course for compliance with requirements for density at three locations selected by the Owner.

F. Contractor shall thoroughly clean all adjacent materials of all soiling resulting from the work and also repair adjacent surfaces which may have been damaged as a result of the work.

Drawing No. 3: Finish Elevations For Asphalt Pavement And Drainage Plan.

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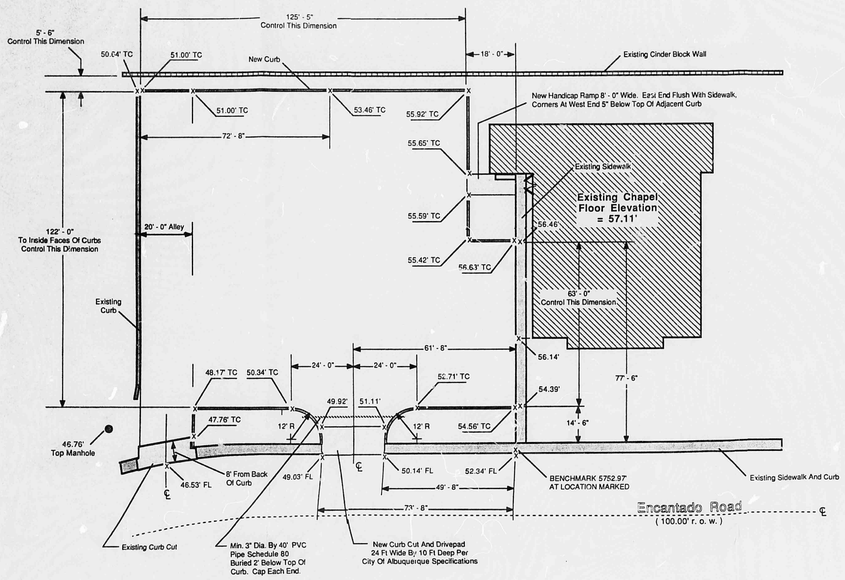
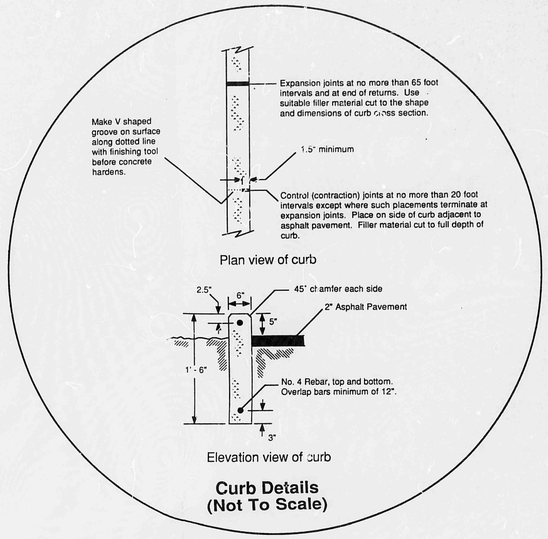
HYDROLOGY

K23/D24

4 PLANS
2 of 2





Curb Details
(Not To Scale)

Legend

- 50.32' — Finish Elevation
- 51.14' — Existing Elevation
- New Construction
- Existing Facilities
- New Curb
- Min. 3" Dia. By 40' PVC Pipe Schedule 80 W/ Ends Caped

General Notes

1. Site Located On Zone Atlas Index No. K-23-Z.
2. Planning History: File Z-76-24 And File Z-86-4.
3. New Curb Cut And Drivepad Approved By Traffic Engineering November 8, 1985.

Scale: 1" = 20'

0 20 40 60

RAY R. MONDRAGON NEW MEXICO 7692 REGISTERED PROFESSIONAL ENGINEER

SPECIFICATIONS

SECTION 5. CURB CUT AND DRIVEPAD

5.1 GENERAL:

A. Contractor shall obain permits and bonding for excavation and construction of sidewalk, drivepad, and curb and gutter from the City.

B. Two working days (48 hours) prior to excavation, Contractor must contact line locating service, 765-1234, for location of existing utilities.

C. Contractor shall construct, barricade, and protect the curb cut, drivepad, and curb and gutter according to City of Albuquerque specifications.

SECTION 6. CURBS ADJOINING ASPHALT PAVEMENT, HANDICAP RAMP

6.1 MATERIALS AND CONSTRUCTION:

A. The nominal maximum size of the coarse aggregate utilized in the concrete shall be 1.25 inches in diameter or smaller.

B. The specified unconfined compressive strength of the concrete shall be 3000 psi.

C. Number 4 reinforcing bar at the top and bottom as depicted in the drawing. Minimum concrete cover of 1.5 inches. Bars shall be overlapped a minimum of 12 inches.

D. Consolidate, finish, and cure as per standard practices. Apply a 45 degree chamfer along each edge (corner) at the top of the curb.

6.3 JOINTS:

A. Construct control, expansion, and construction joints true- to-line with face perpendicular to surface of concrete.

B. Provide control (contraction or weakened-plane) joints at no more than 20 foot intervals except where such placements terminate at expansion joints.

C. Place construction joints at locations where placement operations are stopped for a period of more than one half hour, except where such placements terminate at expansion joints.

D. Provide expansion joints at not more than 65 foot intervals and at end of returns. The premolded joint filler sheet used for the expansion joint in the new curbs shall be cut to the cross-sectional dimensions of the curb. Also provide premolded joint filler for expansion joints abutting concrete curbs, walks and other fixed objects.

6.4 BACKFILL:

A. The curb shall be backfilled to grade and compacted thoroughly.

6.5 HANDICAP (WHEELCHAIR) RAMP:

A. Welded wire fabric reinforcing or No. 4 rebars for temperature reinforcing. Minumim concrete cover of 1.5 inches.

B. Strikeoff and consolidate concrete, apply broom finish and cure as per standard practices.

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Drawing No. 4: Layout And Specifications For Curbs, Curb Cut And Drivepad.

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