



July 2, 2018

Donald N. Jennings, P.E.
Director of Utility Services
Isle of Wight County
P.O. Box 80,
Isle of Wight, VA 23397

Re: HRSD Flow Acceptance Certificate for Carrolton Condominiums – Isle of Wight County
(HRSD File No. 3866)

Dear Mr. Jennings:

This office has reviewed the HRSD Project Information Form and HRSD Project Flow Calculations Worksheet dated June 14, 2018 for the above referenced project, and **accepts** this new flow for conveyance and treatment. Based on the flow acceptance process developed by the HRSD Consent Order Capacity Team, dated May 5, 2008, a flow acceptance request by the Locality is not required when the project average daily flow (ADF) is less than 40,000 gpd and it is a gravity connection to an existing sanitary sewer collection system.

This Flow Acceptance Certificate is based on the following project design parameters:

- This application is for an average daily flow (ADF) of 3,720 gpd with a daily peak hour flow of 9,300 gpd;
- The project calls for the construction of 12 condo units on Sugar Hill Road;
- Sanitary sewer flows from this project will be conveyed to the city's existing gravity collection system, which is part of PS IOW-PS-033 Carrolton Meadows pump station service area;
- No upgrades for the receiving pump station facility were submitted with this project;
- Flows from this project will enter the HRSD interceptor force main, SF-244, near the intersection of Carrolton Boulevard and Sugar Hill Road; and
- Flows from this project will typically be conveyed to the HRSD Nansemond Treatment Plant.

Should any of these attributes change, a revised flow acceptance request must be submitted and the project will be subject to a re-approval process at HRSD.

This Flow Acceptance Certificate is good for a period of **five years** from the date of issuance, June 2, 2018, provided that the site plan approval for the project is current. If the project has not been constructed within that time, this flow acceptance will be null and void. HRSD makes no representation with regards to Isle of Wight County's ability to accept the wastewater flow from this project.

PO Box 5911, Virginia Beach, VA 23471-0911 • 757.460.2261 • Fax 757.363.7917

Commissioners: Frederick N. Eloffson, CPA, Chair • Maurice P. Lynch, PhD, Vice-Chair • Vishnu K. Lakdawala, PhD
Michael E. Glenn • Stephen C. Rodriguez • Willie Levenston, Jr. • Ann W. Templeman • Elizabeth A. Taraski, PhD
www.hrsd.com

Donald Jennings
Page 2
July 2, 2018

Please feel free to contact me at bcharalambous@hrsd.com or 757-355-5018 should you have any questions or concerns regarding this project.

Sincerely,



Bambos Charalambous, P.E.
Hydraulic Analysis Manager

c: Jerry Kooiman, K.S. Carrollton LLC (via email)



Project Information Form

Project Name: Carrolton Condominiums

Project Owner Information

Owner Name: K. S. Carrollton LLC

Contact Name: Jerry Kooiman

Phone No: 757 328 3114

E-mail: Ppcconstruction1@aol.com

Engineering Firm Information

Firm Name: J.M.T. Engineering

Main office phone: 757 499 1895

Address: Bendix Road , Suite 260, Virginia Beach Virginia 23464

Prj. Manager: Not assigned yet

E-mail: _____

Prj. Engineer: _____

E-mail: _____

Project Location

Jurisdiction: Isle Of Wight

Street address or intersection: One parcel away from the corner of Route 17 and Sugar Hill Rd

Tax Map, Parcel ID, or GPIN: 34-01-106B

Military facility (if applicable): n.a.

Note: Please provide a general location map (no smaller than 1"-2000') showing the project location. General wastewater flow path, if applicable, should be indicated as well.

Project Description *(attach additional sheets, if necessary)*

In the south east corner according to Mr. Steve Hatcher (IOW Public Works) there is an existing manhole (on property parcel ID 34L-001-000A) about 15 feet from the subject property (we will get a utility easement). The waste water will flow to the Carrollton Meadows Pump station located on Spring Crest Drive (parcel ID 34L-01-000C) IOW is asking for a "acceptance flow letter and location of HRSD connection Point. J.M.T. Engineering will determine whether the existing pump station is able to handle the additional flow.

Sewer Pump Station Proposed Work *(check only one)*

☐ New facility ☐ Modifications - Upgrades ☐ Replacement ☒ N/A

Please enter the pump station number and name associated with this project: *(if it is known)*

Pump station number: Carrollton Meadows

Pump station name: Carrollton Meadows

Proposed Sewer Service Connection Type *(check only one)*

☐ Existing HRSD interceptor FM branch valve ☐ Jurisdiction FM directly connected to HRSD
☐ New HRSD interceptor FM tap valve ☐ Jurisdiction low pressure FM (gravity outfall)
☒ Existing HRSD gravity sewer manhole ☐ Existing/new jurisdiction gravity sewer manhole

Project Estimated Design Flow

For projects generating sewer flow, please use the [HRSD Sanitary Sewer Flow Calculations worksheet](#) and submit with this form to HRSD Development Services. The worksheet can be accessed from our web site at www.hrsd.com.

Projects with Commercial and/or Industrial Flows (P3)

For all processes found on the premises, indicate the North American Industrial Classification System ([NAICS](#)) Code Number, as found in the most recent Edition of the NAICS Manual prepared by the Executive Office of the President, Office of Management and Budget. Copies of the manual are also available at most public libraries. DO NOT USE PREVIOUS EDITIONS OF THE MANUAL. If more than one NAICS code applies, list in descending order of impact on wastewater generation.

NAICS Code	NAICS Description/Name

Give a brief description of all operations at this facility, including primary products and/or services (attach additional sheets if necessary).

Notice to Applicant

The following HRSD resources are available by visiting HRSD's official web site at www.hrsd.com:

- [HRSD Standards & Preferences](http://www.hrsd.com/standardsandpreferences.shtml) (<http://www.hrsd.com/standardsandpreferences.shtml>)
- [Development Services](http://www.hrsd.com/iec.shtml) (<http://www.hrsd.com/iec.shtml>)
- [HRSD GIS Public Viewer](http://www.hrsd.com/gis.shtml) (<http://www.hrsd.com/gis.shtml>)
- [Record Drawings and Valve Guides](http://www.hrsd.com/recorddrawingrequests.shtml) (<http://www.hrsd.com/recorddrawingrequests.shtml>)
- [HRSD Rate Schedule](http://www.hrsd.com/rateschedule.shtml) (<http://www.hrsd.com/rateschedule.shtml>)
- [Commercial/Industrial Customer \(P3\)](http://www.hrsd.com/industrialcustomer.shtml) (<http://www.hrsd.com/industrialcustomer.shtml>)

For all development project work order requests, please use the following email link: developrequest@hrsdc.com

Applicant's Name: Jeremy F. Kooiman

Date: June 12th, 2018

Applicants with projects generating sanitary sewer flow must use this worksheet to calculate flows and submit to HRS Development Services using the email link: developrequest@hrsd.com.

HFSD shall certify a pump station based on metered data if available. In absence of metered data, water consumption data shall be used instead. If there is a future flow component in the calculations for the catchment, please use the worksheet below.

PS No:					
PS Name:					
		Pump Station Catchment Basin			
		Avg. Dry Weather Flow		Wet Weather Flow	
		gpd	gpm	gpd	gpm
Enter					
Metered	→				
on Flow	→				
Sub-totals:					

Please use the table below to calculate sanitary sewer flows for your project

Land Use	Contributing Unit Type	Flow (gpd/Unit)	Flow Duration (Hours)	Peak Factor	
Residential					
Single Family Homes, Trailers, Apartments, Condos, Townhomes, Duplexes	Residential Dwelling	330	24	2.5	
Medical Facilities					
Hospitals	Medical Bed	300	24	3	
Nursing Homes & Assisted Living		160	24	3	
Funeral Homes		Gross SF	0.25	12	3
Medical Office Building		Gross SF	0.25	12	3
Tourism Facilities					
Hotels & Motels	Room	130	24	3	
Educational Facilities					
High School (w/ showers)	Student / Faculty	15	8	3	
Elementary & Middle School		10	8	3	
College/University Campus & Day Care		10	12	3	
Boarding Schools		75	16	3	
Recreational Facilities					
Picnic Areas, Parks & Amusement Parks	Person	5	12	3	
Movie Theater	Seat	2.5	12	3	
Religious Assembly		2.5	6	3	
Campground / Cabins		Camping site	100	24	3
Dining /Entery Facilities					
Restaurants	Seat	30	16	3	
Service & Retail Facilities					
Shopping Mall & Retail Shops	Gross SF	0.2	12	3	
Convenient Store		0.3	24	3	
Office Building, Storage Units Office		0.1	12	3	
Fitness Center		0.1	16	3	
Service Stations		0.4	16	3	
Laundromats	Machine	500	16	3	
Industrial Facilities					
Heavy Industrial	Gross SF	0.35	16	3	
Light Industrial		0.1	16	3	
Warehouse		0.05	24	3	

[illegible]

Land use	Contributing Unit Type	Enter Flow (gpd/Unit)	Flow Duration (hrs)	Peak Factor
Residential				
Single Family Homes, Trailers, Apartments, Condos, Townhomes, Duplexes	Residential Dwelling	310	24	2.5
Commercial				
Medical, Tourism, Educational, Recreational, Dining, Service & Retail Facilities	Acres	1,000.00	24	3
Industrial				
Heavy & Light Industrial, Manufacturing, Warehouses	Acres	1,000.00	24	3

Enter No. of Units	Avg. Flow (gpd)	Avg. Flow (gpm)	Peak Flow (gpd)	Peak Flow (gpm)
Sub-totals:				
Grand Totals:	3,720	2.58	9,300	6.46

Comments:

Applicant's Name:	Jeremy H. Toolman
Phone No:	757 326 9114
Email:	ppcconstruction1@aol.com

Applicant's Name: Jeremy H. Wood

Phone No: 757 328 3114
Email: ppcconstruction1aol.com

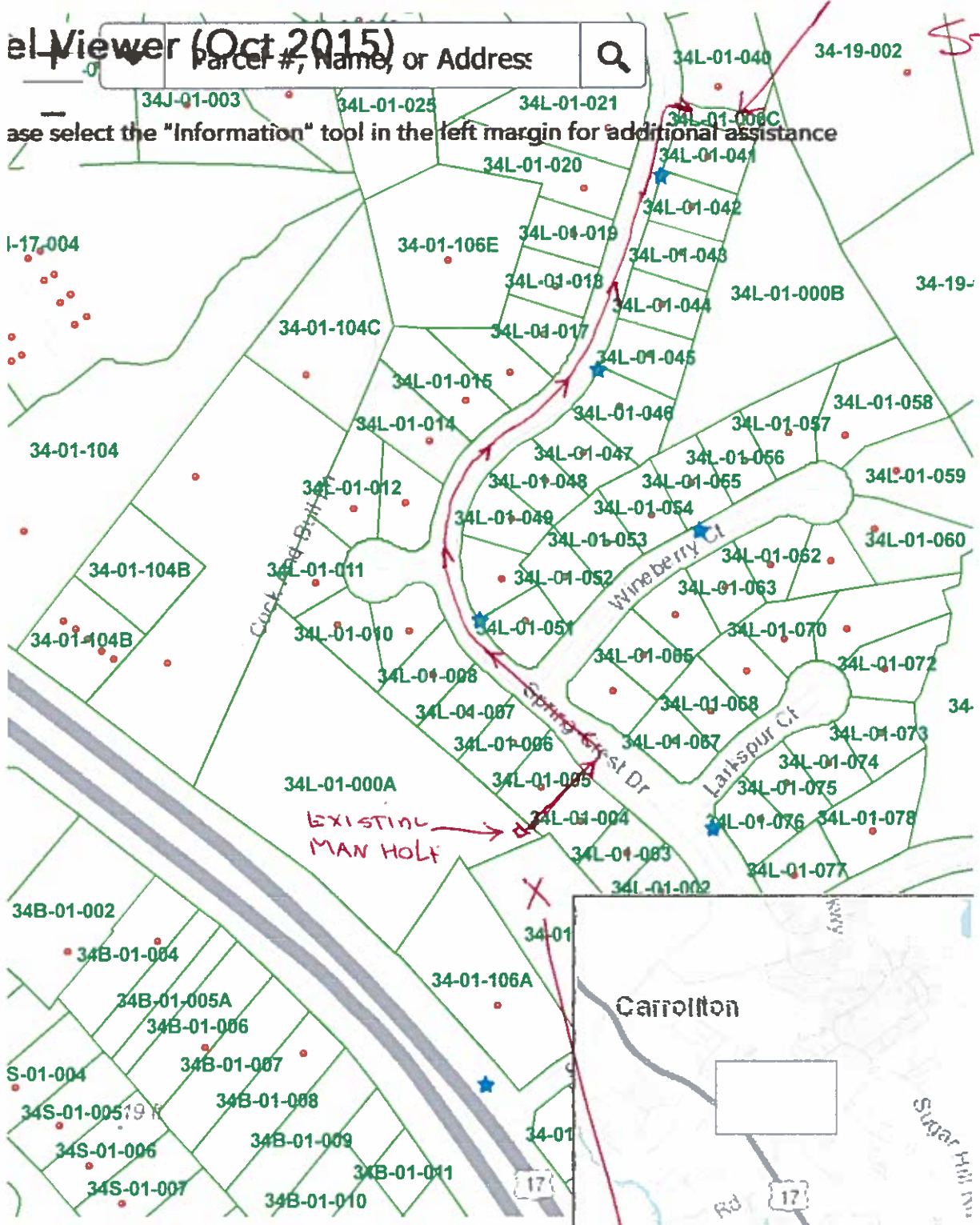


Parcel Viewer (Oct 2015)

Parcel #, Name, or Address



Please select the "Information" tool in the left margin for additional assistance



EXISTING MAN HOLE

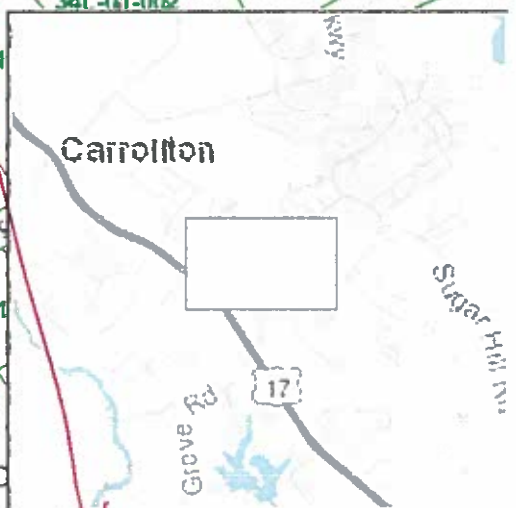
CARROLLTON MEADOWS Pump STATION

SUBJECT PROPERTY



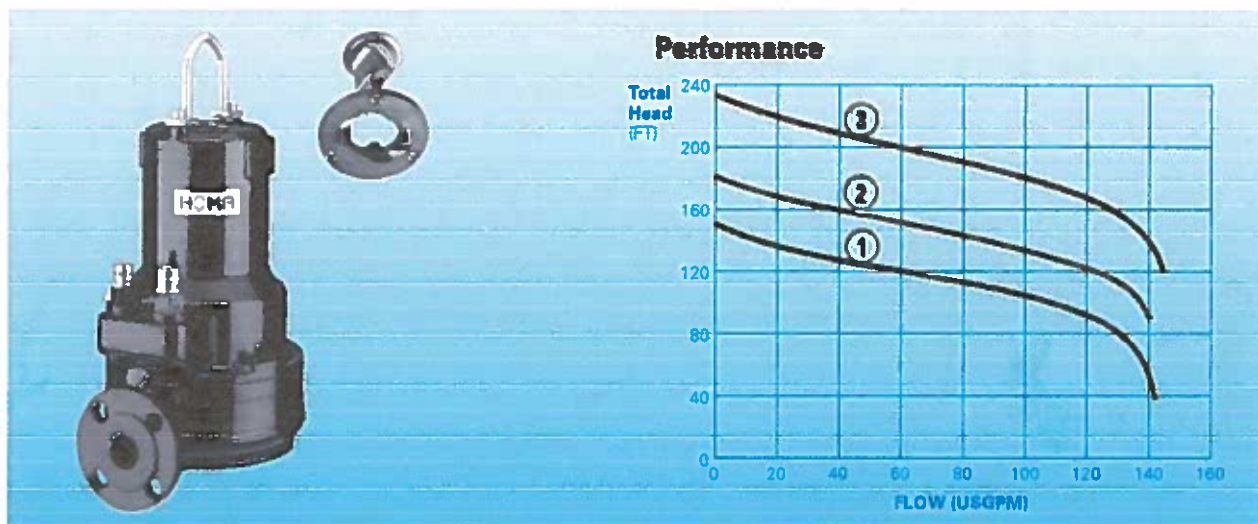
5228 D

All rights reserved.



Electric Submersible Wastewater Pumps with Cutter System 2" Discharge

Barracuda GRP 59-118



Application

HOMA Barracuda GRP Grinder Pumps are designed for high-head pumping applications of waste water and sewage. Their hard stainless steel cutter system grinds all soft solids to small pieces, enabling the pumps to provide high pressure pumping at low motor rating. It also allows the use of cost saving small diameter pipework.

The Barracuda GRP 59 - GRP 118 series pumps are typically used in:

- Commercial wastewater and sewage
- Small municipal collection systems
- Waste treatment plants
- Industrial wastewater
- Effluent distribution systems
- Agricultural wastewater
- Processing plants
- Optional Factory Mutual (FM) label for Class I, Div 1 EX construction.

Features

Cast iron construction with epoxy coating for maximum corrosion resistance. All models are available with jacket cooling for dry well installation or not fully submerged operation

Extra Long Replaceable power cable of 33' length is retained and sealed with a strain relief gland

Combination of two mechanical seals (Silicon Carbide / Silicon Carbide)

Seal leakage probe in motorhousing and oil chamber

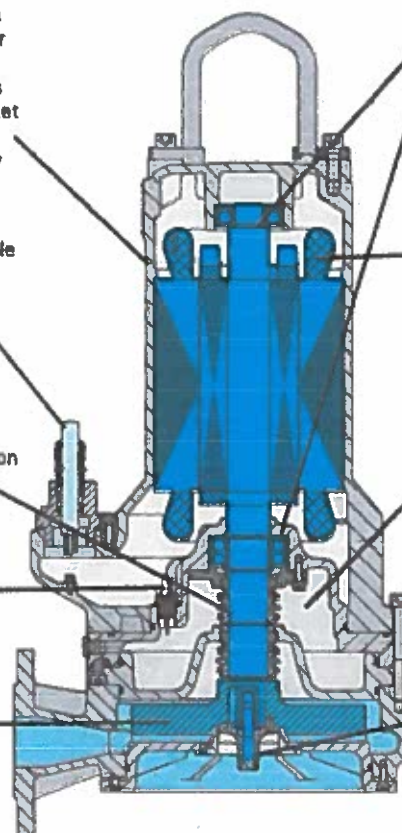
Open multi-channel impeller for smooth vibration free operation

Single grooved upper and double row angular lower ball bearings assure long life and reliability

Motor windings provided with class F insulation and fully protected by embedded auto reset thermal switches

Oil filled seal chamber positively lubricates seals

55 HRC hardened stainless steel cutter steel cutter system consisting of stationary cutter ring and blade rotor



Motor Construction

Motor Type:
enclosed submersible

NEMA insulation code:
class F

Service Factor:
1.15

NEMA Design Type:
B

Standard Cable Length:
33 ft

Available Motor Voltages:
1 Phase: 200V, 230 V
3 Phase: 200 V, 230 V, 380 V,
460 V, 575 V

Optional Expulsion Proof construction:
Factory Mutual approved for Class I, Div. 1, Group C & D.

Materials

Motor housing, Volute and Impeller:
Cast Iron ASTM A 48, class 40B

Mechanical seal – Impeller side:
Silicon Carbide vs Silicon Carbide

Shaft seal – Motor side:
Silicon Carbide vs Silicon Carbide

O-Rings
Nitrile rubber

Upper bearing:
Single grooved Ball Bearing

Lower bearing:
Double angular Ball Bearing

Power cable sheathing:
Nitrile rubber

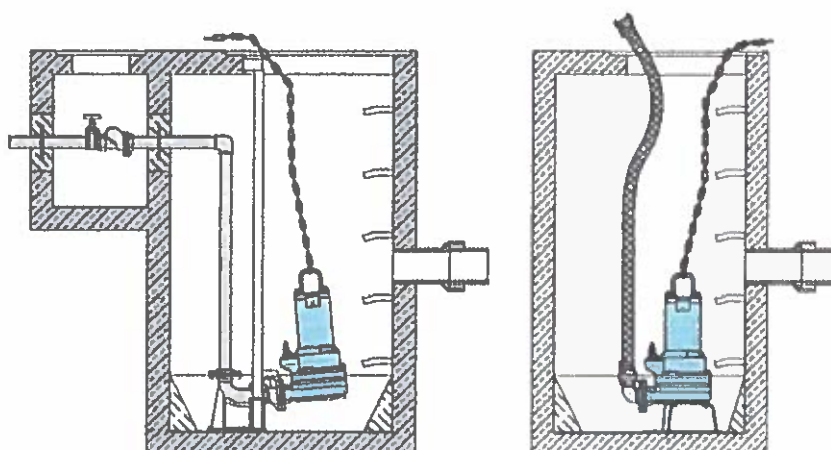
Shaft:
AISI 430 F

Fasteners:
AISI 304 SS

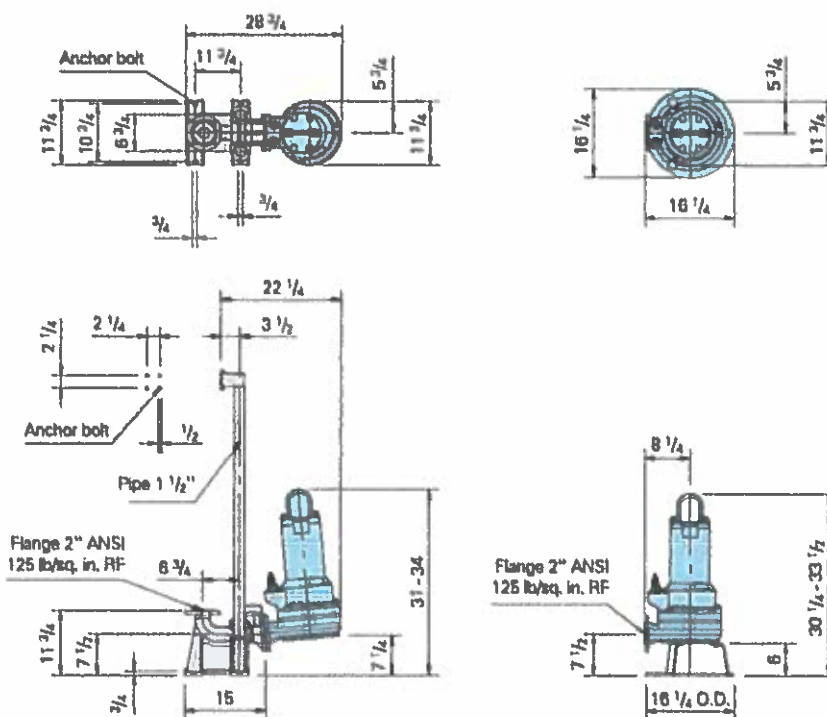
Installations

Wet pit with autocoupling

Bestand



Dimensions (inches) (Tolerance +/- 1/4")



Technical Data

Curve No.	Pump Type	Rated B.H.P.	Phase	Voltage (V)	Full Load Amps	Speed (rpm)	Weight (LBS)	NEMA code
1	GRP59(U)/1	10.3	1	230	37.0	3450	238	F
2	GRP79(U)/1	12.6	1	230	44.8	3450	238	F
1	GRP59(U)/3	8.9	3	230/380/460	22.0/13.3/11.0	3450	238	G
2	GRP79(U)/3	8.9	3	230/380/460	22.0/13.3/11.0	3450	238	G
3	GRP118(U)/3	13.1	3	230/380/460	31.0/18.8/15.5	3450	238	J



Technical Specification

GRP 59-79-118 Series Grinder Pump Explosion Proof Construction

- **SCOPE**

These specifications cover the design, performance and installation of submersible Grinder pumps intended for wetwell applications. The pump assembly, including the liquid end and motor shall be of the design and production of only one manufacturer, and shall be in full compliance with these specifications.

- **GENERAL CONDITIONS**

Furnish and install Qty ____ HOMA Model GRP ____ Electric Submersible Grinder Pump(s), each consisting of a single-stage, non-clog centrifugal pump, with a cutter attachment, close coupled by a common shaft to a squirrel cage, induction type electric motor, assembled in a single body, watertight aggregate, suitable for wet well.

- **PERFORMANCE GUARANTEE**

The pump shall be capable of delivering raw, unscreened sewage at: ____ GPM at ____ FT TDH.

- **PUMP DESIGN**

The liquid end shall be a centrifugal pump with a rotating cutter mounted on the shaft immediately adjacent to the impeller. The stationary cutter disk shall be mounted in an axially adjustable bottom plate. A short overhang shaft, shared by the rotating cutter, impeller and motor, will have generous shoulder fillet radii to minimize stress concentration and fatigue. The shaft shall be supported by anti-friction bearings. The lower bearing shall be a double-row, deep groove ball bearing, axially retained to sustain both axial and radial loads. The upper bearing shall be a single-row, deep groove ball bearing, axially floating to sustain radial loads only. The impeller shall be cast in one piece and of the multi-vane, centrifugal (radial) design. Watertight integrity shall be maintained by a Cable Entry Assembly, an isolated Junction Box, Mechanical Shaft Seal and, between major castings, by O-Rings, confined within closely fitted, high surface quality rabbet joints, compressed to the prescribed dimension only by metal-to-metal contact.

- **MATERIALS OF CONSTRUCTION**

Major castings: ASTM A48 Class 40B Cast Iron.- The cutter parts shall be made of Stainless Steel similar to AISI 440C, alloyed with cobalt, vanadium and molybdenum for a hardness of 55 Rockwell C minimum, to provide testing abrasion resistance.- Shaft: AISI 430F Stainless Steel. - Fasteners: AISI 304 Stainless Steel. - All O-Rings: Nitrile Rubber. - Shaft Seals: Impeller and Motor side; Silicon Carbide/Silicon Carbide. Cable Jacket: Chloroprene Rubber. Exterior Protective Coating: High Build Epoxy.

- **SHAFT**

Pump shaft must have generous shoulder fillet radii to minimize stress concentration and fatigue. Deflection at the Shaft Seal within the operating range shall not be more than 0.002 inch.

- **BEARINGS**

Pump shaft shall be supported by anti-friction bearings, designed for minimum 50,000 hours B-10 Life at the pumps Best Efficiency Point, and shall be factory pre-lubricated. The lower impeller-side bearing will be a double-row, deep groove ball bearing, axially retained, to sustain both axial and radial loads. The upper motor-end bearing is a single-row, deep groove ball bearing axially floating, to sustain radial loads only.

- **WATERTIGHT INTEGRITY**

The watertight integrity of the single-body pump-motor assembly shall be assured.

Each Cable Entry Assembly shall contain an elastomer grommet, flanked by two washers, closely fitted to the cable O.D. A watertight seal shall be maintained by screwing a threaded cable entry gland into a cable inlet flange which bolts into the motor cap. The cable entry gland threads down to a positive stop, thereby tightly compressing the grommet around the cable. The gland will provide a strain-relieving, anti-kink feature, functioning independently from the separate sealing action. The cable inlet flange shall contain an oring groove on the bottom side of the flange to allow for watertight integrity of the bolt-on cable entry assembly when bolted into the entry holes in the motor cap. For pumps above 10 horsepower an isolated Junction Box containing the Terminal Board, and sealed from the Motor Compartment by a watertight isolation plate, will provide a secondary barrier against water or moisture penetration. Each pump shall be supplied with 30 feet of SO Type power cable.

Technical Specification



- **SEALS:**

Motor Compartment shall be isolated from the Liquid End by Single Mechanical Shaft Seals in tandem arrangement (dual-independent, both oriented to resist pressure from the impeller). The upper motor side seal shall run in an Oil Chamber, which separates the Motor Compartment from the Liquid End and provides permanent lubrication and cooling. The lower impeller side seal will also get lubrication from the Oil Chamber. Each seal will have a stationary portion and a positively driven rotary portion. Springs must be protected from the pumped liquid; and under no circumstances can solid particles accumulate on the external spring and hamper its effectiveness. Seals must not require repeated checking or readjustment, except periodic inspection of the oil chamber. At the interfaces of major castings, sealing shall be accomplished by resilient Buna-N O-Rings, confined within closely fitted, high surface quality rabbet joints, compressed only to the prescribed dimension by metal-to-metal contact, allowing radial movement and preventing permanent set. Flat gaskets and seal rings, which may be squeezed unevenly or beyond the permanent deformation limit, are not allowed.

- **SEAL PROBE**

A two wire conductive seal probe shall be provided with pump. Probe shall be mounted into mechanical seal chamber and when interlocked with control panel, probe shall indicate the presence of contaminants within mechanical seal chamber. Option for external seal probe devices shall be readily available and field retrofittable for all pumps.

- **ELECTRIC MOTOR**

Each pump shall be driven by a Submersible Squirrel Cage Induction Motor in accordance with NEMA MG 1 Section IV Part 30, rated at _____ HP 3450 RPM _____ Volts _____ Phase. Motor shall be NEMA Design B for continuous duty, capable of sustaining 15 starts per hour. The pump and motor shall be produced by one manufacturer and shall be of submersible design.

All stator windings and leads shall be insulated with moisture resistant Class H insulation. Upon assembly, the stator shall be heat-shrink fitted into the stator housing; the use of bolts, pins or other fastening devices which would require penetration of the stator housing, shall not be acceptable.

In each phase winding there shall be embedded a temperature sensor, wired in series. Any of these thermal sensors shall cut out electric power if the temperature in its winding exceeds 140°C, but shall automatically reset when the winding temperature returns to normal. The motor shall have a SF (Service Factor) of 1.15 and shall be non-overloading for the selected performance curve. Full load current shall not exceed ____ FLA at ____ Volts.

When the application requires, motor shall be approved for use in Hazardous (Classified) areas. Pumps shall be suitable for operation in Class I, Division 1 Groups C & D Areas only, and shall be approved by Factory Mutual (FM) for use in the area classification indicated.

- **WETWELL AUTOCOUPLING APPLICATION**

An Autocoupling assembly shall be employed to eliminate the need for entering the wet well to service pumps. The system shall allow the lowering of the pump unit(s) into the well along 2 rigid guide pipes, resulting in a self-engaging, firm, leakproof coupling of the volute outlet to a receiving Base anchored to the floor which forms the discharge pipe connection. To assure a leakproof junction between movable and stationary components, a retained resilient seal ring shall be employed which is easily replaceable as part of the pump assembly, is axially and evenly compressed upon contact. O Ring Design Seals or Metal-to-metal contact faces shall not be allowed. Once seated, the pump shall be entirely supported by the Autocoupling Base, without any reliance on additional supports. Autocoupling discharge connection shall be flanged for all Grinder pumps above 5 HP to assure positive, permanent sealing.

- **WETWELL PORTABLE APPLICATION**

The pump unit, without modification to the basic, watertight pump-motor aggregate, shall be suitable for portable use when combined with a ring stand.

EXHIBIT "B"

Rutgers University, Center for Urban Policy Research
Residential Demographic Multipliers

Estimates of the Occupants of New Housing

(Residents, School-Age Children, Public School-Age Children)
by State, Housing Type, Housing Size, and Housing Price

Prepared by:

Robert W. Burchell, Ph.D.

David Listokin, Ph.D.

William Dolphin, M.A.

Center for Urban Policy Research

Edward J. Bloustein School of Planning

and Public Policy

Rutgers, The State University of New Jersey

New Brunswick, New Jersey

June 2006

DESCRIPTION, DEFINITION, AND ORGANIZATION OF RESIDENTIAL DEMOGRAPHIC MULTIPLIERS

The national, state, and District of Columbia residential demographic multipliers are derived from the 2000 U.S. Census 5-Percent Public Use Microdata Sample (PUMS). The demographic multipliers include the following data fields and organization:

1. **Household Size (HS):** Total persons per housing unit.
2. **Age distribution of the household members** organized into the following age categories: 0-4, 5-13, 14-17, 18-24, 25-44, 45-64, 65-74, 75+.
3. **Total school-age children (SAC)** or number of persons in the household of school age, defined as those 5 to 17 years old. (The SAC is the same as the combined number of household members in the 5-13 and 14-17 age categories.)
4. **Total public school-age children (PSAC)**, or the SAC who attend public schools.
5. **The SAC and PSAC by grade group** organized as follows: kindergarten (K)-grade 2, grades 3-6, grades 7-9, grades 10-12, and grade 9 by itself. The above data permit the analyst to tabulate the SAC and PSAC by differing school levels (e.g., K-6, 7-12, and 9-12).

The demographic fields shown above are differentiated by *housing type, housing size, housing price, and housing tenure*—four variables that have been found by Rutgers University to be associated with statistically significant differences in the HS, SAC, and PSAC. The multipliers are calculated for *new housing*, here defined as units enumerated in the 2000 census and built from 1990-2000.

The housing or structure types include the following: *single-family detached; single-family attached*, sometimes referred to as townhouses or townhomes; *larger (5-or-more-unit) multifamily buildings*, such as garden apartments or stacked flats; *smaller multifamily structures (2 to 4 units)*, such as a starter two-family home; and *mobile homes*. As the 2000 census, the source for the residential multipliers, does not have information on the stories in a housing structure (this was last available in the 1980 census), multiplier presentations cannot disaggregate multifamily housing into garden, mid-rise, and high-rise categories.

Housing-unit size is measured by the number of bedrooms, and data are presented for housing units ranging from *1 to 5 bedrooms*. There is an association between housing type and number of bedrooms, and the demographic multiplier tables present the common configurations for each housing type. For instance, demographic data are shown for 1- through 3-bedroom multifamily units and not for 4- to 5-bedroom units of this type because multifamily housing tends to be built with fewer rather than more bedrooms. The opposite is the case for single-family detached homes; in this instance, data are presented for 2- to 5-bedroom units as opposed to 1-bedroom units because detached housing is typically built with more rather than fewer bedrooms.

Housing is additionally classified by tenure: *ownership or rental*. According to the census, "A housing unit is owner-occupied if the owner or co-owner lives in the unit even if it is mortgaged or not fully paid for. . . . All occupied housing units that are not owner-occupied, whether they are rented for cash rent or occupied without payment of cash rent, are classified as renter-occupied."

There is a further differentiation of the demographic profiles by housing value or rent. The census definitions for "value" and "rent" are shown on the Definitions page; with regard to the latter, the current study indicates the "gross rent" (rent with utilities) rather than the "contract rent."

Values and gross rents reported in the 2000 census are updated to 2005 using a residential price inflation index available from the *Federal Housing Finance Board*. A separate price index is applied for the nation, for each of the 50 states, and for the District of Columbia.

The demographic profiles by 2005 housing values and gross rents are organized following a four-tiered classification: all *value or rent housing*, and then housing arrayed by *terciles (thirds) of value or rent* (units at the 1st-33rd percentile of value or rent; units at the 33rd through 66th percentile of value or rent; and units at the 67th-100th percentile of value or rent.)

DEFINITIONS OF DATA CONTAINED IN THE U.S. CENSUS OF POPULATION AND HOUSING PUBLIC USE MICRODATA SAMPLE (PUMS) 2000 AND OTHER MULTIPLIER TERMS

TERMS	DEFINITION/COMMENT
<i>Bedrooms (BR)</i>	The number of rooms that would be listed as bedrooms if the house, apartment, or mobile home were listed on the market for sale or rent even if these rooms are currently used for other purposes.
<i>Housing Categories (Structure Type)</i>	<p>Single-family, detached. This is a 1-unit structure detached from any other house; that is, with open space on all four sides. Such structures are considered detached if they have an adjoining shed or garage.</p> <p>Single-family attached. This is a 1-unit structure that has one or more walls extending from ground to roof separating it from adjoining structures. In row houses (sometimes called townhouses), double houses, or houses attached to nonresidential structures, each house is a separate, attached structure if the dividing or common wall goes from ground to roof.</p> <p>2-4 units. These are units in structures containing 2, 3, or 4 housing units.</p> <p>5+ units. These are units in structures containing 5 or more housing units.</p> <p>Mobile home. Both occupied and vacant mobile homes to which no permanent rooms have been added are counted in this category. Mobile homes used only for business purposes or for extra sleeping space, and mobile homes for sale on a dealer's lot, at the factory, or in storage, are not counted in the housing inventory. In 1990, the category was "mobile home or trailer."</p>
<i>Household Size</i>	The total number of persons in a <i>housing unit</i> .
<i>Housing Tenure (Ownership or Rental)</i>	A <i>housing unit</i> is owner-occupied if the owner or co-owner lives in the unit even if it is mortgaged or not fully paid for. All occupied housing units that are not owner-occupied, whether they are rented for cash rent or occupied without payment of cash rent, are classified as renter-occupied.
<i>Housing Unit</i>	A <i>housing unit</i> may be a house, an apartment, a mobile home, a group of rooms, or a single room that is occupied (or if vacant, is intended for occupancy as separate living quarters).
<i>Housing Value (Rent)</i>	Housing value is the census respondent's estimate of how much the property would sell for if it were for sale. In the current study, the value of a rented unit in a 1- to 4-unit structure is estimated to be 100 times the monthly <i>gross rent</i> , and all such units are included with owner-occupied units in calculating the multipliers. The housing value and rents indicated by the 2000 census were updated to 2005 using a residential price inflation index (available from the Federal Housing Finance Board) for the nation, for each state, and for the District of Columbia. Housing value or rent is categorized into a four-tier classification: all value (or rent) housing, and then housing units arrayed by terciles (thirds) of value (or rent).
<i>Housing Rent (Contract Rent)</i>	Contract rent is the monthly rent agreed to or contracted for, regardless of any furnishings, utilities, fees, meals, or services that may be included.
<i>Housing Rent (Gross Rent)</i>	Gross rent is the <i>contract rent</i> plus the estimated average monthly cost of utilities (electric, gas, water and sewer) and fuels (oil, coal, kerosene, wood, and the like) if these are paid by the renter (or paid for the renter by someone else). In the current study, the monthly gross rents are indicated in the <i>demographic table</i> .
<i>Insufficient Sample</i>	This notation in a table means that fewer than 600 weighted observations were counted for a housing type/bedroom/value combination or for an entire housing type/bedroom combination.
<i>Public School-Age Children (PSAC)</i>	The <i>school-age children</i> attending public school.
<i>Residential Demographic Multipliers</i>	Multipliers show the population associated with different <i>housing categories</i> as well as housing differentiated by <i>housing value</i> , housing size (<i>bedrooms</i>), and <i>housing tenure</i> .
<i>School-Age Children (SAC)</i>	The household members of elementary and secondary school age, defined here as those 5 through 17 years of age.

**NEW YORK (1-1) ALL PERSONS IN UNIT:
TOTAL PERSONS AND PERSONS BY AGE**

STRUCTURE TYPE /BEDROOMS/ VALUE (2005)/TENURE	TOTAL PERSONS	AGE							
		0-4	5-13	14-17	18-24	25-44	45-64	65-74	75+
Single-Family Detached, 2 BR									
All Values	2.31	0.16	0.23	0.06	0.10	0.80	0.64	0.20	0.12
Less than \$106,000	2.25	0.15	0.26	0.09	0.12	0.82	0.56	0.16	0.09
\$106,000 to \$164,500	2.31	0.15	0.23	0.05	0.09	0.79	0.67	0.19	0.14
More than \$164,500	2.37	0.17	0.20	0.04	0.08	0.77	0.71	0.25	0.14
Single-Family Detached, 3 BR									
All Values	3.06	0.31	0.55	0.16	0.12	1.21	0.56	0.11	0.05
Less than \$135,000	3.09	0.27	0.65	0.20	0.15	1.21	0.47	0.09	0.06
\$135,000 to \$194,500	3.11	0.36	0.55	0.16	0.11	1.28	0.50	0.11	0.05
More than \$194,500	2.95	0.28	0.45	0.13	0.11	1.10	0.72	0.12	0.04
Single-Family Detached, 4 BR									
All Values	3.76	0.42	0.91	0.26	0.15	1.35	0.58	0.07	0.03
Less than \$224,500	3.87	0.38	0.95	0.34	0.19	1.40	0.50	0.07	0.03
\$224,500 to \$329,500	3.74	0.43	0.91	0.24	0.12	1.39	0.56	0.06	0.03
More than \$329,500	3.67	0.43	0.86	0.19	0.14	1.26	0.68	0.08	0.04
Single-Family Detached, 5 BR									
All Values	4.52	0.47	1.16	0.42	0.24	1.36	0.70	0.11	0.06
Less than \$329,500	4.84	0.46	1.18	0.56	0.34	1.47	0.60	0.15	0.07
\$329,500 to \$748,500	4.43	0.47	1.13	0.38	0.20	1.35	0.72	0.10	0.07
More than \$748,500	4.23	0.51	1.19	0.29	0.15	1.18	0.85	0.05	0.03
Single-Family Attached, 2 BR									
All Values	2.16	0.16	0.16	0.06	0.13	0.73	0.57	0.23	0.13
Less than \$135,000	2.10	0.17	0.19	0.07	0.11	0.81	0.48	0.18	0.10
\$135,000 to \$194,500	2.23	0.17	0.18	0.06	0.16	0.75	0.56	0.22	0.13
More than \$194,500	2.09	0.13	0.10	0.03	0.07	0.58	0.70	0.30	0.17
Single-Family Attached, 3 BR									
All Values	3.08	0.28	0.44	0.18	0.24	1.01	0.69	0.16	0.07
Less than \$164,500	3.10	0.26	0.60	0.21	0.27	0.96	0.59	0.14	0.08
\$164,500 to \$269,500	3.17	0.30	0.45	0.19	0.25	1.06	0.70	0.15	0.07
More than \$269,500	2.83	0.28	0.26	0.12	0.22	0.95	0.76	0.18	0.05
Single-Family Attached, 4 BR									
All Values	3.83	0.26	0.88	0.31	0.34	1.11	0.71	0.14	0.09
Less than \$224,500	4.09	0.15	1.15	0.39	0.60	1.09	0.61	0.07	0.03
\$224,500 to \$329,500	3.89	0.28	0.78	0.34	0.28	1.09	0.73	0.23	0.15
More than \$329,500		Insufficient Sample							
5+ Units—Own, 1 BR									
All Values	1.86	0.08	0.15	0.02	0.12	0.84	0.32	0.19	0.14
Less than \$164,500	1.99	0.09	0.21	0.00	0.12	0.68	0.34	0.36	0.20
\$164,500 to \$269,500	1.82	0.09	0.16	0.03	0.05	0.87	0.31	0.14	0.17
More than \$269,500	1.77	0.05	0.10	0.04	0.19	0.94	0.32	0.09	0.04
5+ Units—Own, 2 BR									
All Values	1.88	0.08	0.11	0.04	0.08	0.56	0.54	0.25	0.21
Less than \$135,000	1.54	0.12	0.08	0.01	0.06	0.43	0.45	0.17	0.21
\$135,000 to \$329,500	2.05	0.07	0.12	0.06	0.09	0.55	0.55	0.32	0.27
More than \$329,500	1.88	0.07	0.11	0.03	0.09	0.70	0.59	0.19	0.09
5+ Units—Own, 3 BR									
All Values	3.00	0.34	0.35	0.25	0.13	1.00	0.72	0.10	0.11
Less than \$224,500		Insufficient Sample							
\$224,500 to \$748,500		Insufficient Sample							
More than \$748,500		Insufficient Sample							

**NEW YORK (1-2) ALL PERSONS IN UNIT:
TOTAL PERSONS AND PERSONS BY AGE**

STRUCTURE TYPE /BEDROOMS/ VALUE (2005)/TENURE	TOTAL PERSONS	AGE							
		0-4	5-13	14-17	18-24	25-44	45-64	65-74	75+
5+ Units-Rent, 1 BR									
All Values	1.66	0.10	0.13	0.03	0.15	0.58	0.25	0.18	0.24
Less than \$500	1.32	0.03	0.07	0.02	0.05	0.15	0.21	0.37	0.41
\$500 to \$1,000	1.99	0.18	0.25	0.05	0.24	0.70	0.29	0.11	0.15
More than \$1,000	1.67	0.08	0.06	0.02	0.14	0.87	0.25	0.07	0.17
5+ Units-Rent, 2 BR									
All Values	2.51	0.27	0.38	0.12	0.25	0.95	0.34	0.08	0.12
Less than \$750	2.68	0.31	0.57	0.17	0.28	0.93	0.28	0.08	0.08
\$750 to \$1,100	2.55	0.29	0.39	0.12	0.25	0.95	0.33	0.07	0.13
More than \$1,100	2.31	0.19	0.18	0.06	0.23	0.98	0.40	0.10	0.16
5+ Units-Rent, 3 BR									
All Values	4.20	0.52	0.97	0.40	0.63	1.17	0.45	0.06	0.02
Less than \$750	4.23	0.55	1.13	0.47	0.59	1.10	0.32	0.08	0.01
\$750 to \$1,250	4.54	0.61	1.11	0.39	0.68	1.20	0.50	0.04	0.02
More than \$1,250	3.81	0.39	0.66	0.33	0.63	1.20	0.51	0.05	0.03
2-4 Units, 1 BR									
All Values	2.20	0.16	0.21	0.10	0.24	0.85	0.40	0.13	0.11
Less than \$74,500	1.92	0.16	0.19	0.06	0.16	0.71	0.38	0.14	0.14
\$74,500 to \$110,000	2.14	0.14	0.21	0.09	0.28	0.83	0.35	0.15	0.08
More than \$110,000	2.54	0.19	0.22	0.14	0.28	1.00	0.47	0.12	0.12
2-4 Units, 2 BR									
All Values	2.58	0.29	0.36	0.14	0.28	0.92	0.38	0.11	0.10
Less than \$86,000	2.49	0.30	0.35	0.12	0.41	0.85	0.33	0.08	0.05
\$86,000 to \$132,000	2.63	0.29	0.43	0.12	0.25	1.03	0.34	0.10	0.08
More than \$132,000	2.63	0.27	0.29	0.16	0.18	0.89	0.49	0.17	0.18
2-4 Units, 3 BR									
All Values	3.73	0.42	0.77	0.27	0.35	1.30	0.51	0.08	0.04
Less than \$113,500	3.73	0.44	0.84	0.31	0.40	1.29	0.34	0.08	0.01
\$113,500 to \$213,500	3.83	0.41	0.84	0.28	0.36	1.35	0.46	0.06	0.06
More than \$213,500	3.62	0.39	0.62	0.21	0.28	1.24	0.73	0.11	0.03
Mobile, 2 BR									
All Values	2.00	0.13	0.19	0.06	0.12	0.59	0.55	0.22	0.13
Less than \$33,000	1.89	0.11	0.15	0.05	0.14	0.56	0.53	0.23	0.12
\$33,000 to \$54,000	1.98	0.11	0.21	0.05	0.10	0.60	0.56	0.20	0.15
More than \$54,000	2.12	0.16	0.19	0.08	0.15	0.61	0.56	0.25	0.12
Mobile, 3 BR									
All Values	2.94	0.27	0.50	0.20	0.20	1.06	0.52	0.13	0.06
Less than \$45,000	2.93	0.29	0.53	0.20	0.23	1.08	0.43	0.12	0.06
\$45,000 to \$66,000	2.93	0.27	0.51	0.19	0.19	1.04	0.54	0.13	0.06
More than \$66,000	2.97	0.24	0.47	0.21	0.19	1.06	0.59	0.14	0.07
Mobile, 4 BR									
All Values	4.34	0.32	1.07	0.63	0.35	1.40	0.49	0.05	0.04
Less than \$54,000					Insufficient Sample				
\$54,000 to \$78,000	4.41	0.35	0.96	0.64	0.38	1.53	0.46	0.04	0.05
More than \$78,000					Insufficient Sample				

**NEW YORK (2-1) ALL SCHOOL CHILDREN:
SCHOOL-AGE CHILDREN (SAC)**

STRUCTURE TYPE /BEDROOMS/ VALUE (2005)/TENURE	TOTAL SAC	GRADE				
		K-2	3-6	7-9	10-12	Gr. 9 Only
Single-Family Detached, 2 BR						
All Values	0.30	0.09	0.10	0.07	0.04	0.02
Less than \$106,000	0.36	0.08	0.11	0.10	0.06	0.03
\$106,000 to \$164,500	0.28	0.08	0.10	0.06	0.03	0.03
More than \$164,500	0.25	0.10	0.07	0.05	0.03	0.02
Single-Family Detached, 3 BR						
All Values	0.71	0.21	0.24	0.15	0.11	0.05
Less than \$135,000	0.85	0.23	0.29	0.19	0.14	0.06
\$135,000 to \$194,500	0.71	0.22	0.24	0.14	0.11	0.05
More than \$194,500	0.58	0.18	0.20	0.12	0.09	0.04
Single-Family Detached, 4 BR						
All Values	1.16	0.32	0.41	0.25	0.18	0.07
Less than \$224,500	1.29	0.30	0.45	0.29	0.25	0.10
\$224,500 to \$329,500	1.15	0.34	0.39	0.24	0.17	0.07
More than \$329,500	1.05	0.31	0.38	0.23	0.14	0.06
Single-Family Detached, 5 BR						
All Values	1.58	0.39	0.53	0.36	0.30	0.12
Less than \$329,500	1.75	0.37	0.54	0.46	0.38	0.19
\$329,500 to \$748,500	1.51	0.38	0.52	0.33	0.29	0.09
More than \$748,500	1.47	0.45	0.54	0.27	0.21	0.08
Single-Family Attached, 2 BR						
All Values	0.22	0.08	0.07	0.04	0.04	0.02
Less than \$135,000	0.25	0.09	0.07	0.04	0.05	0.02
\$135,000 to \$194,500	0.25	0.08	0.08	0.04	0.04	0.02
More than \$194,500	0.14	0.05	0.04	0.03	0.02	0.02
Single-Family Attached, 3 BR						
All Values	0.62	0.14	0.22	0.13	0.14	0.04
Less than \$164,500	0.81	0.19	0.33	0.14	0.15	0.06
\$164,500 to \$269,500	0.64	0.13	0.21	0.14	0.16	0.03
More than \$269,500	0.39	0.09	0.11	0.11	0.08	0.05
Single-Family Attached, 4 BR						
All Values	1.19	0.19	0.48	0.29	0.24	0.07
Less than \$224,500	1.54	0.26	0.62	0.39	0.27	0.12
\$224,500 to \$329,500	1.12	0.09	0.45	0.31	0.27	0.07
More than \$329,500		Insufficient Sample				
5+ Units—Own, 1 BR						
All Values	0.18	0.06	0.08	0.02	0.02	0.00
Less than \$164,500	0.21	0.06	0.08	0.06	0.00	0.00
\$164,500 to \$269,500	0.19	0.08	0.08	0.00	0.03	0.00
More than \$269,500	0.14	0.02	0.08	0.00	0.04	0.00
5+ Units—Own, 2 BR						
All Values	0.15	0.03	0.04	0.05	0.03	0.02
Less than \$135,000	0.09	0.02	0.00	0.06	0.01	0.00
\$135,000 to \$329,500	0.19	0.06	0.06	0.04	0.03	0.03
More than \$329,500	0.14	0.00	0.06	0.05	0.03	0.00
5+ Units—Own, 3 BR						
All Values	0.59	0.13	0.11	0.16	0.19	0.06
Less than \$224,500		Insufficient Sample				
\$224,500 to \$748,500		Insufficient Sample				
More than \$748,500		Insufficient Sample				

**NEW YORK (2-2) ALL SCHOOL CHILDREN:
SCHOOL-AGE CHILDREN (SAC)**

STRUCTURE TYPE /BEDROOMS/ VALUE (2005)/TENURE	TOTAL SAC	GRADE				
		K-2	3-6	7-9	10-12	Gr. 9 Only
5+ Units-Rent, 1 BR						
All Values	0.16	0.06	0.05	0.03	0.02	0.01
Less than \$500	0.10	0.03	0.03	0.02	0.01	0.01
\$500 to \$1,000	0.30	0.11	0.10	0.05	0.04	0.01
More than \$1,000	0.08	0.03	0.02	0.02	0.01	0.01
5+ Units-Rent, 2 BR						
All Values	0.49	0.15	0.17	0.10	0.09	0.03
Less than \$750	0.74	0.20	0.29	0.12	0.13	0.04
\$750 to \$1,100	0.51	0.16	0.15	0.11	0.09	0.03
More than \$1,100	0.23	0.07	0.06	0.05	0.04	0.01
5+ Units-Rent, 3 BR						
All Values	1.36	0.30	0.48	0.31	0.27	0.12
Less than \$750	1.59	0.27	0.63	0.38	0.32	0.15
\$750 to \$1,250	1.50	0.37	0.51	0.34	0.28	0.11
More than \$1,250	1.00	0.25	0.31	0.21	0.23	0.10
2-4 Units, 1 BR						
All Values	0.30	0.09	0.08	0.07	0.07	0.02
Less than \$74,500	0.25	0.06	0.07	0.08	0.05	0.02
\$74,500 to \$110,000	0.30	0.10	0.09	0.04	0.07	0.02
More than \$110,000	0.36	0.11	0.06	0.08	0.10	0.04
2-4 Units, 2 BR						
All Values	0.49	0.12	0.17	0.10	0.10	0.03
Less than \$86,000	0.47	0.12	0.16	0.10	0.09	0.03
\$86,000 to \$132,000	0.55	0.14	0.21	0.11	0.09	0.03
More than \$132,000	0.45	0.10	0.13	0.10	0.12	0.04
2-4 Units, 3 BR						
All Values	1.04	0.25	0.37	0.21	0.20	0.07
Less than \$113,500	1.16	0.28	0.42	0.25	0.20	0.11
\$113,500 to \$213,500	1.11	0.27	0.42	0.20	0.22	0.06
More than \$213,500	0.83	0.21	0.27	0.18	0.17	0.04
Mobile, 2 BR						
All Values	0.25	0.07	0.09	0.04	0.05	0.01
Less than \$33,000	0.19	0.07	0.05	0.04	0.04	0.01
\$33,000 to \$54,000	0.26	0.07	0.12	0.03	0.04	0.01
More than \$54,000	0.27	0.08	0.07	0.05	0.06	0.02
Mobile, 3 BR						
All Values	0.70	0.17	0.23	0.16	0.13	0.06
Less than \$45,000	0.72	0.20	0.23	0.15	0.14	0.06
\$45,000 to \$66,000	0.69	0.16	0.26	0.16	0.11	0.07
More than \$66,000	0.68	0.16	0.21	0.16	0.15	0.06
Mobile, 4 BR						
All Values	1.70	0.31	0.52	0.40	0.46	0.17
Less than \$54,000			Insufficient Sample			
\$54,000 to \$78,000	1.60	0.31	0.48	0.32	0.49	0.15
More than \$78,000			Insufficient Sample			

**NEW YORK (3-1) ALL PUBLIC SCHOOL CHILDREN:
SCHOOL-AGE CHILDREN IN PUBLIC SCHOOL (PSAC)**

STRUCTURE TYPE /BEDROOMS/ VALUE (2005)/TENURE	TOTAL PSAC	PUBLIC SCHOOL GRADE				
		K-2	3-6	7-9	10-12	Gr. 9 Only
Single-Family Detached, 2 BR						
All Values	0.27	0.07	0.09	0.07	0.04	0.02
Less than \$106,000	0.32	0.08	0.10	0.09	0.06	0.03
\$106,000 to \$164,500	0.26	0.07	0.10	0.06	0.03	0.03
More than \$164,500	0.21	0.07	0.07	0.05	0.02	0.02
Single-Family Detached, 3 BR						
All Values	0.64	0.18	0.22	0.14	0.10	0.05
Less than \$135,000	0.79	0.21	0.27	0.18	0.13	0.05
\$135,000 to \$194,500	0.63	0.18	0.22	0.13	0.10	0.05
More than \$194,500	0.50	0.14	0.17	0.11	0.08	0.04
Single-Family Detached, 4 BR						
All Values	1.00	0.25	0.36	0.23	0.17	0.07
Less than \$224,500	1.15	0.25	0.41	0.27	0.23	0.09
\$224,500 to \$329,500	0.98	0.27	0.34	0.22	0.16	0.06
More than \$329,500	0.87	0.24	0.32	0.19	0.11	0.05
Single-Family Detached, 5 BR						
All Values	1.23	0.29	0.41	0.28	0.24	0.10
Less than \$329,500	1.48	0.30	0.45	0.41	0.32	0.17
\$329,500 to \$748,500	1.14	0.26	0.40	0.24	0.23	0.08
More than \$748,500	1.03	0.34	0.38	0.17	0.14	0.06
Single-Family Attached, 2 BR						
All Values	0.17	0.06	0.05	0.03	0.03	0.01
Less than \$135,000	0.23	0.08	0.07	0.04	0.04	0.02
\$135,000 to \$194,500	0.18	0.06	0.06	0.03	0.04	0.01
More than \$194,500	0.11	0.03	0.03	0.03	0.02	0.02
Single-Family Attached, 3 BR						
All Values	0.52	0.11	0.19	0.11	0.11	0.03
Less than \$164,500	0.69	0.15	0.28	0.12	0.13	0.05
\$164,500 to \$269,500	0.54	0.11	0.18	0.12	0.13	0.03
More than \$269,500	0.28	0.06	0.10	0.08	0.05	0.03
Single-Family Attached, 4 BR						
All Values	0.86	0.11	0.31	0.23	0.21	0.06
Less than \$224,500	0.98	0.17	0.35	0.25	0.20	0.08
\$224,500 to \$329,500	0.92	0.06	0.32	0.27	0.27	0.07
More than \$329,500		Insufficient Sample				
5+ Units-Own, 1 BR						
All Values	0.15	0.05	0.07	0.01	0.02	0.00
Less than \$164,500	0.18	0.06	0.08	0.04	0.00	0.00
\$164,500 to \$269,500	0.16	0.06	0.08	0.00	0.03	0.00
More than \$269,500	0.10	0.02	0.05	0.00	0.04	0.00
5+ Units-Own, 2 BR						
All Values	0.09	0.02	0.04	0.02	0.01	0.01
Less than \$135,000	0.00	0.00	0.00	0.00	0.00	0.00
\$135,000 to \$329,500	0.15	0.05	0.06	0.02	0.03	0.02
More than \$329,500	0.05	0.00	0.03	0.02	0.00	0.00
5+ Units-Own, 3 BR						
All Values	0.49	0.10	0.07	0.14	0.19	0.06
Less than \$224,500		Insufficient Sample				
\$224,500 to \$748,500		Insufficient Sample				
More than \$748,500		Insufficient Sample				

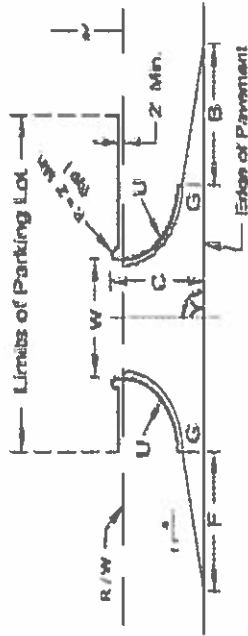
**NEW YORK (3-2) ALL PUBLIC SCHOOL CHILDREN:
SCHOOL-AGE CHILDREN IN PUBLIC SCHOOL (PSAC)**

STRUCTURE TYPE /BEDROOMS/ VALUE (2005)/TENURE	TOTAL PSAC	PUBLIC SCHOOL GRADE				
		K-2	3-6	7-9	10-12	Gr. 9 Only
5+ Units-Rent, 1 BR						
All Values	0.15	0.05	0.05	0.03	0.02	0.01
Less than \$500	0.09	0.03	0.03	0.02	0.01	0.01
\$500 to \$1,000	0.27	0.09	0.09	0.05	0.04	0.01
More than \$1,000	0.07	0.02	0.02	0.01	0.01	0.01
5+ Units-Rent, 2 BR						
All Values	0.43	0.13	0.14	0.08	0.08	0.03
Less than \$750	0.67	0.19	0.26	0.11	0.12	0.04
\$750 to \$1,100	0.45	0.14	0.13	0.09	0.08	0.03
More than \$1,100	0.16	0.05	0.05	0.04	0.03	0.01
5+ Units-Rent, 3 BR						
All Values	1.07	0.23	0.37	0.25	0.23	0.09
Less than \$750	1.27	0.22	0.47	0.30	0.29	0.10
\$750 to \$1,250	1.30	0.31	0.44	0.31	0.23	0.11
More than \$1,250	0.63	0.14	0.20	0.12	0.17	0.06
2-4 Units, 1 BR						
All Values	0.27	0.08	0.07	0.06	0.07	0.02
Less than \$74,500	0.23	0.06	0.07	0.07	0.04	0.02
\$74,500 to \$110,000	0.28	0.09	0.09	0.04	0.06	0.02
More than \$110,000	0.30	0.09	0.05	0.07	0.09	0.03
2-4 Units, 2 BR						
All Values	0.43	0.10	0.14	0.10	0.09	0.03
Less than \$86,000	0.44	0.11	0.15	0.09	0.09	0.03
\$86,000 to \$132,000	0.48	0.10	0.18	0.11	0.09	0.03
More than \$132,000	0.36	0.08	0.09	0.09	0.11	0.03
2-4 Units, 3 BR						
All Values	0.83	0.17	0.29	0.19	0.18	0.06
Less than \$113,500	1.02	0.20	0.37	0.25	0.19	0.11
\$113,500 to \$213,500	0.86	0.18	0.32	0.16	0.19	0.04
More than \$213,500	0.62	0.12	0.18	0.17	0.15	0.03
Mobile, 2 BR						
All Values	0.24	0.07	0.08	0.04	0.05	0.01
Less than \$33,000	0.19	0.07	0.05	0.04	0.04	0.01
\$33,000 to \$54,000	0.25	0.07	0.11	0.03	0.04	0.01
More than \$54,000	0.27	0.08	0.07	0.05	0.06	0.02
Mobile, 3 BR						
All Values	0.69	0.17	0.23	0.16	0.13	0.06
Less than \$45,000	0.71	0.20	0.23	0.15	0.14	0.05
\$45,000 to \$66,000	0.68	0.15	0.26	0.16	0.11	0.07
More than \$66,000	0.67	0.15	0.21	0.15	0.15	0.06
Mobile, 4 BR						
All Values	1.61	0.28	0.50	0.38	0.45	0.16
Less than \$54,000			Insufficient Sample			
\$54,000 to \$78,000	1.56	0.31	0.46	0.29	0.49	0.13
More than \$78,000			Insufficient Sample			

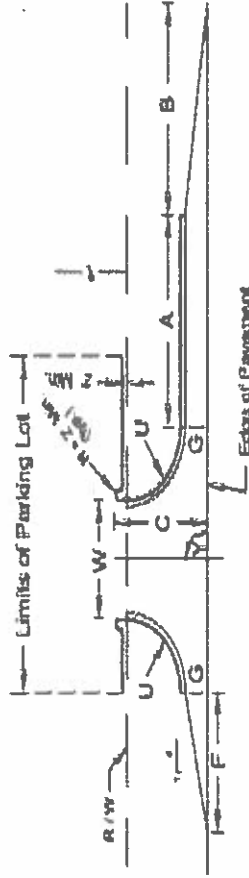
Commercial Entrance Designs along Highways with Shoulders

COMMERCIAL ENTRANCE DESIGNS ALONG HIGHWAYS WITH SHOULDERS

SINGLE TWO - WAY ENTRANCE



SINGLE TWO - WAY ENTRANCE
WITH RIGHT TURN LANE AND TAPER



LETTER SYMBOL	DIMENSIONS
A	See Section 3, Figure 3-1 in this Appendix for lengths of storage and lanes.
B	See Section 3, Figure 3-1 in this Appendix for lengths of storage and lanes.
C	See Entrances Through Table 4-2 and Corner Clearance Figure 4-5.
F	48' or greater
G	12'
U*	25' - 50' radii. Curb and Gutter or Curbing. This selection shall accommodate the anticipated vehicle usage. Larger radii should be considered by the designer or may be required by the Engineer if larger vehicles are anticipated; however, in no case shall radius be less than 25'. 30' Min. radius required when channelization island is used.
W*	30' - 40'
Y*	90' Preferred 60' Minimum

* For Subdivision Streets and Alleys, radii, width and angle should be in accordance with Subdivision Street Design Guide in the Road Design Manual, Appendix B.

Notes:

Entrance details shown on this sheet may be modified to meet specific requirements as directed or approved by the Engineer, the Residency or District, when based on sound engineering principles.

If an Accessible route as defined in Section 15.2-2021 in the Code of Va. is present, curb ramps in accordance with Std. CG-12 will be provided.

Curb and Gutter or Curbing may be deleted on low intensity uses if approved by Residency or District Administrator.

FIGURE 4-9 COMMERCIAL ENTRANCE DESIGNS ALONG HIGHWAYS WITH SHOULDERS*

Note: All entrance design and construction shall accommodate pedestrian and bicycle users of the highway in accordance with the Commonwealth Transportation Board's "Policy for Integrating Bicycle and Pedestrian Accommodations".

* Rev. 1/16

EXHIBIT "C"