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File 1989-0039 Name: Ptarmigan Estates – Major Subdivision - Preliminary

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		A few items are denoted with an asterisk (*), which means they are to be scanned for permanent record on the in some instances, not all entries designated to be scanned by the department are present in the file. There are also documents specific to certain files, not found on the standard list. For this reason, a checklist has been provided. **Remaining items, (not selected for scanning), will be marked present on the checklist. This index can serve as a quick guide for the contents of each file.** **Files denoted with (**) are to be located using the ISYS Query System. Planning Clearance will need to be typed in full, as well as other entries such as Ordinances, Resolutions, Board of Appeals, and etc.**
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X	X	Review Sheet Summary	X	X	Preliminary Drainage Report – 7/3/89
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X	X	Development Summary			
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IMPACT STATEMENT / PROJECT NARRATIVE

Ptarmigan Estates is a project designed to create 20 lots on 18½ acres presently zoned RSF4 (eligible as zoned for 74 residences). It is located on the S.E. corner of the intersection of 27½ Road and G Road.

The property is presently approximately 2/3 apple orchard in an area of developed subdivision and open land, little of which is in agricultural use.

It is the intention of the designers to retain much of the rural character of the property, both to the adjacent developments Partee Heights to the north and Crown Heights 1st filing to the southeast, and to passersby on 27½ Road, G Road, and Cortland. We also wish to create a strong sense of neighborhood within Ptarmigan Heights.

Both of these desires are reflected, not just in the obvious down-zoning and increased lot sizes, but in the careful citing of approximate homesites before lot lines and the use of vegetation buffers created through the greater-than-normal setbacks and density graduation from the existing neighborhoods. We believe the care taken as to views and variations in terrain and vegetation will result in a good neighborhood and a quality project.

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The primary area to be impacted is the 1st filing of Crown Heights, our neighbors to the southeast, which is in the process of being built out, and Partee Heights to the north, an established neighborhood. The First Presbyterian Church is planning to build soon on a property to the southwest. Largely vacant land lies to the east and west with zoning of PR-8 and RSF-4.

We believe Ptarmigan Estates, as proposed, is not only compatible to existing land uses but to potential future development as zoned. In fact, we see it existing as a visual enclave of diversity with its proposed low density.

Ptargmigan Estates will utilize Ute Water for domestic purposes, internal irrigation for lawns and landscaping, existing city streets with proposed improvements, one stretch of approximately 275 of new street, city sewer, Public Service gas and electricity, and standard phone and cable t.v. services. Appropriate easements have been designated.

One of the features of Ptarmigan Estates allows for much of the existing G Road right-of way to be abandoned because of its lowered adjacent density and development of other access. The elimination of need for the extension of G Road results in a lower impact on existing neighborhoods, no need to acquire further right-of-ways so it does not dead-end, and reduced demand on resources, econimic and otherwise. An alternative access in the form of an easement provides a second potential access to the approximately 10 acres to the

east, should it be developed to the allowed density. We have also redesigned the South and East Piazza Lane area in order to provide a cleaner design without landscape area which otherwise must be jointly maintained by two homeowners associations, a cumbersome burden for both entities.

Thank you,

John A. Siegfried

JS/as

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UTILITIES NARRATIVE

1. Phase 1

A. Water: Water for Phase 1 will be developed through a 6" line from the existing 6" line in South Piazza Lane extending approximately 300 ' to the north, utilizing C900 class 150 SDR18 P.V.C. pipe. A fire hydrant will be installed on the north side on the cul-de-sac. This is a Ute Water line and we have been told water is physically and legally available.

B. Sewer: Sewer is to be extended in an 8" City of Grand Junction line from the same area. An 8" line of D-3034 SRR35 P.V.C. pipe will have adequate capacity for the 12 lots in this phase.

Lots 1-6, 12, and 13 will be sewered to Ptarmigan Piazza sewer extension. Lots 7 and 8 will be sewered into existing sewer in G-Road right-of-way. Lots 10 and 11 will be sewered to an 8" sewer extension connecting to the Ptarmigan Piazza line.

C. Electric, Gas, Telephone, and Cable T.V.: These utilities will be extended in a 10' easement up one side of the street, cul-de-sac, and down the other as designated by Public Service engineers. Transformer easements will be provided.

2. Phase 2

A. Water: Water is available presently in East Piazza Place from Ute Water. Existing fire hydrants are deemed adequate as it is present in a 6" line.

B. Sewer: Sewer is also available in East Piazza in an 8" line sized adequately for development for the seven lots in this phase. Lots 16-22 will be sewered into East Piazza Place existing 8" sewer or needed extensions.

C. Electric Gas, Telephone, and Cable T.V.: One 10' easement has been provided on the front (south) line of this phase as per Public Service advice. Transformer easements will be provided in addition if needed.

3. Phase 3

A. Water: Water will be available from Ute Water off an existing 8" line extending up G Road or an 18" line in 27 1/2 Road.

B. Sewer: Sewer is in G Road as built and the G Road right-of-way extension.

Lot 9 will be sewered into existing sewer in G Road right-of-way.

Lots 10 and 11 will be sewered into utility easement extension connecting to Ptarmigan Piazza line. In order to provide sufficient grades, Lots 6, 10, 11, and 12 must have sewer connections above the 4738' contour line, denoted as site line on preliminary plan.

C. Electric, Gas, Telephone and Cable T.V.: These utilities are available from the G Road area.

PHASING SEQUENCE

Ptarmigan Estates will be developed during a one year time span from approximately September 1, 1989 (depending upon approval and filing of final plat) to September 1, 1990. Phase 1 including Lots 1-8 and 12-15 will be developed first in the Fall of 1989. Phase 2 including Lots 16-22 may be developed coincidentally with Phase 1 or by June 1, 1990. Phase 3 including Lots 9-11 will be completed on or before September 1, 1990. Each phase has a separate set of improvements necessary for its development. Three separate improvements agreements are included in appropriate packets.

On Lots 6, 10, 11, and 12, all building sites must be above 4738'. House sites will be shown on final plat.

LANDSCAPING / OPEN SPACE ANALYSIS

Every possible attempt will be made to preserve and utilize the existing orchard trees. The method by which this will be done is to create a series of scenic easements/setbacks within which any existing tree shall be replaced by one of at least 5' in height. Such re-plants may be deciduous or evergreens but are designed to provide visual buffing on all outside perimeters of Ptarmigan Estates. These easements shall be at least 50' off setback on all frontages from which ingress/egress is taken on Lots 1, 2, 3, 4, 5, 6, 12, and 13. All setbacks from east Piazza Place on the southern boundary shall be at least 40' for Lots 13-18. All setbacks from the northern perimeter of Ptarmigan Estates shall be at least 60' as shall all setbacks on the west perimeter and the eastern most boundary with the exception of the eastern most boundary of Lots 20, 21, and 22 are exempt due to their size. Other scenic easements will be designed and covenanted as needed before final plating. No off-property landscaping is needed in our opinion as dual homeowner situations have been eliminated.

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On Lots 10, 11, 12 all building sites must be above 4738'. House sites will be shown on final plat.

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UTILITIES NARRATIVE

1. Phase 1

A. Water: Water for Phase 1 will be developed through a 6" line from the existing 8" line in South Piazza Lane extending approximately 300' to the north. A fire hydrant will be installed on the cul-de-sac. This is a Ute Water line and we have been told water is physically and legally available.

B. Sewer: Sewer is to be extended in an 8" City of Grand Junction line from the same area. Line size and capacity should present no problems for the 10 lots in this phase.

C. Electric, Gas, Telephone, and Cable T.V.: These utilities will be extended in a 10' easement up one side of the street, cul-de-sac, and down the other as designated by Public Service engineers. Transformer easements will be provided.

2. Phase 2

A. Water: Water is available presently in East Piazza Place from Ute Water. Existing fire hydrants are deemed adequate as it is present in an 8" line.

B. Sewer: Sewer is also available in East Piazza in lines sized adequately for development for the six lots in this phase.

C. Electric, Gas, Telephone, and Cable T.V.: A 10' line has been provided on the front (south) line of this phase as per Public Service advise. Transformer easements will be provided.

3. Phase 3

A. Water: Water will be available from Ute Water as follows: Lots 6, 20, and 19 will come off of an existing 8" line which comes up the existing extentions of G Road. Lot 19 could alternately bring a line off of its access on 27½ Road where an 18" line is present. Water is available for Lots 17 and 18 from this source.

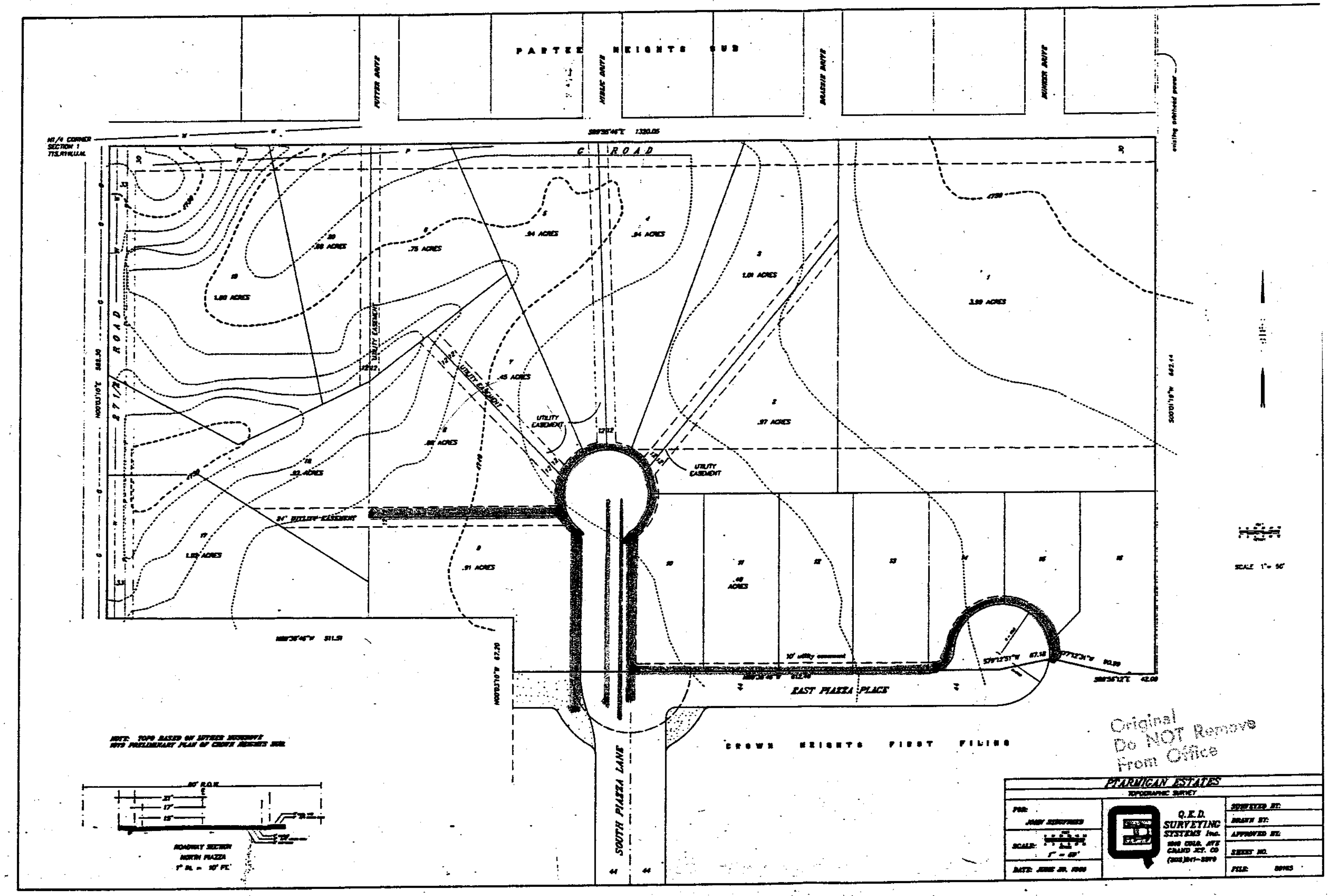
B. Sewer: Sewer for Lots 6, 20, and 19 is in G Road as built and the G Road right-of-way extention. Lots 17 and 18 will bring sewer off of North Piazza (Ptarmigan Piazza) in appropriate easements.

C. Electric, Gas, Telephone, and Cable T.V.: These utilities are available for Lots 6, 20, and 19 from the G Road area. Lots 17 and 18 will be served on the sewer/water/ driveway easements provided (24' in width).

On accompanying plans:
Water is shown in blue.

Sewer is shown in orange.

Other utilities are shown in pink.



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TRAFFIC CIRCULATION AND ANALYSIS

Traffic access to Phase 1 (Lots 1-5, 7-10) will be off of the existing South Piazza extending another approximate 275' to a cul-de-sac. Traffic generally will flow in and out of here at the rate of 10 trips per day/per household and empty onto Courtland whereon it will flow east or west.

Sidewalks bound the extention of this street and cul-de-sac however very little use is anticipated.

Because of the greater than usual setback requirements (50' from the front line in most cases) very little on-street parking is foreseen. Off-street parking for at least two cars (in addition to garage or carport capacity) will be required on the lots in this phase except for Lot 10 which is more properly oriented to Phase 2. This also is the case with curb cuts which will be twice as wide (18') as conventional ones on the private drive easements on Lots 2,3,4,5,7, and 8.

Phase 2 traffic will be on the improved and widened (30' mat to mat) East Piazza Place. Sidewalks will be extended with the street improvement including around the cul-de-sac. Note that the median designed when the two properties were under joint ownership has been eliminated-

a potentially awkward dual maintainence situation - and a cul-de-sac designed for turn-around has been included. Limited on-street parking is anticipated. As an additional 7 lots are oriented to this phase of improvements, traffic flow should be quite adaquate and flow out of the area similar to Phase 1.

Phase 3 traffic will have two or possibly three lots coming in from one common exit off of present G Road. This will result in no more than an additional 30 household per day trips on G Road as built and it should be sufficient. Two additional exits will come off of 27½ Road where an additional 12' of pavement plus sidewalk will be added to the width. The southernmost one of these has been set back at least 250' from the intersection of G Road and 27½ Road as per conversations with city officials.

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Every possible attempt will be made to preserve and utilize the existing orchard trees. The method by which this will be done is to create a series of scenic easements/setbacks within which any existing tree shall be replaced by one of at least 5' in height. Such re-plants may be diceduous or evergreens but are designed to provide visual buffing on all outside perimeters of Ptarmigan Estates. These easements shall be at least 50' off setback on all frontages from which ingress/egress is taken on Lots 1, 2, 3, 4, 5, 6, 12, 13. All setbacks from East Piazza Place on the southern boundary shall be at least 40' for Lots 13-18. All setbacks from the northern perimeter of Ptarmigan Estates shall be at least 60' as shall all setbacks on the west perimeter and the eastern most boundary with the exception of the eastern most boundary of Lots 20, 21, 22 are exempt due to their size. Other scenic easements will be designed and convenented as needed before final plating. No off-property landscaping is needed in our opinion as dual homeowner situations have been eliminated.

A Preliminary Drainage Report

for

Ptarmigan Estates

July 3, 1989

Prepared for:

JOHN SIEGFRIED
P. O. Box 60214
Grand Junction, CO 81506
Ph. 241-5331

Prepared by:

J. E. Langford & Associates, Inc.
2764 Compass Drive, Suite 101
Grand Junction, CO 81506
Ph. 243-4148

Engineer's Certification

I hereby certify that this plan and report by me or under my direct supervision for the Owner's hereof.

James E. Langford, PE & LS
Reg. No. 14847

Monty D. Stroup, ET

Introduction

This study has been prepared to address the potential storm water runoff as could be generated by the development of this site as proposed. Though historic and post development flows will be investigated, the emphasis of the recommendations of this report will be the safe conveyance from the site of whatever flows are generated.

The site is located in the northwest quarter of the northeast quarter of Section 1, Township 1 South, Range 1 West of the Ute Meridian, and contains approximately 18 acres. The property is bounded by Partee Heights Subdivision to the north, presently undeveloped land to the east, Crown Heights Subdivision Filing No. 1 to the south and 27 1/2 Road to the west.

Since the City of Grand Junction did not have specific report preparation criteria, this report has been prepared using Mesa County's "Design Guidelines for Storm Water Management", and Mesa County Land Development Code, Section 4.1.7 which states that drainage facilities shall be designed to "adequately carry and discharge accumulated run-off into drainage channels, storm sewers, or natural watercourses so that storm water does not cause increased damage or increased flooding downstream...". An analysis of the runoff characteristics of the site and estimates of the impact of surface flows generated, has been carried out to determine the size and location of facilities required to handle the runoff.

Presented herein are the results of the analysis, conclusions and recommendations as to improvements by which potential runoff can be safely conducted from the site.

Site Conditions

The site being proposed for development is presently an active orchard gently sloping at between 1.0% and 3.0% from the northeast to the southwest. The "Geologic Investigation" of the site identified the surface soils as being comprised of "Fruita clay loam", further defined as a calcareous soil with slow surface runoff properties, medium internal drainage and "slight" erosion hazard potential. Existing vegetation is comprised of a moderate to dense ground cover of grass as well as cultivated fruit trees. The existing channel which bisects the westerly 1/3 of the site originates on the site and serves to collect and direct irrigation waste water and storm

water runoff generated on-site thru a 16-inch culvert beneith 27 1/2 Road. The drainage continues down this unnamed drainage to a culvert crossing Horizon Drive, and dumps into an existing major drainage, and in some areas, improved drainage channel which runs adjacent to Horizon Drive.

Based on the topography surrounding the site, and field investigations, it is assumed that this drainage is not crucial to the collection of any other off-site or upstream flows other than those identified on "Drainage Exhibit A". The flows presently found in this drainage are suspected to be entirely from the broken stand pipe on an irrigation line leading from the Highline Canal, and not on ground water. The "Geologic Investigation" states that "...high groundwater levels are not anticipated to exist on this site,.....".

Design Criteria and Methodology

Given that the site is much less than 100 acres, the Rational Method, as outlined in Chapter 2 of the "Design Guidelines for Storm Water Management in Mesa County, Colorado", was employed to determine the magnitude of "pre" and "post" development runoff discharges. Rainfall intensities were derived from the "Intensity Duration Curves" furnished by the Grand Junction Engineering Department, developed specifically for the Grand Junction Area. The report entitled "Geologic Investigation, Ptarmigan Orchards Minor Subdivision", dated June 20, 1989, prepared by John H. Wright, C.P.G. & Associates, was consulted to identify surface soil attributes, ground water conditions and to aid in the initial selection of runoff coefficients to best represent the existing site conditions.

Drainage Analysis

The drainage basins and their respective post development flows, 10 year (minor) storm and the 100 year (major) storm events have been recorded on "Drainage Exhibit A", and associated calculation sheets as can be seen in the Appendix of this report.

The time of concentration (Tc) in each instance was set equal to the travel time, being the summation of overland flow times plus flow times in curbs and gutters arrived at by dividing the length of the flow path by the velocity as calculated by the "Mannings Equation". Overland flow velocities were determine by use of the graph "Average Velocities for Estimating Travel Time for Overland Flow, (From: USDA, Soil Conservation Service, 1980)". This travel time, set equal to the time of concentration, was used in the "Intensity Duration Curves" graph for the Grand Junction area to arrive at the intensity (I) for use in the Rational Formula.

The runoff coefficient "C" for various land uses was selected as follows:

C = 0.15 for undeveloped areas with "slow runoff" type soils and heavy ground cover.

C = 0.45 for developed areas having single family detached residential structures.

All drainage basins were digitized to determine the area of each (in acres) which contributes runoff to various design points as depicted on "Drainage Exhibit A".

The Rational Method for determination of runoff during the 100 year (major) storm event was modified by a frequency factor (Cf=1.25) as specified in the aforementioned Mesa County guidelines.

The above values were tabulated as found on the calculation sheets in the Appendix and the discharges were calculated using the Rational formula (Q=CIA). the discharges were summed at each design point and displayed on "Drainage Exhibit A".

Drainage Basins:

Basin "A" : contains 3.56 acres of off-site area and 8.11 acres of on-site area, for a total basin area of 11.67 acres. The north and northeast boundaries of this basin are defined by an existing irrigation ditch flowing east to west and adjacent to Partee Heights Subdivision, and the Highline Canal to the northeast. The southerly boundary is defined assuming that it runs along the sough boundary line of the project. The westerly boundary of this basin is defined by the proposed extension of S. Piazza Lane.

Basin "B": contains 6.97 acres of on-site area. The boundaries of this basin are defined by the aforementioned irrigation ditch to the north, the extension of S. Piazza Lane to the east, the project boundary to the south and 27 1/2 Road to the west. The northwest boundary of this basin is define as being along the flowline of the existing drainage which bisects the westerly 1/3 of the project.

Basin "C": contains 2.93 acres of on-site area. The boundaries of this basin are defined by the aforementioned irrigation ditch to the north, the aforementioned existing channel to the southeast and 27 1/2 Road to the west. The northwest boundary of this basin is define as being along the crest of a small knoll.

Basin "D": contains 0.98 acres of on-site area. The boundaries of this basin are defined by the aforementioned irrigation ditch to the north, the aforementioned knoll to the the southeast and 27 1/2 Road to the west.

Proposed Collection System

A diversion or collection swale should be constructed adjacent and parallel to the south property line from the east property line westerly to the proposed extension of S. Piazza Lane. Runoff from basin "A" will flow southwesterly overland to the proposed swale and the proposed curb and gutter in S. Piazza

Basin "C": contains 2.93 acres of on-site area. The boundaries of this basin are defined by the aforementioned irrigation ditch to the north, the aforementioned existing channel to the southeast and 27 1/2 Road to the west. The northwest boundary of this basin is define as being along the crest of a small knoll.

Basin "D": contains 0.98 acres of on-site area. The boundaries of this basin are defined by the aforementioned irrigation ditch to the north, the aforementioned knoll to the the southeast and 27 1/2 Road to the west.

Proposed Collection System

A diversion or collection swale should be constructed adjacent and parallel to the south property line from the east property line westerly to the proposed extension of S. Piazza Lane. Runoff from basin "A" will flow southwesterly overland to the proposed swale and the proposed curb and gutter in S. Piazza Lane, and surface flow across the street extension in a concrete cross pan. This flow will continue westerly and combine with runoff from basin "B" where it will be collected and directed by another surface swale along the south property boundary to the existing ponding area and 16-inch culvert under 27 1/2 Road. Runoff from basin "D" will be overland sheet flow in a northwesterly direction to 27 1/2 Road. The 10-year flow at 27 1/2 road is 11.65 cfs. The 16-inch culvert, flowing under inlet flow conditions can handle approximately 14.2 cfs before the road is overtopped.

Conclusions and Recommendations

The proposed site improvements will not significantly alter historic drainage patterns. The proper installation of a diversion or collection swale adjacent and parallel to the south property line will direct developed flows westerly and away from Crown Heights Subdivision to the south. Capacity calculations indicate that the 10-year (minor) storm event will be contained within S. Piazza Lane with no curb overtopping, and the 100-year (major) storm event will be well below the 18-inch maximum depth above the flow line. The summation of flows from basins A, B & C, are to be collected and directed to the existing 16-inch diameter culvert under 27 1/2 Road where they will travel westerly along an un-named drainage to a crossing under Horizon Drive. From this point, the flows will combine with other off-site drainage and flow in the major drainage way running parallel to Horizon Drive. Because the summation of these flows is routed through natural major drainage ways directly to it's eventual discharge into the Colorado River, it should be considered controlled thus requiring no on-site detention.

References

City of Grand Junction; "Intensity Duration Curves"

Mesa County, "Design Guidelines for Storm Water Management in Mesa County, Colorado" (undated)

"Geologic Investigations Ptarmigan Orchards Minor Subdivision", Dated June 20, 1989, by John H. Wright, C.P.G. & Associates.

Urban Drainage and Flood Control District, "Urban Storm Drainage Criteria Manual, Wright-Mclaughlin Engineers, Denver, Colorado, March 1969

American Iron and Steel Institute,"Handbook of Steel Drainage & Highway Construction Products", Second Edition, 1971

STORM DRAINAGE SYSTEM PRELIMINARY DESIGN DATA

PTARMIGAN ORCHARDS MINOR SUBDIVISION

10 YEAR STORM

Location of Design Point	Basins	Length ft.	Inlet Time min.	Flow Time: Street min.	Flow Time: Pipe min.	Time of Concentration min.	Coefficient "C"	Intensity "I" in./hr.	Area "A" acre	Direct Runoff cfs	Other Runoff cfs	Summation Runoff cfs	Street: Slope %	Street: Allowable Capacity cfs	Pipe: Slope %	Pipe: Size in.	Pipe: Capacity cfs	Street: Design cfs	Street: Velocity fps	Pipe: Design cfs	Pipe: Velocity fps	Remarks: DEVELOPED COND.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
(1)	A	1,055		35.17																		OVERLAND FLOW @ 1.15% TO THE EXTENSION OF S. PIAZZA LANE V=0.5FPS
		310		1.88									0.65	8.86	ok			8.86	2.75			STREET FLOW IN PROPOSED EXTENSION OF S. PIAZZA LANE
		28		0.16									2.0						3.0			FLOW IN X-PAN
				TOTAL		37.21	0.45	1.30	11.67	6.83												STREET CAPACITY OK
(2)	A & B			37.21																		TC FOR BASIN A
		190		1.06																		CHANNEL FLOW @ 0.91% V=3.0FPS
		290		1.86																		" " " @ 0.70% V=2.6FPS
		115		0.50																		" " " @ 1.5% V=3.8FPS
		170		0.57																		" " " 3.5% V=5.0FPS
				TOTAL		41.2	0.45	1.20	18.64	10.07												FLOW IN OPEN CHANNEL AND SHEET FLOW TO LOW POINT. 16" CULVERT UNDER 27 1/2 ROAD.
(2)	A, B & C			41.2		41.2	0.45	1.20	21.57	11.65												TC FOR BASINS A & B TOTAL FLOW TO 16" CULVERT UNDER 27 1/2 ROAD.
(3)	D	300		4.55																		OVERLAND SHEET FLOW TO NW CORNER OF SUBDIVISION @ 27 1/2 ROAD S=4.8% V=1.1 FPS
				USE		10.0	0.45	2.46	0.98	1.09												

Wright - McLaughlin Engineers

FIGURE 6-1. TYPICAL FORM FOR STORM DRAINAGE SYSTEM PRELIMINARY DESIGN DATA

STORM DRAINAGE SYSTEM PRELIMINARY DESIGN DATA

PTARMIGAN ORCHARDS MINOR SUBDIVISION

100 YEAR STORM

Location of Design Point	Basins	Length ft.	Inlet Time min.	Flow Time: Street min.	Flow Time: Pipe min.	Time of Concentration min.	Coefficient "C" x C_f (1.25)	Intensity "I" in./hr.	Area "A" acre	Direct Runoff cfs	Other Runoff cfs	Summation Runoff cfs	Street: Slope %	Street: Allowable Capacity cfs	Pipe: Slope %	Pipe: Size in.	Pipe: Capacity cfs	Street: Design cfs	Street: Velocity fps	Pipe: Design cfs	Pipe: Velocity fps	Remarks
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	A					37.2	0.56	2.04	11.67	13.33			0.65	144.6 ←		OK						OVERLAND FLOW @ 1.15% TO EXTENSION OF S. PIAZZA LANE, STREET FLOW SOUTH IN S. PIAZZA LANE TO X-PAN AND OPEN CHANNEL SWALE.
													0.70	7.81 ←		OPEN CHANNEL FLOW WITH 1.0' BOTTOM WIDTH, 1.0' DEEP W/2:1 SIDE SLOPES, NEED WIDER CHANNEL SECTION WEST OF S. PIAZZA LANE.						
2	A & B					41.2	0.56	1.89	18.64	19.73												OVERLAND SHEET FLOW PLUS FLOW IN OPEN CHANNEL TO 16" CULVERT UNDER 27 1/2 ROAD.
	A, B & C					41.2	0.56	1.89	21.57	22.83												TOTAL FLOW TO 16" CULVERT UNDER 27 1/2 ROAD.
3	D			USE		10.0	0.56	3.84	0.98	2.11												OVERLAND SHEET FLOW TO NW CORNER OF SUBDIVISION @ 27 1/2 ROAD

Wright-McLaughlin Engineers

FIGURE 6-I. TYPICAL FORM FOR STORM DRAINAGE SYSTEM PRELIMINARY DESIGN DATA

STORM DRAINAGE SYSTEM PRELIMINARY DESIGN DATA

PTARMIGAN ORCHARDS MINOR SUBDIVISION

Location of Design Point	Basins	Length ft.	Inlet Time min.	Flow Time: Street min.	Flow Time: Pipe min.	Time of Concentration min.	Coefficient "C"	Intensity "I" in./hr.	Area "A" acre	Direct Runoff cfs	Other Runoff cfs	Summation Runoff cfs	Street: Slope %	Street: Allowable Capacity cfs	Pipe: Slope %	Pipe: Size in.	Pipe: Capacity cfs	Street: Design cfs	Street: Velocity fps	Pipe: Design cfs	Pipe: Velocity fps	10 YEAR STORM / 100 YEAR STORM Remarks
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
(2)	A,B,&C	1360		45.33																		OVERLAND SHEET FLOW @ 1.15% V=0.50 FPS
		290		12.72																		OVERLAND SHEET FLOW @ 0.70% V=0.38 FPS
		115		3.31																		OVERLAND SHEET FLOW @ 1.57% V=0.58
		170		3.15																		OVERLAND SHEET FLOW @ 3.65% V=0.90 FPS
				TOTAL		64.51																
				USE		60.0	0.15	0.91	21.57	2.94												10 YEAR STORM
(3)	D	300		4.55																		
				USE		10.0	0.15	2.46	0.98	0.36												10 YEAR STORM; OVERLAND SHEET FLOW TO NW CORNER OF SUBD. @ 27½ ROAD.
(2)	A,B,&C			USE		60.0	0.19	1.43	21.57	5.86												100 YEAR STORM
(3)	D			USE		10.0	0.19	3.84	0.98	0.72												100 YEAR STORM

Wright-McLaughlin Engineers

FIGURE 6-I. TYPICAL FORM FOR STORM DRAINAGE SYSTEM PRELIMINARY DESIGN DATA

1. Runoff coefficient

The values for the coefficient of runoff for use in the Rational Method within Mesa County are as shown in Table 2-2, RECOMMENDED RUNOFF COEFFICIENTS (C). The design engineers judgment must be used to select the runoff coefficient that will best represent the end result of the development.

TABLE 2-2
RECOMMENDED RUNOFF COEFFICIENTS
(C)

Description of Area or Surface Areas		Runoff Coefficients
Business		
	Downtown	0.70 to 0.95
	Neighborhood	0.50 to 0.70
Residential		
	Single-family	0.30 to 0.50
	Multi-units, detached	0.40 to 0.60
	Multi-units, attached	0.60 to 0.75
Residential (suburban)		0.25 to 0.40
Apartment		0.50 to 0.70
Industrial		
	Light	0.50 to 0.80
	Heavy	0.60 to 0.90
Parks, cemeteries		0.10 to 0.25
Playgrounds		0.20 to 0.35
Railroad yard		0.20 to 0.35
Unimproved		0.10 to 0.30
Surfaces		
Pavement		
	Asphalt and Concrete	0.70 to 0.95
	Brick	0.70 to 0.85
Roofs		0.75 to 0.95
Lawns, sandy soil		
	Flat, 2 percent	0.13 to 0.17
	Average 2 to 7 percent	0.18 to 0.22
	Steep, 7 percent	0.25 to 0.35

USE 0.45 FOR SINGLE FAMILY RESIDENTIAL HAVING TURF GROUND COVER.

USE 0.15 FOR SLOW RUNOFF TYPE SOILS WITH DENSE GROUND COVER.

TABLE 3-2

PERMISSIBLE VELOCITIES FOR ROADSIDE DRAINAGE DITCHES

Roadside channels with erodible linings (earth; no vegetation):

Soil type or lining	Minor and Major Design Storm: Slope range (%)	Minor and Major Design Storm: Permissible velocity (fps)
Fine sand (noncolloidal)	--	2.5
Sandy loam (noncolloidal)	--	2.5
Silt loam (noncolloidal)	--	3.0
Ordinary firm loam	--	3.5
Fine gravel	--	5.0
Stiff clay (very colloidal)	--	5.0
Graded, loam to cobbles (noncolloidal)	--	5.0
Graded, silt to cobbles (noncolloidal)	--	5.5
Alluvial silts (noncolloidal)	--	3.5
Alluvial silts (colloidal)	--	5.0
Coarse gravel (noncolloidal)	--	6.0
Cobbles and shingles	--	5.5
Shales and hard pans	--	6.0

Roadside channels, lined with various grass covers (uniform stand; well maintained):

Cover	Slope range (%)	Soils that are Erosion resistant	Soils that are Easily eroded
Bermuda grass Crested wheatgrass Buffalo grass Kentucky bluegrass Smooth brome Blue grama	0- 5	6.0	5.0
	5-10	5.0	4.0
	Over 10	4.0	3.0
Grass mixture	0- 5	4.0	3.0
	5-10	3.0	2.5
Lespedeza sericea Weeping lovegrass Yellow bluestem Alfalfa Crabgrass Common lespedeza Sudan grass	0- 5	3.0	2.0

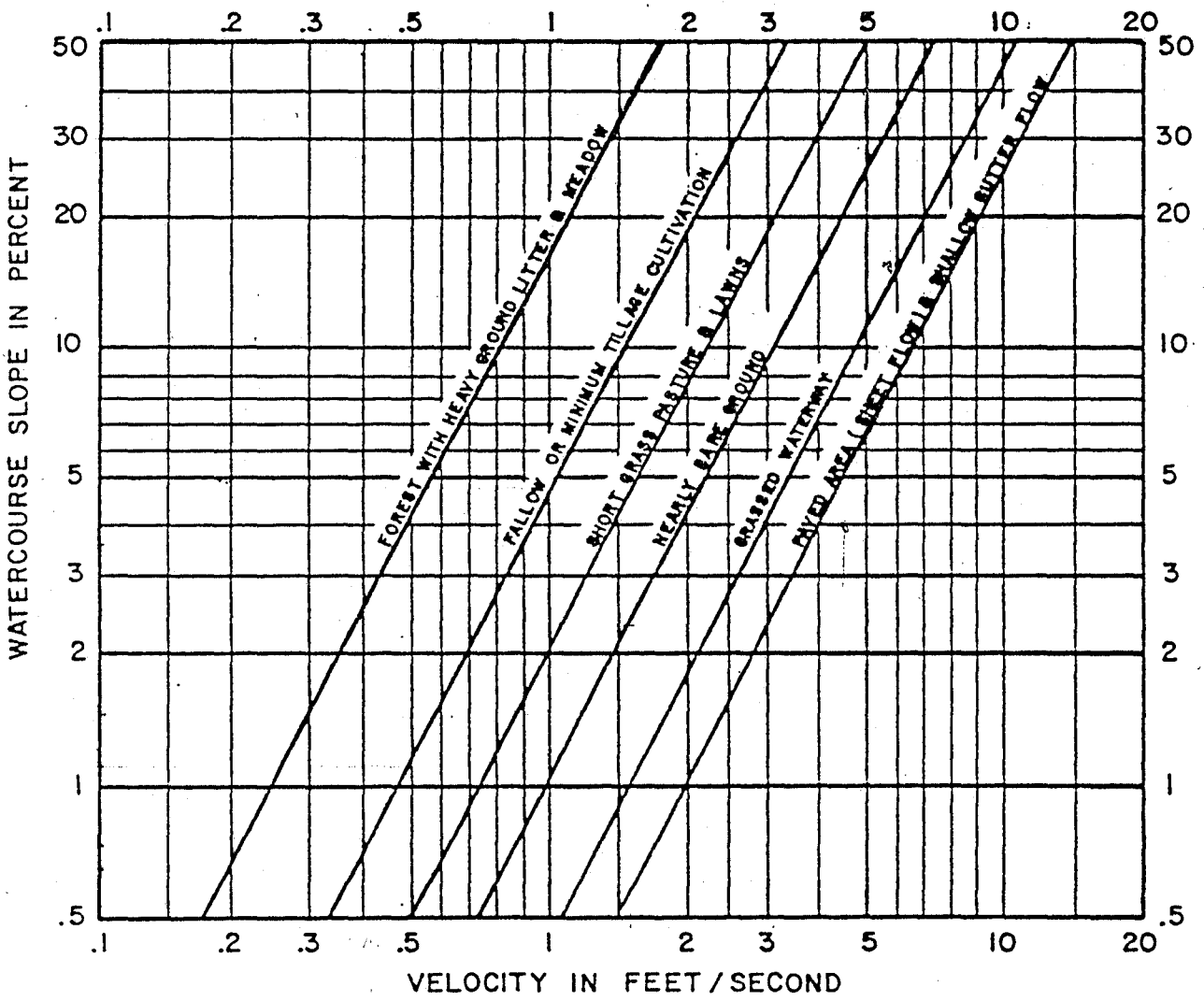
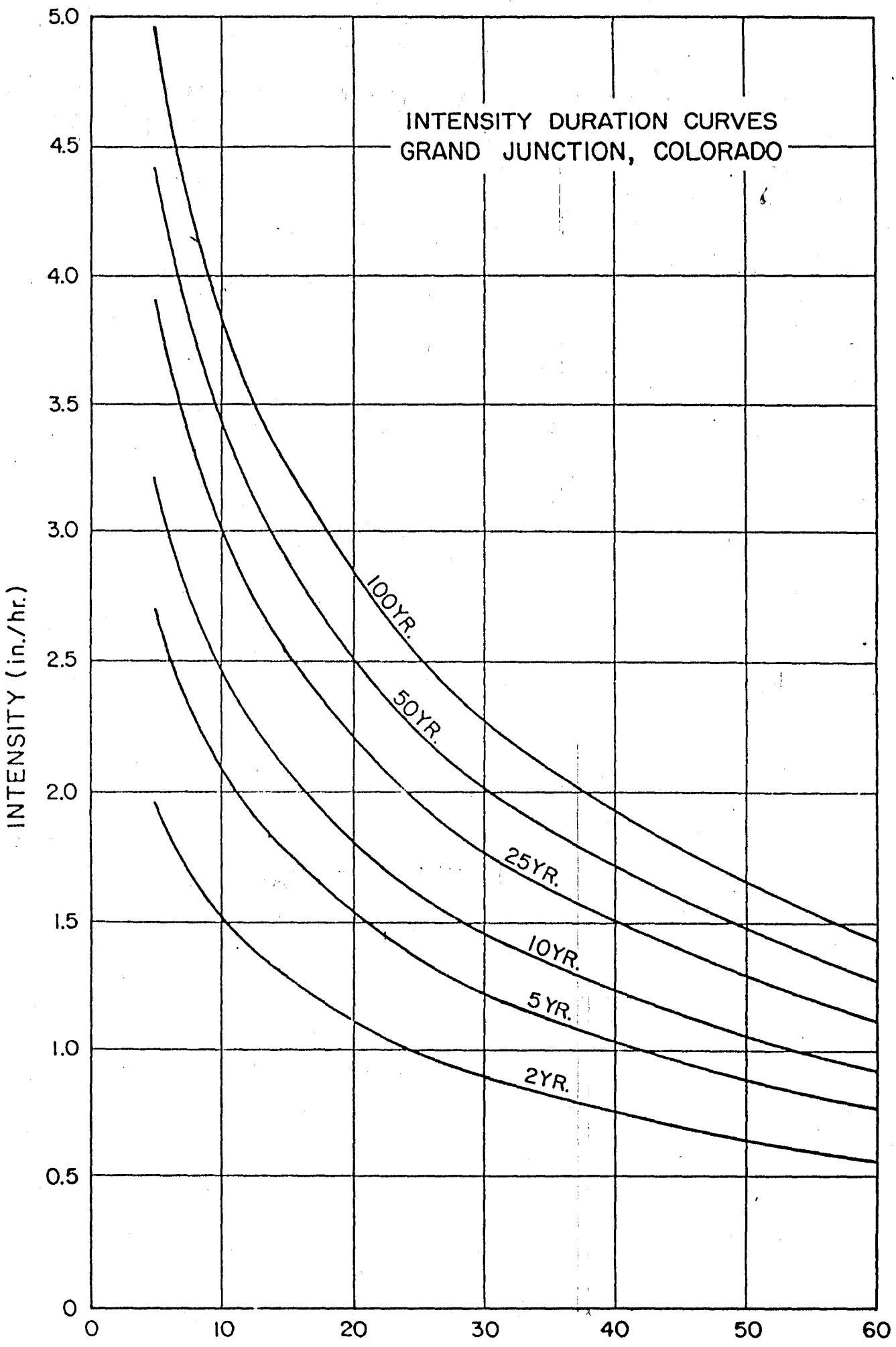


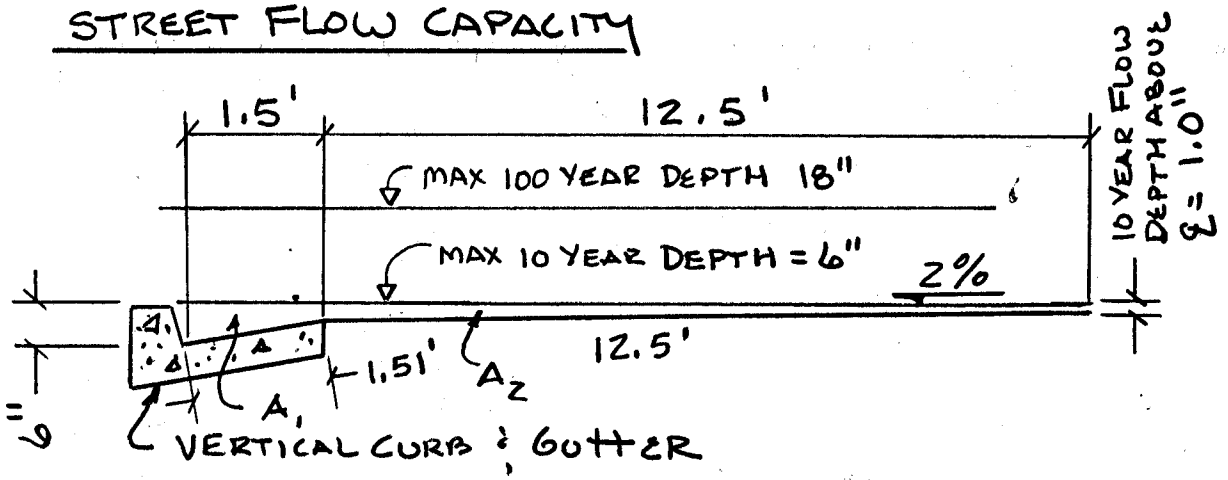
Figure 2-2 AVERAGE VELOCITIES FOR ESTIMATING TRAVEL TIME FOR OVERLAND FLOW..
(From: USDA, Soil Conservation Service, 1980)

Time of concentration is obtained by determining the average velocity for overland flow then dividing the length of the overland flow by the average velocity.


INTENSITY DURATION CURVES
GRAND JUNCTION, COLORADO
INTENSITY (in./hr.)
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0
0
10
20
30
40
50
60
100YR.
50YR.
25YR.
10YR.
5YR.
2YR.

PTARMIGAN ORCHARDS MINOR SUBD. 6/30/89

STREET FLOW CAPACITY



$A_1 = \frac{2" \times 18"}{2} + 4" \times 18" \Big/ 144\ IN^2/FT^2 = 0.625\ \not\Phi$

$A_2 = \frac{3" \times 150"}{2} + 1" \times 150" \Big/ 144\ IN^2/FT^2 = 2.60\ \not\Phi$

$WP = 0.5' + 1.51' + 12.5' = 14.51'$

$A_3 = 12" \times 168" \Big/ 144\ IN^2/FT^2 = 14.0\ \not\Phi$

MANNINGS eq: $Q_c = \frac{1.49}{N} \times (R^{2/3} \times S^{1/2}) A$

Q_c = CAPACITY N = ROUGHNESS FACTOR = 0.016

R = HYDRAULIC RADIUS = A/WP : AREA / WETTED PERIMETER

S = SLOPE OF STREET FT./FT,
= 0.65% ±

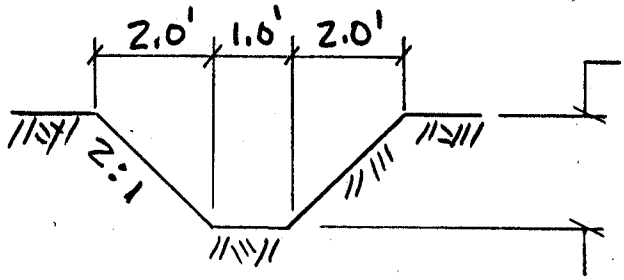
10 YEAR CAPACITY 1/2 SECTION — R = 3.225 ⌀ / 14.51 FT = 0.2223'

S = 0.65% — Q_c = 8.86 CFS V = 2.75 FPS

100 YEAR CAPACITY 1/2 SECTION — R = 17.225 ⌀ / 14.51 FT. = 1.1871'

S = 0.65% — Q_c = 144.60 CFS V = 8.39 FPS

SWALE FLOW CAPACITY



3" DEPTH

$A = 3" \times 12" + \left(\frac{3" \times 6"}{2}\right) 2 \Big/ 144\ IN^2/FT^2 = 0.375\ \not{A}$

$WP = 25.42"$
$= 2.12'$

6" DEPTH

$A = 6" \times 12" + \left(\frac{6" \times 12"}{2}\right) 2 \Big/ 144\ IN^2/FT^2 = 1.0\ \not{A}$

$WP = 38.83"$
$= 3.24'$

9" DEPTH

$A = 9" \times 12" + \left(\frac{9" \times 18"}{2}\right) 2 \Big/ 144\ IN^2/FT^2 = 1.875\ \not{A}$

$WP = 52.25"$
$= 4.35'$

12" DEPTH

$A = 12" \times 12" + \left(\frac{12" \times 24"}{2}\right) 2 \Big/ 144\ IN^2/FT^2 = 3.0\ \not{A}$

$WP = 65.67"$
$= 5.47'$

USE MANNINGS Eq. FOR OPEN CHANNEL FLOW

$$Q_c = \frac{1.49}{N} (R^{2/3} \times S^{1/2}) A$$

PLEASE SEE NEXT PAGE →

PTARMIGAN ORCHARDS MINOR SUBD. 6/30/89

SWALE FLOW CAPACITY CONT'

3" DEPTH	R = 0.375 Ø / 2.12 FT = 0.1769 FT.		
	S = 0.70%	Q_c = 0.46 CFS	V = 1.22 FPS
	S = 1.0%	Q_c = 0.55 CFS	V = 1.47 FPS
	S = 1.50%	Q_c = 0.67 CFS	V = 1.79 FPS
6" DEPTH	R = 1.0 Ø / 3.24 FT. = 0.3086 FT.		
	S = 0.70%	Q_c = 1.77 CFS	V = 1.77 FPS
	S = 1.0%	Q_c = 2.12 CFS	V = 2.12 FPS
	S = 1.50%	Q_c = 2.60 CFS	V = 2.60 FPS
9" DEPTH	R = 1.875 Ø / 4.35 FT. = 0.4310 FT.		
	S = 0.70%	Q_c = 4.16 CFS	V = 2.22 FPS
	S = 1.0%	Q_c = 4.97 CFS	V = 2.65 FPS
	S = 1.50%	Q_c = 6.09 CFS	V = 3.25 FPS
12" DEPTH	R = 3.0 Ø / 5.47 FT. = 0.5484 FT.		
	S = 0.70%	Q_c = 7.81 CFS	V = 2.6 FPS
	S = 1.0%	Q_c = 9.33 CFS	V = 3.11 FPS
	S = 1.50%	Q_c = 11.43 CFS	V = 3.81 FPS

Top of pavement on 27½ Rd = EL. = 100.00

Top of culvert (East) = EL. = 94 48

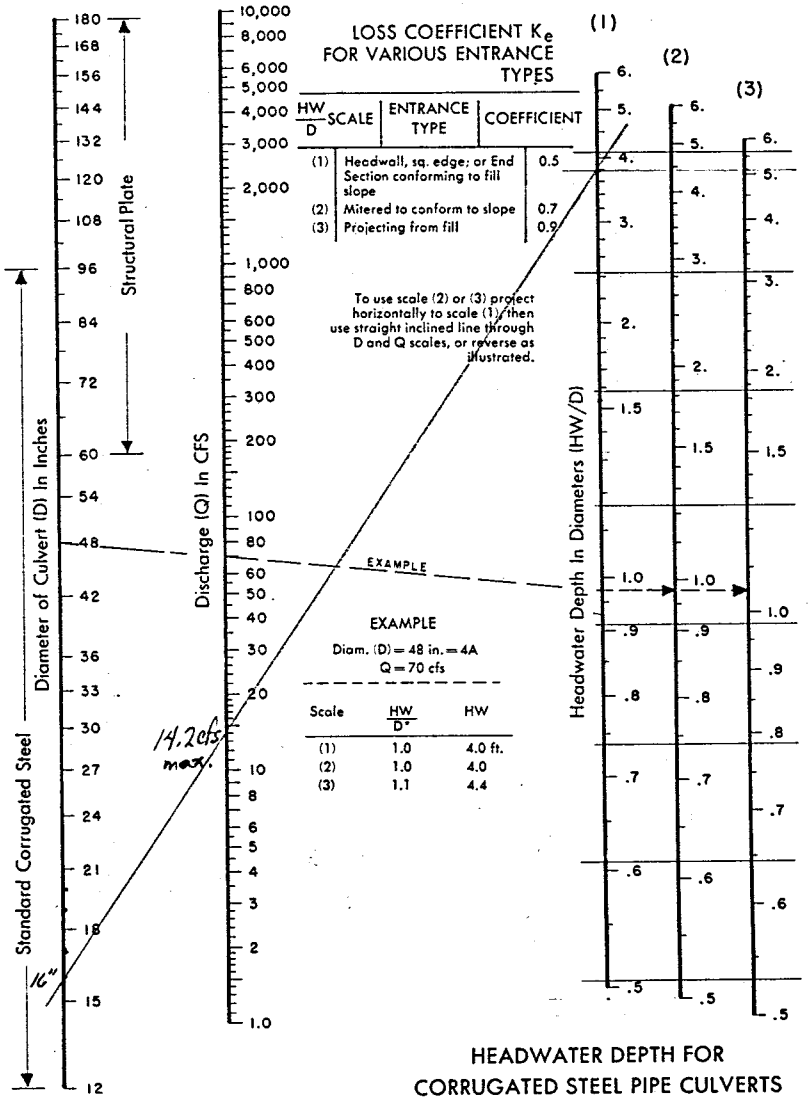
Top of culvert (West) = EL. = 93 48

Length of 16" Culvert = 58 feet

∴ S = 1.72%

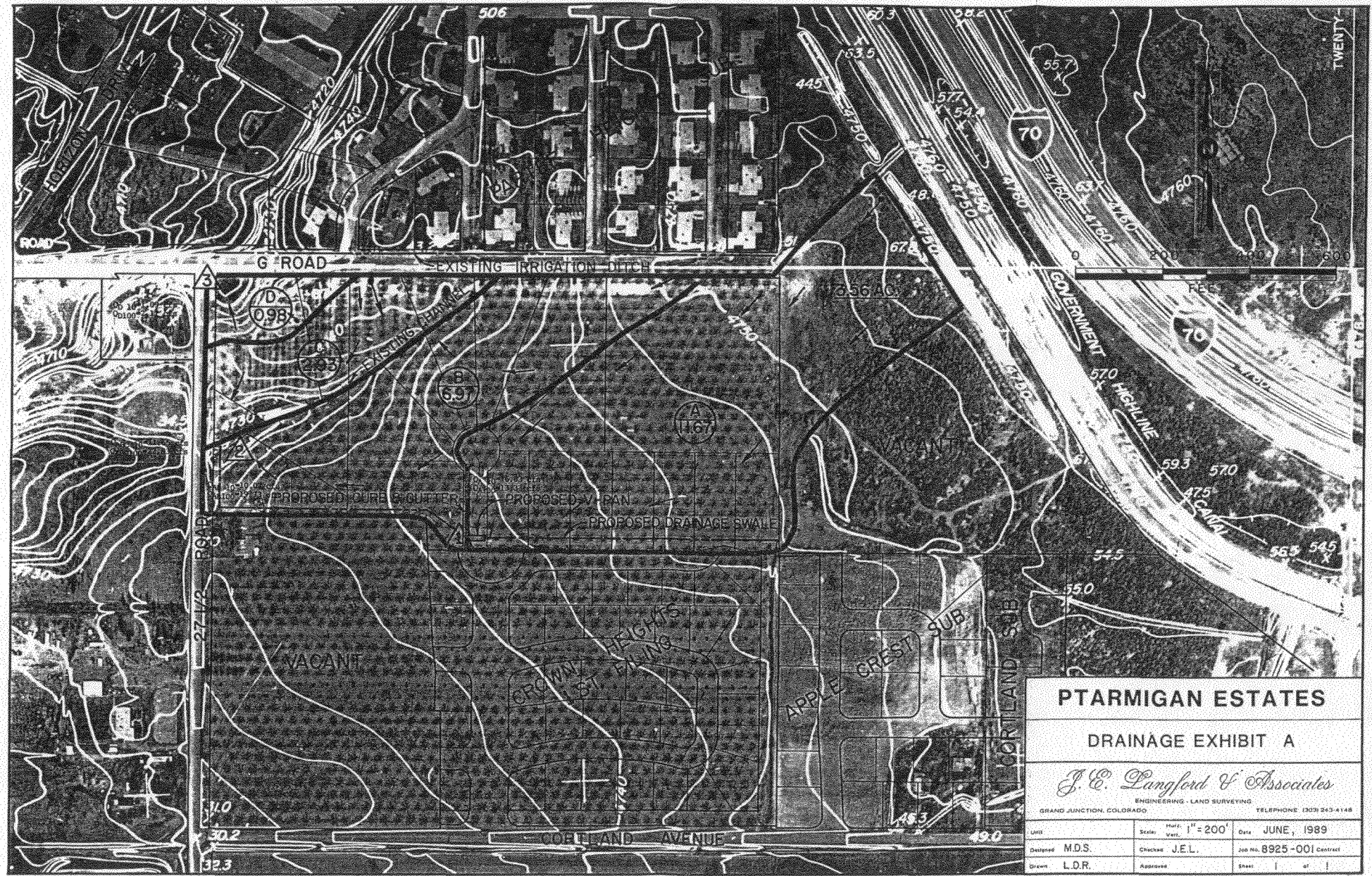
Max HW = (100.00 − 94 48) + 16" = 6.85 ft

$\frac{HW}{D}_{max} = \frac{6.85'}{1.33'} = 5.15$



HEADWATER DEPTH FOR CORRUGATED STEEL PIPE CULVERTS WITH INLET CONTROL

Fig. 4-18. *Inlet control* nomograph for corrugated steel *pipe* culverts. The manufacturers recommend keeping *HW/D* to a maximum of 1.5 and preferably to no more than 1.0.



PTARMIGAN ESTATES

DRAINAGE EXHIBIT A

J. E. Langford & Associates

ENGINEERING - LAND SURVEYING

GRAND JUNCTION, COLORADO TELEPHONE (303) 243-4148

Unit	Scale: Horiz. 1" = 200' Vert.	Date	JUNE, 1989
Designed M.D.S.	Checked J.E.L.	Job No.	8925-001 Contract
Drawn L.D.R.	Approved	Sheet	1 of 1

#39 89

T.L. Benson
1022 Lakeside Dr.
Grand Junction, CO
81506

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Grand Junction, CO
81506

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Beatrice Orear
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Grand Junction, CO
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William A. Ihrig
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Grand Junction, CO
81506

Michael A. Gazdak
2312 N. Seville Cr.
Grand Junction, CO
81506

Thomas A. Foster
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Grand Junction, CO
81504

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Grand Junction, CO
81506

Garland Z. Nolen
4031 Applewood St.
Grand Junction, CO
81506

Garland Z. Nolen
4031 Applewood St.
Grand Junction, CO
81506

James F. Pasqua
2929 Pheasant Run
Grand Junction, CO
81506

T.1. Benson
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Grand Junction, CO
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Reno, NV 89523

Henry Patterson Jr.
819 Wayne Ave. S.W.
Topeka, KS 66606

Emanuel Epstein
1900 Quentin Rd.
Brooklyn, NY 11229

Earl Davis
P.O. Box 2783
Grand Junction, CO
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Jimmie L.Etter
697 27½ Rd.
Grand Junction, CO
81506

First United Presbyterian
622 White Ave.
Grand Junction, CO
81501

Raymond Palmer
2402 Applewood Cr.
Grand Junction, CO
81506

Larry J. Zarlingo
2412 Applewood Cr.
Grand Junction, CO
81506

Carl O. Quist
4021 Applewood St.
Grand Junction, CO
81506

Geraldine Creighton
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Grand Junction, CO
81506

James Kent Stoddard
702 Brassie Dr.
Grand Junction, CO
81506

#39

Original
To Not Remove
from Office

Alene Morlang
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Grand Junction, Co
81506

Wilhelminia Klein
701 Brassie Dr.
Grand Junction, CO
81502

Arlene Vogel
705 Putter Dr.
Grand Junction, CO
81506

Wayne Wilcox
701 Bunker Dr.
Grand Junction, CO
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P.O. Box 548
Grand Junction, CO
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L.D. Robinson
704 Putter Dr.
Grand Junction, CO
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Audino Sarti
c/o Sandman Motel
236 Jibbom St.
Sacramento, CA 95814

John K. Thamm Jr.
704 Niblic Dr.
Grand Junction, CO
81506

Donald J. Stone
701 Niblic
Grand Junction, CO
81506

Kenneth Logan
701 Putter
Grand Junction, CO
81506

William Price
703 Brassie Dr.
Grand Junction, CO
81506

F. R. Steinbeck
3820 W. 119th
Hawthorne, CA
90250

CITY OF GRAND JUNCTION IMPROVEMENTS AGREEMENT

RE: Ptargmigan Estates Phase 1 S.E. Corner of 27½ & G Road
Name of Subdivision or Other Improvement Location

Intending to be legally bound, the undersigned subdivider hereby agrees to provide throughout this subdivision and as shown on the subdivision plat of Ptarmigan Estates date July 2 1989, the following improvements to City of Grand Junction standards and to furnish an Improvements Guarantee in the form acceptable to the City for these improvements.
Name of Subdivision

Improvements	Quantity and Unit Costs	Estimated Cost	Estimated Completion Date
Street Grading	330 c.y.@$3.60	$1,200	Nov.1,1989 or
Street Base 8" section	395 tons @$10	$3,950	before
Street Paving 30'x240 X2"	7200s.f.@$.33	$2,400	"
Curbs and Gutters	750'@ $8.50	$6,375	"
Sidewalks	750'@ $7.50	$5,625	"
Storm Sewer Facilities			
Sanitary Sewers	8"x290x18.00	$5,220	"
Mains			
Laterals/House Connections			
cul de sac paving	5072 x $1.05	$5,325	"
Water Mains incl.10 svcs.	6"x290x18.00	$5,220	"
Fire Hydrants	1 x $2,000	$2,000	"
On-site Water Supply			
Survey Monuments			
Street Lights	1 @ $1,000	$1,000	"
Street Name Signs	1 @ $100	$ 100	"
Construction Administration		included	
Utility Relocation Costs		in above costs	
Design Costs			
SUB TOTAL		$38,415	

$1.05 s.f.

Supervision of all installations (should not normally exceed 4% of subtotal) in above

TOTAL ESTIMATED COST OF IMPROVEMENTS AND SUPERVISION: $ $38,500

The above improvements will be constructed in accordance with the specifications and requirements of the City or appropriate utility agency and in accordance with detailed construction plans, based on the City Council approved plan, and submitted ot the City Engineer for review and approval prior to start of construction. The improvements will be constructed in reasonable conformance with the time schedule shown above. An Improvements Guarantee will be furnished to the City prior to recording the subdivision plat.

Signature of Subdivider

(If corporation, to be signed by President and attested to by Secretary, together with the corporate seal.)

Original NOT Remove from Office

DATE: _____ 19____

I have reviewed the estimated costs and time schedule shown above and, based on the plan layouts submitted to date and the current costs of construction, I take no exception to the above.

City Engineer

CITY OF GRAND JUNCTION IMPROVEMENTS AGREEMENT

RE: Ptarmigan Estates Phase 2 S.E. Corner of 27½ and G Road
Name of Subdivision or Other Improvement Location

Intending to be legally bound, the undersigned subdivider hereby agrees to provide throughout this subdivision and as shown on the subdivision plat of Ptarmigan Estates (Name of Subdivision) date July 2 19 89, the following improvements to City of Grand Junction standards and to furnish an Improvements Guarantee in the form acceptable to the City for these improvements.

Improvements	Quantity and Unit Costs	Estimated Cost	Estimated Completion Date
Street Grading	250 c.y.@$3.60	$ 900	June 1, 1990
Street Base	270 c.y.@ $10	$2,700	or before
Street Paving12'x450x2"	5400 s.f.@$.33	$1,800	"
Curbs and Gutters	600 @ $8.50	$5,100	"
Sidewalks	600 @ $7.50	$4,500	"
Storm Sewer Facilities			
Sanitary Sewers			
Mains			
Laterals/House Connections			
cul de sac paving	3500 @ $1.05	$3,500	"
Water Mains			
Fire Hydrants			
On-site Water Supply			
Survey Monuments			
Street Lights	1 x $1,000	$1,000	"
Street Name Signs			
Construction Administration		included	
Utility Relocation Costs		in above costs	
Design Costs			
SUB TOTAL		$19,500	

Supervision of all installations (should not normally exceed 4% of subtotal) in above.

TOTAL ESTIMATED COST OF IMPROVEMENTS AND SUPERVISION: $ $19,500

The above improvements will be constructed in accordance with the specifications and requirements of the City or appropriate utility agency and in accordance with detailed construction plans, based on the City Council approved plan, and submitted ot the City Engineer for review and approval prior to start of construction. The improvements will be constructed in reasonable conformance with the time schedule shown above. An Improvements Guarantee will be furnished to the City prior to recording the subdivision plat.

Signature of Subdivider

(If corporation, to be signed by President and attested to by Secretary, together with the corporate seal.)

Original
Do NOT Remove
From Office

DATE: _____ 19____

I have reviewed the estimated costs and time schedule shown above and, based on the plan layouts submitted to date and the current costs of construction, I take no exception to the above.

City Engineer

CITY OF GRAND JUNCTION IMPROVEMENTS AGREEMENT

RE: Ptarmigan Estates Phase 3 S.E. Corner of 27½ and G Road
Name of Subdivision or Other Improvement Location

Intending to be legally bound, the undersigned subdivider hereby agrees to provide throughout this subdivision and as shown on the subdivision plat of Ptarmigan Estates date July 2 19 89, the following improvements to City of Grand Junction standards and to furnish an Improvements Guarantee in the form acceptable to the City for these improvements.

Improvements	Quantity and Unit Costs	Estimated Cost	Estimated Completion Date
Street Grading & fill	1000 cy @$3.60	$3,600	Sept.1,1990
Street Base	7000 sf. @$ .50	$3,500	or before
Street Paving	7000 sf. @$ .75	$5,250	"
Curbs and Gutters	580' @ $ 8.50	$4,930	"
Sidewalks	580' @ $ 7.50	$4,350	"
Storm Sewer Facilities			
Sanitary Sewers			
Mains			
Laterals/House Connections			
On-site Sewage Treatment			
Water Mains			
Fire Hydrants			
On-site Water Supply			
Survey Monuments			
Street Lights			
Street Name Signs			
Construction Administration		included in	
Utility Relocation Costs		above costs	
Design Costs			
SUB TOTAL		$21,630	

Supervision of all installations (should not normally exceed 4% of subtotal) in above.

TOTAL ESTIMATED COST OF IMPROVEMENTS AND SUPERVISION: $ $22,000

The above improvements will be constructed in accordance with the specifications and requirements of the City or appropriate utility agency and in accordance with detailed construction plans, based on the City Council approved plan, and submitted ot the City Engineer for review and approval prior to start of construction. The improvements will be constructed in reasonable conformance with the time schedule shown above. An Improvements Guarantee will be furnished to the City prior to recording the subdivision plat.

Signature of Subdivider

(If corporation, to be signed by President and attested to by Secretary, together with the corporate seal.)

Remove

Office

DATE: _____ 19____

I have reviewed the estimated costs and time schedule shown above and, based on the plan layouts submitted to date and the current costs of construction, I take no exception to the above.

City Engineer

REVIEW SHEET SUMMARY

FILE NO. 39-89 TITLE HEADING Prelim. Plan for Ptarmigan Estates Subdivision DUE DATE 7/24/89

ACTIVITY - PETITIONER - LOCATION - PHASE - ACRES Petitioner: Ptarmigan Estates

Location: Southeast corner of 27½ and G Roads Acres: 18.53

PETITIONER ADDRESS Box 60214 Grand Junction, CO 81506

ENGINEER

DATE REC.	AGENCY	COMMENTS

NOTE: WRITTEN RESPONSE BY THE PETITIONER TO THE REVIEW COMMENTS IS REQUIRED A MINIMUM OF 48 HOURS PRIOR TO THE FIRST SCHEDULED PUBLIC HEARING.

7/24/89	Planning Dept.	The proposed density is much less than that allowed by the RSF-4 zoning and, therefore, a rezone is not required. However, if the applicant wants special setbacks, etc. enforced by the City, we recommend a planned zone to avoid confusion in the future. A rezone request could be heard at the same time as the final plat with virtually no delays to the developer. Approval of a preliminary plan is valid for a period of one year (section 6-7-1G). The property is within the airport's Critical Zone and Area of Influence. The proposed low density development is a special use in the Critical Zone. However, the subdivision review will satisfy those requirements. An Avigation Easement will be required to be signed and recorded with the final plat. If available, we would like to review the preliminary draft of covenants/restrictions. At the final plat stage, the petitioner will be required to request the vacation of portions of G Road as well as the reconfigured portions of S. Piazza Lane and E. Piazza Place. Detailed, engineered plans will be required at the final plat stage. Irrigation easements should be shown.
7/24/89	Property Agent (Public Works)	Right-of-way widths for 27½ Road, G Road, and E. Piazza Place are sufficient. Width for S. Piazza Lane needs to be labled in order to determine sufficiency. The jog in the alignment of S. Piazza poses a head-on situation for lot 10. Would prefer a taper or curve rather than this severe jog. I would also like to see some sort of alternative access, such as continuing E. Piazza Place to G Road.
7/24/89	City Engineer	I have no objections to the plan to vacate the G Road right-of-way (ROW) from Putter Drive to Bunker Drive, and to provide cul-de-sacs at the end of Niblic and Brassie Drives. Property to the east can be accessed from Bunker Drive, E. Piazza Place, Applewood St., and Maureen Ct. In exchange for half of the G Road ROW, the developer should be required to pave the proposed cul-de-sacs at the ends of Niblic Dr. and Brassie Drive. The following street improvements should be required: 1. Half street improvements on G Road from 27½ Road to Putter Drive. These improvements should be constructed to collector standards along the south side of the street.

	City Engineer (con't)	2. Half street improvements along west property line (582.3' frontage) on 27½ Road. Since 27½ Road has not yet been designed, funds for the half street improvements should be placed in an escrow account for future widening and improvement to "collector" standards. 3. Construct the north half of E. Piazza Place in accordance with approved plans of Crown Heights First Filing. Modification of these plans will require approval by City Engineer and property owners along south side of street. 4. Construct the extension of E. Piazza Place from cul-de-sac to east boundary line of the subdivision. This extension should be built to City residential standards (50' ROW) to provide access to lots 1 and 22, and provide for access to property east of Ptarmigan Estates. Ptarmigan Piazza Ct. does not line up with S. Piazza Lane. This alignment will require improvement and the existing and proposed street improvements should be shown on the site plan. Several of the lots appear to require long driveways between public street and building sites. These driveways should be paved to minimize the generation of dust by traffic. Drainage report shows total historic runoff from all basins of 3.3 cfs for a 10-year storm. Runoff under developed conditions is estimated to be 12.74 cfs. Discharge from the development should be limited to the historic rate from a 10-year storm (3.3 cfs). On-site detention should be provided for runoff in excess of historic flows up to the 10-year rainfall event. The report proposes that a collection swale be constructed "adjacent and parallel to the south property line from the east property line to the proposed extension of S. Piazza Lane." Why can't the runoff be collected in the gutter of E. Piazza Place instead of a separate swale? A drainage easement will be required for all drainage swales, channels and pipes. Will need to submit a detail showing how runoff water gets from drainage pan in Ptarmigan Piazza Ct. to proposed drainage swale sloping to the west. Improvements agreements are not specifically labled. What street improvements are included in each phase of development? We need improvements agreements for all street improvements previously listed, including those on 27½ and G Roads.
7/19/89	Fire Dept.	The following must be met: 1. Access must be provided to lots 1 and 6, with adequate turnarounds provided. 2. The fire hydrant must be on an 8" line in S. Piazza Lane. 3. Driveways over 150' in length must have approved turnaround for emergency apparatus. If you have any questions, please call our office.
7/19/89	Police Dept.	No adverse impacts anticipated with this project.
7/18/89	U.S. West	New or additional telephone facilities necessitated by this project may result in a "contract" and up-front monies required from developer prior to ordering or placing of said facilities. For more information, please call 244-4919.
7/14/89	Parks and Rec.	Need appraisal for determination of open space fees.
7/17/89	Public Service gas & elect.	No objections to rezone.

File #39-89 (con't)

7/21/89	Utility Engineer	1. Ptarmigan Estates will not be required to hook up to City water because of its distance from the nearest water line and available water pressure (3/4 mile and 25 psi). 2. There is not enough information supplied to properly evaluate the proposed sewer. There is no sewer shown along the north property line, nor is there any sewer shown on S. Piazza or E. Piazza Place. There may not be sufficient grade to sewer lots 7, 8, 17 an 18. It's impossible to determine, based on this sketch. 3. Estimated water requirements and sewage flows appear to be very low for lots of this size. 4. Prices used on Improvements Agreement for asphalt and utilities are low.
7/21/89	Ute Water	Ute Water has a 6" water line on S. Piazza Lane and E. Piazza Place in Crown Heights #1. This line would have to be extended. Ute also has a 18" main in 27½ Road and a 8" line in the existing extention of G Road north of 27½ Road. Water would be available as follows: Lot 1, 6, 19 and 20 would be off of G Road. (Note: Lot 1, the meter would remain at the area of Putter Drive.) Lots 17 and 18 would be off of 27½ Road; lots 2, 3, 4, 5, 7, 8, 9, and 10 off of S. Piazza Lane; lots 11, 12, 13, 14, 15, and 16 off of E. Piazza Place. May need minimal modification to existing water system. DOMESTIC WATER FOR IRRIGATION SHOULD BE DISCOURAGED. ALL POLICIES AND FEES IN EFFECT AT THE TIME OF APPLICATION WILL APPLY.
7/12/89	City Atty.	1. Need approval of Utilities Mgr. re: use of Ute Water. 2. Source of irrigation water? 3. Fire protection water? 4. If G Road is to be abandoned, developer should pay fair market value for abandoned section; in lieu of such payment, consider revocable permit; issue of loss of access to other properties must be dealt with by Engineering. 5. Approval of Charlotte Whipple T/C is required.
7/24/89	Walker Field	1. Walker Field Airport Authority supports the reduction in density over the original plan. 2. The current RSF-4 zone restricts structure heights to 32', which should create no problems for aircraft using runway 4/22. Variances to that height should not be allowed. 3. The proposed subdivision lies within the airport Area of Influence, so an Avigation Easement must be recorded for the entire property prior to filing of the final plat.

07/24/89 Grand Valley Water Users Assoc.

The tract of land to be occupied by the proposed Ptarmigan Estates contains 16.0 acres of water-righted land with G.V. Water Users Assoc. Such irrigation water right is appurtenant to the land and cannot be separated from it and is assessable whether or not water is used. The water-right is entitled to its proportionate part of the Assoc's available water supply at any given time with the historical point-of-delivery for such water at or near the northeast corner of the proposed development. At that point others also receive Assoc-delivered water and the property owners must then handle the dividing and management of the water to properly serve the various interests.

While the water deliverable to said 16 acre water-right is adequate for its irrigation when properly managed, it may sometimes not be capable of meeting peak demand when several lot owners choose to irrigate simultaneously, therefore consideration of impounding the water supply during non-use hours to be available during heavy-use hours has merit or at least consideration of some water management plan when needed within the subdivision would be advisable to minimize potential for controversy among the owner/users.

The Assoc. will expect to deal with a single entity, either the property developer or a Homeowners Assoc., regarding assessment for and the delivery of water for the acreage.

Regarding the proposed drainage plan and facilities, the Assoc. has no objection as presented.
- G.W. Klapwyk for G.V. Water Users Assoc.

RESPONSE TO REVIEW AGENCY COMMENTS

AS OF JULY 28, 1989

Planning Dept.

An irrigation easement will run along the northern boundary of the property and within the 12' utility easements on the plan. Additional 10' easements on the north and south boundaries of Lots 15 through 19 serve this purpose. Any additional easements indicated by final engineering will be included in final plat.

Property Agent

Width of South Piazza Lane is 20' of mat, 30 'of median, and 20' of mat.

The revised plan has reduced the potential problem of the jog in South Piazza Lane by utilizing a larger radius.

We feel an alternative access, such as that suggested in continuing East Piazza Place to G Road, is unnecessary because of the very low density this type of extension would serve. The integrity of the plan would also be compromised.

City Engineer

1. We feel the half-street improvement on G Road form 27 1/2 Road to Putter Drive may be unnecessary to access a maximum of three (3) lots. The present access is form an existing intersection, and any alteration may, in fact, create a confusing traffic flow.

3. Modification of East Piazza Place from the Crown Heights First Filing will be sought to eliminate the median.

4. Lot 22 will be eliminated, with the property previously included in this lot being added to Lot 21. ROW will be dedicated, but not built, for emergency access to the property immediately east of Ptarmigan Estates.

All drives will be constructed as to minimize the generation of dust by traffic. Final specifications will be on final plat.

Changes in recommended runoff coefficients because of the reduced density will cause runoff under developed conditions to be substantially lower than the 12.74 cfs noted in the drainage report.

We agree with the City Engineer that the collection swale is not necessary.

Improvements agreements will be revised and rebid before final plat.

City Attorney

1. Utility Manager has approved the use of Ute Water for this project.

2. Sixteen (16) shares of irrigation water are provided by Grand Valley Water Users Association, and a statement to this effect will be provided by them.

3. See utility narrative.

4. This issue contingent upon further discussions with City Attorney.

5. Appropriate documents from Mrs. Whipple are enclosed. Authorization of Mr. Frank Spiecker as P.R. for the Allen R. Jones Estate is enclosed.

Ute Water

Because of the concern for sewer grade in Phase 1, lot lines for lots except Lot 1 have been modified. This modification has caused lot numbers to be changed. The integrity of the original plan is intact, but the lot numbers, as referred to in the review agency comments have been changed. A list of previous lot numbers, and the corresponding new numbers, is included in this document.

Utility Engineer

1. Permission given.

2. All sewer lines have been drawn into the revised plan. Sufficient grade is possible if individual sewer connections on lots 6, 10, 11, and 12 are above the 4738' contour line.

3. Water flows have been reevaluated to 12,000 gallons per day, sewer flows to 10,000 gallons per day.

4. Improvements agreements need to be modified to reflect reductions of right-of-way and mat size, which should bring them in line with City Engineer's comments.

Fire Department

1. Access to lot 6 (now numbered lot 7), is provided from G Road. Access to Lot 1 is provided by the newly created right-of-way off of East Piazza.

2. George Bennett of the Fire Department has stated that because of the existing 6" water line in South Piazza Lane, a 6" line to the hydrant in Ptarmigan Piazza is sufficient.

3. No driveway need be over 60' in length. Anticipated driveway length should not exceed approximately 120'. Any driveway over 150' in length will be required to have an approved turnaround. If a builder wishes to build a longer driveway this matter will be addressed at the permit stage.

Due to the concerns of the Utility Engineer regarding sewer grades, lot lines have been modified. The revised lot numbers are used throughout all narratives.

PREVIOUS LOT NUMBER	CORRESPONDING NEW LOT NUMBER
1	1
2	2
3	3
4	4
5	5
6	7
7	6
8	12
9	13
10	15
11	16
12	17
13	18
14	19
15	20
16	21
17	10
18	11
19	9
20	8
--	14
--	22

OFFICIAL ACTION SHEET

Acres 18.53
Units 15-25
Density ____

PRELIMINARY

File No. #39 89
Zone RSF-4
Tax Parcel Number 2945-011-00-101

Activity Preliminary Plan for Mayor Subdivision
Phase Preliminary
Common Location SE corner of 27½ Rd & G Rd

Date Submitted____ Date Mailed Out____ Date Posted____

____day Review Period Return by____

Open Space Dedication (acreage)____ Open Space Fee Required $____ Paid Receipt #____

Recording Fee Required $____ Paid (Date)____ Date Recorded____

review agencies

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	BB	CC	DD	EE	FF	GG
Development Dept.	●	●	●	●	●		●	●	●	●	●		●	●	●	●	●	●	●		●	●	●	●		●	●	●	●		●	●	●
City Public Works	●	●	●										●	●	●	●	●	●	●		●	●	●	●		●			◐				
City Engineer	●	●	●							◐			●	●	●	●	●	●	●		●	●	●	●		●			◐				
Transportation Engineer	●	●	●										●	●	●	●	●	●	●		●	●	●	●		●			◐				
City Parks/Recreation	●	●	●	●									X	X	X	●	●				●	X				X			●		◐		
City Fire Dept.	●	●	●										●	●	●	●	●	●	●		●					●							
City Police Dept.	●	●	●												●	X	●	●	●		●					X							
County Planning	●	●	●										●	●	●	●	●	●	●		●					●							
County Engineer	●	●	●										●	●	●	●	●	●	●		●					●							
County Health	●	●	●										●	●	●	●	●	●	●		●					●							
County Parks/Recreation	●	●	●										●	●		●	●	●			●	●				●							
Comprehensive Planning	●	●	●										●	●		●	●	●			●	●				●							
Floodplain Administration	●	●	●							●			●	●		●	●	●			●	●				●							
G.J. Dept. of Energy	●	●	●										●	●		●	●	●			●	●				●							
Walker Field	●	●	●										●	●		●	●	●			●	●				●			●				
School District																																	
Irrigation GV Water Users																																	
Drainage 3 Assoc.																																	
Water (Ute, Clifton)																																	
Sewer Dist. (FV, CGV, OM)																																	
Mountain Bell	●	●	●										●	●		●	●	●			●					●			◐				
Public Service (2 sets)	●	●	●										●	●		●	●	●			●					●							
State Highway Dept.	●	●	●								●	●	●	●		●	●	●			●					●							
State Geological	●	●	●										●	●		●	●	●			●					●							
State Health Dept.	●	●	●										●	●		●	●	●			●					●							
GJPC (7 packets)																																	
CIC (9 packets)																																	
OTHER Utility Engineer																																	
City Attorney																																	
totals																																	

14 Review Agencies

BOARDS

	DATE	
PC	8/1/89	Approved

STAFF

Original

APPLICATION FEE REQUIREMENTS

~~$315.00~~ + ~~$225.00~~ $240.00 (acreage fee) payable to City time of sale.

OC

development summary

File # 39-89 Name Ptarmigan Estates Date 8/2/89

PROJECT LOCATION: Southeast corner of 27½ Road and G Road

PROJECT DESCRIPTION: A request for a preliminary plan of 21 lots on approximately 18.5 acres in a Residential Single Family (RSF-4) zone.

Does not require Council action at this time.

REVIEW SUMMARY (Major Concerns)

POLICIES COMPLIANCE	YES	NO*	TECHNICAL REQUIREMENTS	SATISFIED	NOT SATISFIED*
Complies with adopted policies	X		Streets/Rights Of Way	*	
Complies with adopted criteria	X		Water/Sewer	*	
Meets guidelines of Comprehensive Plan	NA		Irrigation/Drainage	*	
			Landscaping/Screening	X	
			Other:		

* See explanation below

-- The petitioner is proposing a very low density (approximately 1.1 units/acre) residentia subdivision. Individual lots range in size from .25 acres to 3.8 acres.

-- The developer will propose ROW vacations with the final plat. Portions of G Road, which is currently undeveloped east of Putter Dr., will be requested to be vacated. Cul-de-sacs would be dedicated and built at the end of Niblic and Brassie Drives. G Road ROW east of Bunker Dr. would be retained to provide a second access for the future development of the property to the east of this proposal as well as for Partee Heights. ROW vacation requests will also be required for the reconfigured portions of South Piazza Lane and East Piazza Place.

-- Detailed, engineered water, sewer, irrigation and drainage plans will be required at the final plat stage.

STATUS & RECOMMENDATIONS:

-- The proposal would have very little impact on the neighborhood and seems to be acceptable to nearby residents. The developer is proposing some very restrictive covenants , including larger building setbacks than what is required in the RSF-4 zone. If the applicant wants special setbacks enforced by the City, staff recommends a rezone to Planned Residential be requested at final plat stage.

Planning Commission Action

8/1/89--Planning Commission approved the preliminary plan subject to the review sheet summary staff comments.