

4.6 PARKING AND PASSENGER LOADING ZONES.

4.6.1 MINIMUM NUMBER. PARKING SPACES REQUIRED TO BE ACCESSIBLE BY 4.1 SHALL COMPLY WITH 4.6.2 THROUGH 4.6.4. PASSENGER LOADING ZONES REQUIRED TO BE ACCESSIBLE BY 4.1 SHALL COMPLY WITH 4.6.5 AND 4.6.6.

4.6.2 LOCATION. ACCESSIBLE PARKING SPACES SERVING A PARTICULAR BUILDING SHALL BE LOCATED ON THE SHORTEST ACCESSIBLE ROUTE OF TRAVEL FROM ADJACENT PARKING TO AN ACCESSIBLE ENTRANCE. THAT DO NOT SERVE A PARTICULAR BUILDING, ACCESSIBLE ROUTE OF TRAVEL TO AN ACCESSIBLE ENTRANCE OF THE BUILDING, ACCESSIBLE ROUTE OF TRAVEL TO ADJACENT PARKING, ACCESSIBLE PARKING SPACES SHALL BE DISPERSED AND LOCATED CLOSEST TO THE ACCESSIBLE ENTRANCES.

4.6.3 PARKING SPACES. PARKING SPACES FOR DISABLED PEOPLE SHALL BE AT LEAST 9'6" (2940 mm) WIDE AND SHALL HAVE AN ADJACENT ACCESS AISLE 6'0" (1829 mm) WIDE MINIMUM. PARKING ACCESS AISLES SHALL BE PART OF AN ACCESSIBLE ROUTE TO THE BUILDING OR FACILITY ENTRANCE AND SHALL COMPLY WITH 4.3. TWO ACCESSIBLE PARKING SPACES MAY SHARE A COMMON ACCESS AISLE. PARKED VEHICLE OVERHANGS SHALL NOT REDUCE THE CLEAR WIDTH OF AN ACCESSIBLE CIRCULATION ROUTE. PARKING SPACES AND ACCESS AISLES SHALL BE LEVEL WITH SURFACE SLOPES NOT EXCEEDING 1:50 IN ALL DIRECTIONS.

EXCEPTION. IF ACCESSIBLE PARKING SPACES FOR VANS DESIGNED FOR HANDICAPPED PERSONS ARE PROVIDED, EACH SHOULD HAVE AN ADJACENT ACCESS AISLE AT LEAST 8'6" (2591mm) WIDE COMPLYING WITH 4.5, GROUND AND FLOOR SURFACES.

4.6.4 SIGNAGE. ACCESSIBLE PARKING SPACES SHALL BE DESIGNATED AS RESERVED FOR THE DISABLED BY A SIGN SHOWING THE SYMBOL OF ACCESSIBILITY (SEE 4.30.5). SUCH SIGNS SHALL NOT BE OCCUPIED BY A VEHICLE PARKED IN THE SPACE.

4.6.5 PASSENGER LOADING ZONES. PASSENGER LOADING ZONES SHALL PROVIDE AN ACCESS AISLE AT LEAST 6'0" (1829mm) WIDE AND 30' (9144mm) LONG ADJACENT AND PARALLEL TO THE VEHICLE PULL-UP SPACE (SEE FIG. 10). IF THERE ARE CURBS BETWEEN THE ACCESS AISLE AND THE VEHICLE PULL-UP SPACE, THEN A CURB RAMP COMPLYING WITH 4.7 SHALL BE PROVIDED. VEHICLE STANDING SPACES AND ACCESS AISLES SHALL BE LEVEL WITH SURFACE SLOPES NOT EXCEEDING 1:50 IN ALL DIRECTIONS.

4.6.6 VERTICAL CLEARANCE. PASSENGER LOADING ZONES SHALL PROVIDE AN ACCESS AISLE AT LEAST 6'0" (1829mm) WIDE AND 20' (6100mm) LONG ADJACENT AND PARALLEL TO THE VEHICLE PULL-UP SPACE (SEE FIG. 10). IF THERE ARE CURBS BETWEEN THE ACCESS AISLE AND THE VEHICLE PULL-UP SPACE, THEN A CURB RAMP COMPLYING WITH 4.7 SHALL BE PROVIDED. VEHICLE STANDING SPACES AND ACCESS AISLES SHALL BE LEVEL WITH SURFACE SLOPES NOT EXCEEDING 1:50 (2%) IN ALL DIRECTIONS.

4.7 CURB RAMPS.

4.7.1 LOCATION. CURB RAMPS COMPLYING WITH 4.7 SHALL BE PROVIDED WHEREVER AN ACCESSIBLE ROUTE CROSSES A CURB.

4.7.2 SLOPE. SLOPES OF CURB RAMPS SHALL COMPLY WITH 4.8.2. THE SLOPE SHALL BE MARKED AS SHOWN IN FIG. 11. TRANSITIONS FROM RAMPS TO HANDRAILS OR STREETS SHALL BE FLUSH AND FREE OF ABRUPT CHANGES. MAXIMUM SLOPES OF ADJOINING GUTTERS AND SURFACE IMMEDIATELY ADJACENT TO THE CURB RAMP, OR ACCESSIBLE ROUTE SHALL NOT EXCEED 1:20.

4.7.3 WIDTH. THE MINIMUM WIDTH OF A CURB RAMP SHALL BE 36" EXCLUSIVE OF FLARED SIDES.

4.7.4 SURFACE. SURFACES OF CURB RAMPS SHALL COMPLY WITH 4.5.

4.7.5 SIDES OF CURB RAMPS. IF A CURB RAMP IS LOCATED WHERE PEDESTRIANS MUST WALK ACROSS THE RAMP, OR WHERE IT IS NOT PROTECTED BY HANDRAILS OR GUARDRAILS, THEN IT SHALL HAVE FLARED SIDES; THE MAXIMUM SLOPE OF THE FLARE SHALL BE 1:10 (SEE FIG. 12a). CURB RAMPS WITH RETURNED CURBS MAY BE USED WHERE PEDESTRIANS WOULD NOT NORMALLY WALK ACROSS THE RAMP (SEE FIG. 12b).

4.7.6 BUILT-UP CURB RAMPS. BUILT-UP CURB RAMPS SHALL BE LOCATED SO THAT THEY DO NOT PROJECT INTO VEHICULAR TRAFFIC LANES (SEE FIG. 13).

4.7.7 WARNING TEXTURES. (REMOVED AND RESERVED).

4.7.8 OBSTRUCTIONS. CURB RAMPS SHALL BE LOCATED OR PROTECTED TO PREVENT THEIR OBSTRUCTION BY PARKED VEHICLES.

4.7.9 LOCATION AT MARKED CROSSINGS. CURB RAMPS AT MARKED CROSSINGS SHALL BE WHOLLY CONTAINED WITHIN THE MARKINGS, EXCLUDING ANY FLARED SIDES.

4.7.10 DIAGONAL CURB RAMPS. IF DIAGONAL (OR CORNER TYPE) CURB RAMPS HAVE RETURNED CURBS OR OTHER WELL-DEFINED EDGES, SUCH EDGES SHALL BE PARALLEL TO THE DIRECTION OF PEDESTRIAN FLOW. THE BOTTOM OF DIAGONAL CURB RAMPS ARE PROVIDED AT MARKED CROSSINGS, THE 48" (1220mm) CLEAR SPACE SHALL BE WITHIN THE MARKINGS. IF DIAGONAL CURB RAMPS HAVE FLARED SIDES, THEY SHALL ALSO HAVE AT LEAST A 24" (610mm) LONG SEGMENT OF STRAIGHT CURB LOCATED ON EACH SIDE OF THE CURB RAMP AND WITHIN THE MARKED CROSSING.

4.7.11 ISLANDS. ANY RAISED ISLANDS IN CROSSING SHALL BE CUT THROUGH LEVEL WITH THE STREET OR HAVE CURB RAMPS AT BOTH SIDES AND A LEVEL AREA AT LEAST 48" (1220mm) LONG IN THE PART OF THE ISLAND INTERSECTED BY THE CROSSINGS.

4.7.12 UNCURBED INTERSECTIONS. (REMOVED AND RESERVED).

4.8 RAMPS.

4.8.1 GENERAL. ANY PART OF AN ACCESSIBLE ROUTE WITH A SLOPE GREATER THAN 1:20 SHALL BE CONSIDERED A RAMP AND SHALL COMPLY WITH 4.8.

4.8.2 SLOPE & RISE. THE LEAST POSSIBLE SLOPE SHALL BE USED FOR ANY RAMP. THE MAXIMUM SLOPE OF A RAMP IN NEW CONSTRUCTION SHALL BE 1:12. THE MAXIMUM RISE FOR ANY RAMP SHALL BE 30" (762mm). CURB RAMPS AND RAMPS TO BE CONSTRUCTED ON EXISTING SITES OR IN EXISTING BUILDINGS OR FACILITIES MAY HAVE SLOPES AND RISE AS SHOWN IN TABLE 2. IF SPACE LIMITATIONS PROHIBIT THE USE OF A 1:12 SLOPE OR LESS (SEE 4.1.6).

4.8.3 CLEAR WIDTHS. THE MINIMUM CLEAR WIDTH OF A RAMP SHALL BE 36" (915mm).

4.8.4 LANDINGS. RAMPS SHALL HAVE LEVEL LANDINGS AT THE BOTTOM AND TOP OF EACH RUN. LANDINGS SHALL HAVE THE FOLLOWING FEATURES:

- (1) THE LANDING SHALL BE AT LEAST 60" WIDE AS THE RAMP RUN LEADING TO IT.
- (2) THE LANDING LENGTH SHALL BE A MINIMUM OF 60" (1525mm) CLEAR.
- (3) IF RAMPS CHANGE DIRECTION AT LANDINGS, THE MINIMUM LANDING SIZE SHALL BE 60" BY 60" (1525mm) BY (1525mm).
- (4) IF A DOORWAY IS LOCATED AT A LANDING, THEN THE AREA IN FRONT OF THE DOORWAY SHALL COMPLY WITH 4.13.6.

4.8.5 HANDRAILS. IF A RAMP RUN HAS A RISE GREATER THAN 6" (152mm) OR A HORIZONTAL PROJECTION GREATER THAN 72" (1830mm), THEN IT SHALL HAVE HANDRAILS ON BOTH SIDES. HANDRAILS ARE NOT REQUIRED ON CURB RAMPS. HANDRAILS SHALL COMPLY WITH 4.26 AND SHALL HAVE THE FOLLOWING FEATURES:

- (1) HANDRAILS SHALL BE PROVIDED ALONG BOTH SIDES OF RAMP SEGMENTS. THE INSIDE HANDRAIL ON SWITCHBACK OR DOGLEG RAMPS SHALL ALWAYS BE CONTINUOUS.
- (2) IF HANDRAILS ARE NOT CONTINUOUS, THEY SHALL EXTEND AT LEAST 12" (305mm) BEYOND THE TOP AND BOTTOM OF THE RAMP SEGMENT AND SHALL BE PARALLEL WITH THE FLOOR OR GROUND SURFACE.
- (3) THE CLEAR SPACE BETWEEN THE HANDRAIL AND THE WALL SHALL BE 1-1/2" (38mm).
- (4) GRIPPING SURFACES SHALL BE CONTINUOUS.
- (5) TOP OF HANDRAIL GRIPPING SURFACES SHALL BE MOUNTED BETWEEN 30" & 34" (762 mm & 863mm) ABOVE RAMP SURFACES.
- (6) ENDS OF HANDRAILS SHALL BE EITHER ROUNDED OR RETURNED SMOOTHLY TO FLOOR, WALL, OR POST.
- (7) HANDRAILS SHALL NOT ROTATE WITHIN THEIR FITTINGS.

4.8.6 CROSS SLOPE & SURFACES. THE CROSS SLOPE OF RAMP SURFACES SHALL BE NO GREATER THAN 1:50. RAMP SURFACES SHALL COMPLY WITH 4.5.

4.8.7 EDGE PROTECTION. RAMPS AND LANDINGS WITH DROP-OFFS SHALL HAVE CURBS, WALLS, RAILINGS, OR PROJECTING SURFACES THAT PREVENT PEOPLE FROM SLIPPING OFF THE RAMP. CURBS SHALL BE A MINIMUM OF 2" (50mm) HIGH (SEE FIG. 17).

4.8.8 OUTDOOR CONDITIONS. OUTDOOR RAMPS AND THEIR APPROACHES SHALL BE DESIGNED SO THAT WATER WILL NOT ACCUMULATE ON WALKING SURFACES.

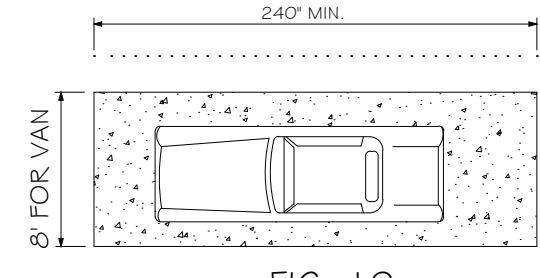


FIG. 10
ACCESS AISLE AT PASSENGER LOADING ZONES
N.T.S.

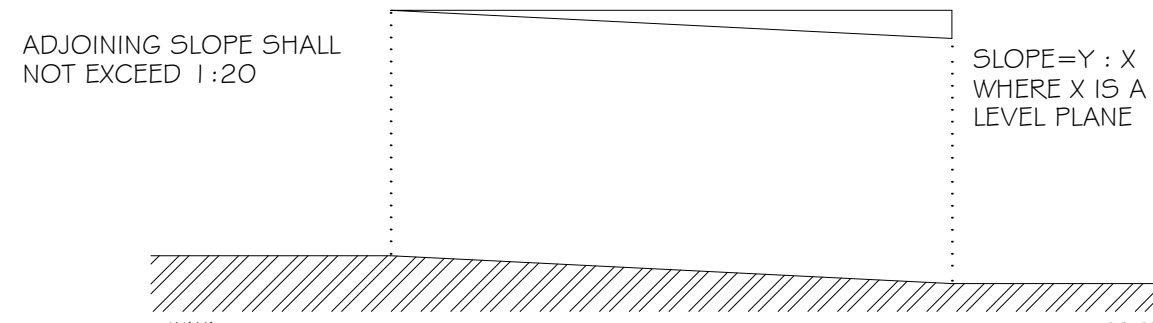


FIG. 11
MEASUREMENT OF CURB RAMP SLOPES
N.T.S.

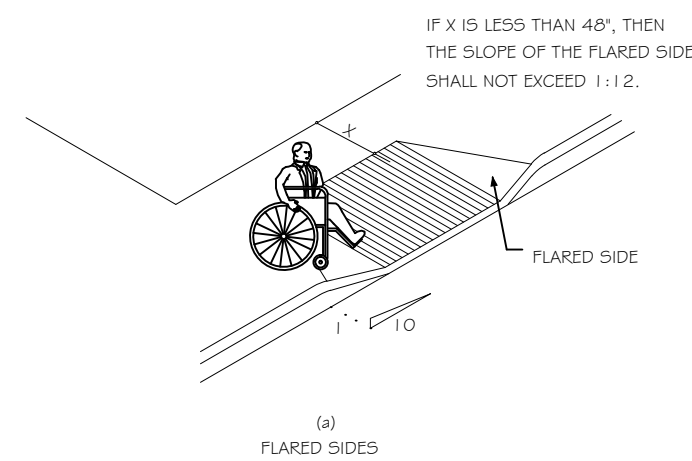


FIG. 12
SIDES OF CURB RAMPS
N.T.S.

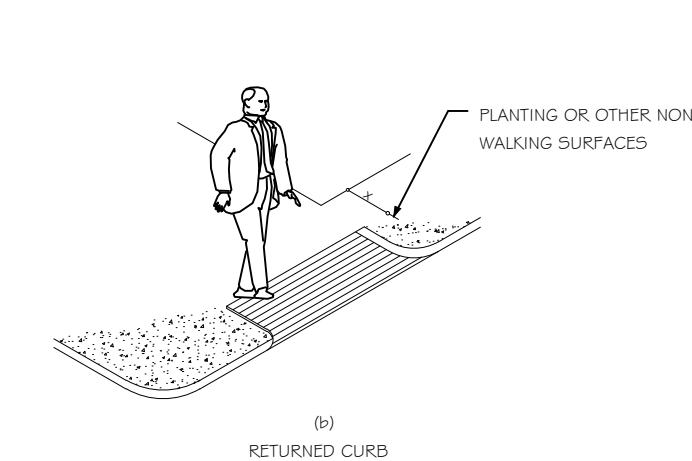


FIG. 12
SIDES OF CURB RAMPS
N.T.S.

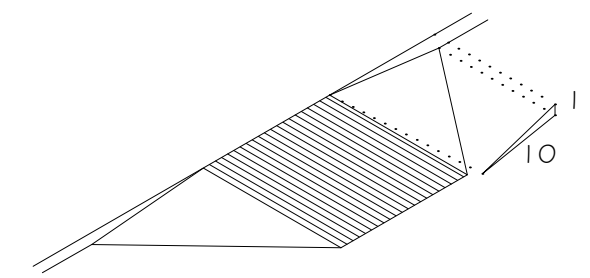


FIG. 13
BUILT-UP CURB RAMP
N.T.S.

PROJECT: ANDERSON MEMORY CARE
STORMWATER RUN-OFF CALCULATIONS

Formulas used:
[1] RATIONAL METHOD: Q=Aci

where:
Q= Peak discharge of watershed in cubic feet per second (cfs) due to maximum storm assumed.
A= Area of watershed in acres.
c= Coefficient of run-off [2].
i= Intensity of rainfall in inches per hour based on concentration time. [3]

[4] TC= $\frac{L^{0.8} \left(\frac{1000}{e} - 9 \right)^{0.7}}{(1140)(s^{0.5})}$

where:
TC= Time of concentration= time required for rain falling at most remote point to reach discharge point.
c= Site run-off coefficient based on conditions shown.
s= Percent slope of overland flow.

PRIOR DEVELOPMENT
25 Year Frequency

| | | | |
|---------------------|-------------|--------|--------------------|
| $Q_1 = Aci$ | | | |
| Watertight Surfaces | c(1) = 0.9 | 0 | sqft = 0.000 Acres |
| Gravel Surface | c(2) = 0.25 | 0 | sqft = 0.000 Acres |
| Green Space | c(3) = 0.15 | 137553 | sqft = 3.158 Acres |
| Summary | c = 0.15 | 137553 | sqft = 3.158 Acres |

Duration (D) = Time of concentration (TC)
where
L = 250 run-off length ft
c = 0.15 run-off coef
S = 0.8000 percent slope
therefore TC = D = 30.85 minutes
Expected rainfall intensity i = 3.64 in/hr

$Q_1 = 1.724$ cfs (15% reduction = 0.259 cfs)

POST DEVELOPMENT
25 Year Frequency

| | | | |
|---------------------|-------------|--------|--------------------|
| $Q_2 = Aci$ | | | |
| Watertight Surfaces | c(1) = 0.9 | 60408 | sqft = 1.387 Acres |
| Gravel Surface | c(2) = 0.25 | 0 | sqft = 0.000 Acres |
| Green Space | c(3) = 0.15 | 77145 | sqft = 1.771 Acres |
| Summary | c = 0.48 | 137553 | sqft = 3.158 Acres |

Duration (D) = Time of concentration (TC)
where
L = 718 run-off length ft
c = 0.48 run-off coef
S = 0.1713 percent slope
therefore TC = D = 14.69 minutes
Expected rainfall intensity i = 3.64 in/hr

$Q_2 = 5.510$ cfs

DETENTION REQUIREMENTS

| | |
|--------------------------------|--|
| Detention required $Q_2 - Q_1$ | 3.79 cfs |
| ONE HOUR DETENTION | 13629.2 cuft |
| DETENTION DIMENSIONS | WIDTH 360 feet LENGTH 100 feet DEPTH 0.38 feet |

DISCHARGE END AREA REQUIREMENTS
25 Year Frequency

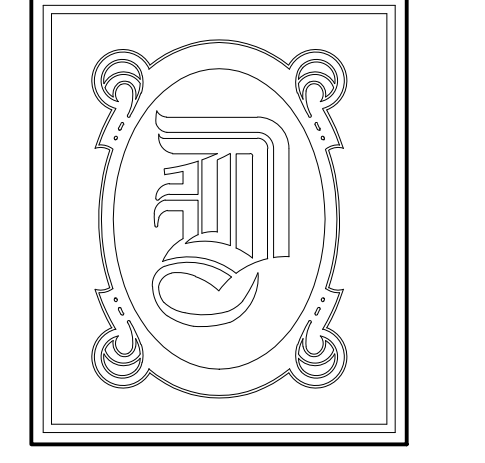
[5] A= $\frac{Q}{c\sqrt{(2gh)}}$

where:
A= Discharge Area required
g= Acceleration of gravity
c= Discharge coefficient
h= Hydraulic head
Q= Flow volume from run-off

Pipe Servicing Site Drainage
Q = 5.510 cfs
c = 0.62 coefficient
g = 32.16 ft/ft/sec
h = 1.00 feet
A = 1.108 sqft

REQUIRED CONDUIT = 14.25 inch inside diameter

References:
1. Chen, W.F. The Civil Engineering Handbook. 1995. Eq.# 31.1, pg. 1036
2. Seelye, Elwyn E. Data Book for Civil Engineers. Vol.1 1960. Tbl. B, pg. 18-02
3. Seelye, Elwyn E. Data Book for Civil Engineers. Vol.1 1960. Fig. B, pg. 18-01
4. Chen, W.F. The Civil Engineering Handbook. 1995. Tbl. 31.2 Regan Equation (r=0.013)
5. Chen, W.F. The Civil Engineering Handbook. 1995. Eq.# 28.32, pg. 969



DAMMON ENGINEERING, INC.

CHIEF ENGINEER
EMMETT DAMMON, P.E.

CHIEF ARCHITECT
ROBERT WILTSE

1095 FLORIDA AVENUE
SLIDELL, LA. 70458
OFFICE: 985-649-5832
FAX: 985-641-5950

WEBSITE:
WWW.DAMMONENGINEERING.COM

EMAIL:
DAMMONENG@BELLSOUTH.NET

ARCHITECTURE
ENGINEERING
STUDIES
PLANNING
INVESTIGATION
EXPERT WITNESS

ANDERSON
MEMORY CARE
4104 DAUPHINE ST.
SLIDELL, LA
70458

SITE
HANDICAP
DETAILS

REV:

SCALE: AS NOTED

JOB#:

DATE:

SHEET

C-5

OF