CITY OF TETONIA
RECEIVED 10-9-2026
SUB2025-3
PRELIMINARY PLAT
SUBDIVISION

UTILITY SYSTEM EVALUATION
CAPACITY ASSESSMENT

DRAINAGE REPORT

Pinnacle Peak Subdivision

Tetonia PFG

Prepared for the City of Tetonia, Idaho

Prepared by Eagle Rock Engineering

August 6, 2026

PRELIMINARY — SUBMITTED IN SUPPORT OF PRELIMINARY PLAT

Not for construction. A final Storm Drainage and Grading Plan and Drainage Calculations will be submitted for City Engineer approval prior to final plat approval.

Summary of Findings

This report supports the Preliminary Plat for Pinnacle Peak Subdivision and demonstrates, at a preliminary level of engineering, that stormwater generated by the proposed development can be managed entirely on site in conformance with the City of Tetonia Standards and Technical Specifications, Section 104 — Storm Drainage Design Standards.

- The 38.346-acre site is underlain by free-draining alluvial gravels (GP, GP-GM) beneath 1 to 3.5 feet of silt and silty sand. Infiltration testing by Allied Consulting Services returned rates of 3.0, 4.8, and 5.5 in/hr. No groundwater was encountered to the 10-foot maximum depth of exploration.
- The proposed drainage strategy is 100 percent on-site retention and infiltration, with no surface discharge and no connection to a City storm drain system. Runoff is managed by three distributed components: vegetated roadside swales within the public right-of-way, on-lot infiltration within the single-family lots, and dedicated retention within the townhome (multi-family) area.
- Because the design releases no stormwater from the site, the Section 104 requirement that post-development runoff rate and volume be equal to or less than pre-development is satisfied by inspection for every design event, and 100 percent of the 95th-percentile Water Quality Capture Volume is managed on site as required.
- Total runoff generated by proposed impervious surfaces in the 100-year, 24-hour event is approximately 4.03 acre-feet (175,600 cubic feet). Crediting the volume that infiltrates while the storm is running, the storage that must actually be provided is approximately 1.59 acre-feet (69,200 cubic feet), governed by storm durations of 15 to 60 minutes. Every facility drains after the event well within the 48-hour criterion — roadside swales in about 1.2 hours, the multi-family retention facility in about 4.5 hours, and on-lot ponding in about 20 minutes.
- No off-site drainage easement under Section 104, Subsection 2.4 is required, and no irrigation-ditch discharge agreement under Subsection 2.3 is anticipated. A SWPPP and NPDES Notice of Intent will be required prior to construction under Subsection 2.5.

Quantities in this report are preliminary planning values derived from the Preliminary Plat geometry and published infiltration data. They are intended to demonstrate feasibility and to size land area reservations, not to serve as construction design. Section 4 lists the assumptions that must be confirmed.

1. Project Description

This report evaluates utility system capacity for the proposed Pinnacle Peak Subdivision, a residential development to be served by the City of Tetonia, Idaho. The development encompasses 38.346 acres, comprising 90 single-family lots and 60 townhome units. Capacity calculations in this report are based on the applicant's engineering assumptions and on the geometry shown on the Preliminary Plat dated July 15, 2026; assumptions requiring confirmation are identified in Section 4.

The subject plat is one component of the larger PFG holdings evaluated in the project geotechnical report, which describes an approximately 220-acre mixed-use development area. Only the 38.346 acres within the Pinnacle Peak Subdivision boundary are analyzed here.

1.1 Development Location

- **Parcel number(s):** RPC00000291201
- **Section, Township, Range:** Southwest Quarter of the Northeast Quarter of Section 29, Township 6 North, Range 45 East, Boise Meridian, Teton County, Idaho
- **Site access and context:** North of Egbert Avenue and west of North Main Street, immediately northwest of the existing Tetonia townsite. The east boundary of the plat is the west line of the Idaho Department of Parks and Recreation (Ashton–Tetonia Trail) corridor per Instrument No. 124536. Land to the north and west is agricultural.

1.2 Existing Zoning and Proposed Land Use

- **Existing zoning:** R-3 — High Density Residential
- **Proposed land use:** Residential — detached single-family lots and attached townhome units, with dedicated open space and amenity lots
- **Total site area:** 38.346 acres
- **Existing land use and cover:** Relatively flat and level agricultural land. No buildings, pavements, or other significant impervious cover exist on the site.

1.3 Number of Lots, Units, or Buildings

- **Residential dwelling units (max.):** 90 single-family lots and 60 townhome units — 150 dwelling units total
- **Open space:** 168,141 square feet (3.86 acres)
- **Common area:** 57,927 square feet (1.33 acres)
- **Amenities:** Playground, gazebos, dog park, benches, and pedestrian pathways within the open space and common area lots.

1.4 Phasing Boundaries

- **Phase boundaries:** See Preliminary Plat for phase boundaries.
- **Drainage requirement for phasing:** Each phase shall be self-contained for drainage to the highest degree possible. Where site grading cannot accommodate self-contained storage within an earlier phase, temporary swales may be used to accommodate modest runoff into an adjacent phase. Phase-by-phase retention volumes will be tabulated in the final Drainage Report.

1.5 Proposed Connection Point(s)

- **Connection point(s):** None. No connection to a City storm drain system is proposed. Stormwater is to be contained and infiltrated on site.
- **Off-site discharge:** None proposed. Because no public conveyance is constructed on private property and no stormwater is directed off site, no drainage easement under Section 104, Subsection 2.4 is required.

1.6 Infrastructure Outside City Limits

- **Does this proposal include infrastructure outside the city limits? (Yes/No):** No
- **If yes, describe:** N/A

2. Stormwater Flow Projections

2.1 Design Criteria and Method

- **Design method:** Rational Method (Q = CiA) for peak flow rates in the 10-, 25-, and 100-year events, per Section 104, Subsection 2.2. Direct Determination Method for runoff volume, per Section 104, Subsection 2.1, accounting for rainfall and for infiltration occurring during the design storm. Depression storage is conservatively neglected.
- **Governing design standard / jurisdiction criteria:** City of Tetonia Standards and Technical Specifications, Section 104 — Storm Drainage Design Standards. Supporting references: Idaho DEQ Catalog of Stormwater Best Management Practices for Idaho Cities and Counties (latest edition), as directed by Section 104, Subsection 2.5; and USDA NRCS Technical Release 55 (TR-55) for time of concentration.
- **Assumed storm event(s):** 95th-percentile water quality event (0.65 in over 24 hours); 10-year event for minor conveyance; 25-year event reported for completeness; 100-year event for major conveyance, retention sizing, and overflow evaluation.
- **Rainfall intensity / depth source:** City of Tetonia intensity-duration-frequency data, Section 104, Table 1 and Figure 1, developed from NOAA Atlas 2 with University of Idaho guidance. The Water Quality Capture Volume is based on the Tetonia rain gauge (USC00102676), period of record 1927–1982.

Table 2.1-1. Design Rainfall — City of Tetonia (Section 104, Table 1)

Duration	2-yr (in/hr)	10-yr (in/hr)	25-yr (in/hr)	100-yr (in/hr)
5 minutes	1.62	3.22	3.92	4.46
10 minutes	1.26	2.50	3.04	3.46
15 minutes	1.06	2.11	2.57	2.92
30 minutes	0.74	1.46	1.78	2.03
60 minutes	0.47	0.92	1.13	1.28
180 minutes	0.21	0.35	0.43	0.52
360 minutes	0.13	0.19	0.24	0.30
1,440 minutes (24 hr)	0.04	0.07	0.09	0.11
24-hour depth (in)	**0.96**	**1.68**	**2.16**	**2.66**

The 10-year and 100-year 24-hour depths of 1.68 in and 2.66 in are stated directly in Section 104. The Water Quality Capture Volume is 0.65 in over 24 hours.

2.2 Runoff Calculations

- **Design Method:** Peak flow rates are computed by the Rational Method as directed by Section 104, Subsection 2.2. Runoff volumes are computed by the Direct Determination Method as directed by Section 104, Subsection 2.1.
- **Runoff coefficients:** Post-development runoff coefficients are assigned by land use: 0.40 for single-family lots, 0.65 for the multi-family area, 0.60 for public right-of-way, and 0.20 for open space, giving an area-weighted composite of 0.47. For this preliminary analysis C is taken as equal to the impervious fraction of each land use, so a single set of values drives both the peak-flow and the

volume calculations. Pre-development C = 0.15 (flat cultivated ground on sandy/gravelly soil). Frequency factors of 1.10 (25-year) and 1.25 (100-year) are applied per standard practice, with the product capped at 1.0.

- **Hydrologic Soil Group:** Group A. The site is underlain by poorly graded gravels (GP, GP-GM) with measured infiltration rates of 3.0 to 5.5 in/hr, well above the 0.30 in/hr threshold for HSG A. Group A was confirmed by direct field testing rather than adopted from soil survey mapping.
- **Time of concentration (Tc):** Pre-development Tc = 45 minutes (TR-55: 100 ft of sheet flow at n = 0.17 over cultivated ground at 1 percent, plus approximately 1,700 ft of shallow concentrated flow across the field). Post-development Tc = 25 minutes (50 ft of sheet flow over lot landscaping, plus pavement and swale travel time). A minimum Tc of 10 minutes is used when sizing individual swale reaches.

Table 2.2-1. Land Use and Impervious Area Tabulation (Preliminary)

Land Use	Area (ac)	% of Site	Runoff Coefficient C	Impervious Area (ac)
Single-family lots (90 lots)	18.06	47.1%	0.40	7.22
Multi-family (townhome) area	6.54	17.1%	0.65	4.25
Open space lots	3.86	10.1%	0.20	0.77
Public street right-of-way	9.89	25.8%	0.60	5.93
TOTAL	**38.35**	**100%**	**0.47**	**18.18**

Runoff coefficient C is taken as the impervious fraction of each land use. Total impervious area at full build-out is approximately 18.2 acres, or 47 percent of the site. Pervious (landscaped and open space) area is approximately 20.2 acres. These values may vary slightly upon completion of final engineering documents but are sufficient to validate the design thesis of this report.

Table 2.2-2. Runoff Summary

Storm Event	Area (ac)	C	Tc (min)	i (in/hr)	Peak Q (cfs)
10-yr — pre-development	38.35	0.15	45	1.11	6.4
10-yr — post-development (uncontrolled)	38.35	0.47	25	1.61	29.2
25-yr — pre-development	38.35	0.17	45	1.36	8.6
25-yr — post-development (uncontrolled)	38.35	0.52	25	1.96	39.2
100-yr — pre-development	38.35	0.19	45	1.55	11.1
100-yr — post-development (uncontrolled)	38.35	0.59	25	2.23	50.8
All events — post-development (as designed, retained on site)	**38.35**	**—**	**—**	**—**	**0.0**

"Uncontrolled" values represent the peak flow that would leave the site if no stormwater facilities were provided. They establish the magnitude that the retention system must absorb; they are not proposed discharge rates. As designed, the site discharges no stormwater in any modeled event. Frequency factors of 1.1 and 1.25 for the 25-yr and 100-yr events are applied to the Runoff Coefficient per §2.2.

2.3 Existing Site Conditions and Pre- vs. Post-Development Runoff

- **Site area (drainage basis):** 38.346 acres
- **Topography and existing drainage patterns:** Relatively flat and level agricultural ground, characterized in the geotechnical report as part of a broad intermontane basin whose local topography reflects long-term depositional processes rather than significant erosional relief. Average slope across the site is approximately 1 percent, falling from the southeast toward the northwest. No defined channel, canal, swale, or drainageway crosses the plat. Existing runoff occurs as diffuse shallow sheet flow toward the northwest, and the great majority of precipitation infiltrates where it falls given the gravels beneath the surficial soils. The east boundary abuts the embankment of the Ashton–Tetonia Trail.
- **Proposed grading concept:** The finished grading plan will preserve the existing pattern of fall from southeast to northwest. Finished grades at the southeast of the property will remain higher than those at the northwest, as in the pre-development condition. No substantial alteration of the natural drainage pattern is proposed, and no fill or grading is proposed that would impound, divert, or concentrate flow toward the Ashton–Tetonia Trail corridor or toward adjacent private property.
- **Groundwater and separation:** No groundwater was encountered in any of the 20 test pits to the 10-foot maximum depth of exploration. The geotechnical report notes that shallow groundwater may exist temporarily and that seasonal and yearly fluctuations may occur. Vertical separation between the bottom of any infiltration facility and seasonal high groundwater will be verified at final design; a minimum of 3 feet is targeted.
- **100-year overflow patterns:** All facilities are sized to retain the 100-year, 24-hour event. Post development overflow patterns exceeding the design storm will follow the general path of pre-development runoff with overflow routing through the rear and side yards to drainage swales within the right of way from the Southeast to Northwest.

Table 2.3-1. Pre- vs. Post-Development Runoff Comparison

Condition	10-yr Q (cfs)	25-yr Q (cfs)	100-yr Q (cfs)
Pre-development	6.4	8.6	11.1
Post-development, uncontrolled (no facilities)	29.2	39.2	50.8
Post-development, as designed (discharge from site)	0.0	0.0	0.0
Net increase over pre-development	**None (−6.4)**	**None (−8.6)**	**None (−11.1)**

2.4 Storage — Ponds / Underground Systems

- **Detention vs. retention approach:** Retention (complete on-site infiltration) with no surface discharge. Section 104, Subsection 2.1 requires that 100 percent of the 95th-percentile rainfall event be managed on site and expressly prohibits its discharge to surface waters; Subsection 2.2 requires post-development rate and volume to be equal to or less than pre-development. Detention with a controlled release is not proposed because there is no receiving system to release to — no City storm drain, no canal with a written acceptance agreement, and no natural drainageway on or adjacent to the plat. Retention with zero discharge satisfies both requirements without reliance on downstream capacity.
- **Storage type (surface pond / underground):** Distributed surface facilities. Three components: (1) vegetated roadside swales on both sides of all public streets; (2) on-lot infiltration within single-family lot landscaping; and (3) dedicated retention within the townhome area — a surface retention basin, an infiltration bed beneath landscape or parking, or a combination, to be selected at final design.
- **Basis for storage volume:** Storage is sized on a critical-duration water balance. For each duration in the Section 104 Table 1 intensity-duration-frequency data, the precipitation falling on a sub-area is reduced by the volume its pervious surfaces infiltrate over that same period, and the largest net result governs. Pervious ground that receives routed runoff is credited at the full design infiltration rate; pervious ground receiving only direct rainfall is credited at the lesser of the rainfall rate and the design rate. No surface is credited twice, and no surface is assumed to absorb more than it can. Because infiltration removes water continuously, storage is governed by 15- to 60-minute durations rather than by the full 24-hour event. For the roadside swales the infiltrating surface is the wetted perimeter of the section, which grows with ponded depth, so stage and infiltration are solved together.
- **Water quality treatment method and effectiveness:** Lawns and vegetated swales provide filtration and settling, followed by infiltration through the native gravels. Because 100 percent of the Water Quality Capture Volume is retained and infiltrated with no surface discharge, the pollutant load discharged to surface waters is zero. Grassed swales additionally provide typical total suspended solids removal on the order of 60 to 80 percent prior to infiltration, which protects the long-term infiltration capacity of the facilities. If direct infiltration facilities are utilized in the design for the multi-family portion of the development, the final drainage report and engineering documents will detail the required treatment methods.

Table 2.4-1. Required Storage Volume by Sub-Area

Sub-Area	Governing Duration	Precipitation at That Duration (cf)	Infiltrated During Storm (cf)	Net Storage Required (cf)	Managed By
Single-family lots	15 min	47,857	21,798	26,059	On-lot infiltration
Public street right-of-way	30 min	36,439	15,322	21,117	Roadside swales
Multi-family (townhome) area	60 min	30,387	12,336	18,052	Retention basin
Open space lots	15 min	10,229	6,212	4,017	Sheet flow to open space

Sub-Area	Governing Duration	Precipitation at That Duration (cf)	Infiltrated During Storm (cf)	Net Storage Required (cf)	Managed By
TOTAL	**—**	**124,912**	**55,667**	**69,245**	**1.59 ac-ft**

Each sub-area is evaluated at its own governing duration, so the totals are the sum of independent governing cases rather than a single storm — a conservative aggregation. For reference, gross 100-year, 24-hour runoff from impervious surfaces is 175,552 cf (4.03 ac-ft) and the Water Quality Capture Volume is 42,898 cf; the water quality event produces an average intensity far below the design infiltration rate and is fully infiltrated as it falls, so it requires no dedicated storage.

Table 2.4-1a. Net Storage Requirement by Storm Duration (100-year)

Storm Duration	Single-Family Lots (cf)	Roadside Swales (cf)	Multi-Family Basin (cf)	Open Space Lots (cf)
5 minutes	17,100	10,690	7,289	3,137
10 minutes	23,273	15,397	10,620	3,939
15 minutes	26,059	18,250	12,726	4,017
30 minutes	22,945	21,117	15,493	1,798
60 minutes	0	20,168	18,052	0
120 minutes	0	10,355	16,788	0
180 minutes	0	2,884	14,834	0
360 minutes	0	0	6,904	0
720 minutes	0	0	0	0
1,440 minutes	0	0	0	0
GOVERNING	**26,059 (15 min)**	**21,117 (30 min)**	**18,052 (60 min)**	**4,017 (15 min)**

Each entry is the precipitation falling on that sub-area over the stated duration less the volume its pervious surfaces infiltrate during the same period, with negative results shown as zero. Short durations govern the landscaped sub-areas because rainfall intensity exceeds the 2.22 in/hr design infiltration rate; longer durations govern the multi-family basin because its infiltrating footprint is small relative to the area draining to it.

2.4.1 Public Street Right-of-Way — Roadside Swales

Runoff from the street network will be conveyed by vegetated swales running parallel to and on both sides of each street within the public right-of-way. The swales serve as both the minor conveyance system required by Section 104, Subsection 2.2 and the infiltration facility.

Table 2.4-2. Preliminary Roadside Swale Sizing

Parameter	Value	Criterion / Check
Estimated street centerline length	8,500 ft	Preliminary Plat street layout
Total swale length (both sides)	17,000 ft	—
Assumed swale section	4-ft bottom, 3:1 side slopes	1.0-ft design ponding depth
Longitudinal slope / roughness	0.5% / n = 0.030	Grass-lined
Peak flow, representative 800-ft reach (10-yr)	0.70 cfs	Minor conveyance, §104 2.2
Peak flow, representative 800-ft reach (100-yr)	1.21 cfs	Major conveyance, §104 2.2
Flow depth at 100-yr peak	0.23 ft	Capacity at 1.0 ft = 19.0 cfs

Parameter	Value	Criterion / Check
Flow velocity at 100-yr peak	1.2 ft/s	Below 5 ft/s erosive limit
Governing storm duration for storage	30 minutes	Table 2.4-1a
Precipitation on the right-of-way at that duration	36,439 cf	1.015 in over 9.89 ac
Infiltrated during the storm	15,322 cf	42% of the precipitation
Net storage required	21,117 cf (1.24 cf/ft)	Ponded depth 0.26 ft
Storage available at 1.0-ft ponding depth	7.00 cf/ft	5.6 × required — OK
Infiltrating surface (wetted perimeter at ponded depth)	95,940 sf (2.20 ac)	Loading ratio 2.7 : 1 — OK
Post-storm drawdown time	1.2 hours	Well within 48 hours — OK

Driveways throughout the development will act as check dams to allow captured stormwater from the design storm to infiltrate.

2.4.2 Single-Family Lots — On-Lot Infiltration

Any increase in runoff from the single-family lots in the post-development condition will be captured within the lot and infiltrated into the ground. Lots will be graded so that roof, driveway, and walkway runoff is directed to landscaped side and rear yard areas, or to the ROW swales. The table below establishes the storage a typical lot must hold and the resulting depth of temporary ponding.

Table 2.4-3. Typical Single-Family Lot — Retention Check (100-year)

Parameter	Value	Basis
Single-family area / number of lots	18.06 ac / 90 lots	Preliminary Plat
Typical lot area	8,741 sf	Area ÷ lot count
Runoff coefficient C (impervious fraction)	0.40	Table 2.2-1
Impervious area per lot	3,496 sf	Lot area × C
Landscaped (pervious) area per lot	5,245 sf	Lot area − impervious
Governing storm duration	15 minutes	Table 2.4-1a
Precipitation on the lot at that duration	532 cf	0.73 in over 8,741 sf
Infiltrated during the storm	242 cf	Landscaped area at 2.22 in/hr
Net storage required per lot	290 cf	Precipitation less infiltration
Ponding depth across the landscaped area	0.66 in	Volume ÷ landscaped area
Post-storm drawdown at 2.22 in/hr	**0.30 hours**	**Well within 48 hours — OK**

- The 90 single-family lots together require about 26,100 cf of temporary storage. Distributed across the landscaped portion of each lot, that is about two-thirds of an inch of ponding — comfortably inside routine lot grading, where rear and side yard swales are typically 4 to 6 inches deep.
- The 15-minute duration governs because its intensity of 2.92 in/hr is the point at which rainfall most exceeds the 2.22 in/hr design infiltration rate over a sustained period. At 60 minutes and longer the intensity falls below the design rate and the lots shed no runoff at all.

- The ponded water drains in about 18 minutes once the peak passes.

On this basis, capturing single-family lot runoff within the lots is a sound methodology for this site.

2.4.3 Townhome / Multi-Family Area — Dedicated Retention

The multi-family (townhome) area covers 6.54 acres at a runoff coefficient of 0.65, leaving 2.29 acres of landscaped ground. Retaining its runoff across that landscaped area alone would require about 1.8 inches of ponding, roughly 2.7 times the depth required on a single-family lot, spread across landscaping that is fragmented by buildings, drives and walkways and that serves as resident amenity space. Dedicated retention is therefore proposed.

Table 2.4-4. Preliminary Townhome Retention Sizing Alternatives

Alternative	Facility Bottom	Governing Duration	Net Storage	Avg. Depth	Drawdown
Retention basin, compact	0.35 ac (15,250 sf)	60 min	18,562 cf	1.22 ft	6.6 hr
Retention basin, preferred	0.50 ac (21,780 sf)	60 min	18,052 cf	0.83 ft	4.5 hr
Retention basin, shallow	0.75 ac (32,670 sf)	60 min	17,202 cf	0.53 ft	2.9 hr

- The table above is provided as a reference for various sized retention facilities to show area vs depth required across the Multi-Family area of the development. The final design may include several retention basins or direct infiltration facilities of varying area and depth throughout the multi-family portion of the development.
- The Water Quality Capture Volume for this sub-area is 10,030 cf and is fully contained within the storage above.

2.4.4 Overall Retention Closure

Table 2.4-5. Net Storage Provided vs. Required (100-year)

Component	Net Storage (cf)	Volume (ac-ft)	% of Total
On-lot infiltration, single-family lots	26,059	0.60	37.6%
Roadside swales, public right-of-way	21,117	0.48	30.5%
Retention facility, multi-family area	18,052	0.41	26.1%
Open space lots (sheet flow / infiltration)	4,017	0.09	5.8%
TOTAL MANAGED ON SITE	**69,245**	**1.59**	**100%**

Against a gross 100-year, 24-hour runoff volume of 175,552 cf (4.03 ac-ft), the storage that must be provided is 69,245 cf (1.59 ac-ft), or 39 percent. The balance infiltrates while the storm is running. The single-family and open space components are not constructed facilities — they are shallow temporary ponding within ordinary lot and open space grading, 0.66 in and 0.36 in deep respectively.

2.5 Soils, Percolation, and Drain-Down Time

Subsurface conditions are documented in the Geotechnical Soil Study for Tetonia PFG prepared by Allied Consulting Services, Project No. 26006, dated February 13, 2026. That investigation comprised 20 test pits to depths of 7.5 to 10 ft and three falling-head infiltration tests.

- **Soil type(s):** Surficial topsoil 0.5 to 1.5 ft thick, over 1 to 3.5 ft of variable near-surface soils classified as Silty Sand (SM), Silty/Clayey Sand with Gravel (SC-SM), and Silty, Clayey Gravel with Sand (GC-GM), over a relatively continuous layer of Poorly Graded Gravel with Sand (GP) and Poorly Graded Gravel with Silt and Sand (GP-GM) encountered from 2.5 to 10 ft. Cobbles up to 4 inches are present in the gravels. Well Graded Gravel (GW) was logged at TP-7. Fines content in the gravels is low, at 3.6 to 7.3 percent passing the No. 200 sieve. Hydrologic Soil Group A.
- **Groundwater:** Not encountered in any test pit to the maximum 10-ft depth of exploration. The geotechnical report notes that groundwater may exist temporarily at shallow depths and that seasonal and yearly fluctuations may occur depending on topography, subsurface conditions, and precipitation.

Table 2.5-1. Infiltration Test Results (Allied Consulting Services, Table 3)

Test	Infiltration Rate (in/hr)	Location Relative to Plat
I-1	4.8	East of plat, within PFG holdings
I-2	3.0	North of plat, near Highway 33
I-3	5.5	Within / adjacent to plat, west-central
Average of the three tests	4.43	Adopted as the basis for design
DESIGN RATE (average ÷ 2.0)	**2.22**	**Used in all calculations**

- **Percolation / infiltration rate — design basis:** 2.22 in/hr. This is one-half (rounded) of the 4.43 in/hr average of the three measured rates. A safety factor of 2.0 is consistent with standard practice for infiltration facility design and is appropriate given that the geotechnical report characterizes the results as approximate owing to the simplified test method and limited number of tests. The adopted value remains conservative with respect to the site: test I-3, the only test located within and immediately adjacent to the plat, returned 5.5 in/hr, with the design rate being approximately 40 percent of the rate measured nearest the project area.

Table 2.5-2. Time to Fully Drain Storage System

Facility	Net Storage (cf)	Drawdown Time	Criterion (48 hr)
Roadside swales (system total)	21,117	1.2 hours	Satisfied
Townhome retention basin (0.50 ac bottom)	18,052	4.5 hours	Satisfied
Typical single-family lot	290	0.3 hours	Satisfied

2.6 Ownership, Operation, and Maintenance

- **Proposed ownership of ponds / storage facilities:** Roadside swales within the public right-of-way: constructed by the developer and dedicated to the City with the street right-of-way. Townhome retention facility and all facilities within Block 13, Lot 1: owned and maintained in perpetuity by the homeowners association. Open space lots (Block 12, Lot 1 and Block 14, Lot 1): owned and

maintained by the homeowners association. On-lot infiltration areas: owned and maintained by the individual lot owner.

- **Operation and maintenance agreement(s):** A Stormwater Facilities Operation and Maintenance Agreement, in a form acceptable to the City Attorney and City Engineer, will be recorded with the final plat. It will identify each facility, assign the responsible party, establish the inspection and maintenance schedule, grant the City a right of access to inspect, and provide that the City may perform necessary maintenance and assess the cost against the responsible party if maintenance is not performed. Corresponding provisions will be included in the CC&Rs.

3. Compliance with City of Tetonia Section 104

Table 3-1. Section 104 Compliance Matrix

Section	Requirement	How Addressed / Status
104 - 2	Storm drainage and grading plan showing flow directions, inlets, outlets, basins, and off-site facilities; drainage report with calculations approved by the City Engineer prior to final plat approval	This preliminary report establishes the design basis and demonstrates feasibility. The full grading and drainage plan and final report will be submitted for City Engineer approval prior to final plat, per Section 4.
104 - 2.1	Manage 100% of the 95th-percentile (0.65 in / 24 hr) event on site; no discharge to surface waters; Direct Determination Method; hydrologic soil group used for infiltration	Satisfied. WQCV of 42,898 cf is fully retained and infiltrated. No surface discharge. Volumes computed by Direct Determination using HSG A infiltration confirmed by on-site testing. See Sections 2.2 and 2.4.
104 - 2.2	Minor conveyance for the 10-year event; major conveyance for the 100-year; adequate spillway for events beyond the 100-year; post-development rate and volume equal to or less than pre-development	Satisfied. Swales convey the 10-year at 0.16 ft and the 100-year at 0.23 ft depth against a 1.0-ft section. Post-development discharge is zero for all events. See Sections 2.3 and 2.4.1.
104 - 2.2	Rational Method or SCS Curve Number; IDF per Table 1; 24-hour Type II distribution	Satisfied. The Rational Method is used for peak flows, as permitted by this subsection. City IDF data adopted. See Table 2.1-1.
104 - 2.3	Investigate irrigation ditches; no stormwater discharge to irrigation ditches without a written agreement; fiberglass marker posts where utilities cross a ditch	No irrigation facilities fall within the project area with no proposed discharge to adjacent irrigation facilities.
104 - 2.4	No public water discharged onto or through private property without easement; 20-ft minimum easement centered on any public conveyance on private land; written permission for runoff directed to facilities of others	Not applicable as designed. No stormwater is directed off site and no public conveyance is proposed on private property.
104 - 2.5	NPDES Construction General Permit coverage, SWPPP, and Notice of Intent filed at least 14 days before earth disturbance; copies to the City before grading; IDEQ BMP Catalog as guidance	Acknowledged. Disturbance exceeds one acre. The SWPPP and NOI will be prepared and filed by the contractor or developer's representative.

4. Assumptions, Limitations, and Final Design Scope

This report is prepared at a preliminary level appropriate to Preliminary Plat review. A complete grading plan, storm drainage plan, and final drainage report have not been prepared and are not proposed until the Preliminary Plat is approved, since the layout on which that engineering depends may change through the entitlement process. The items below identify what has been assumed and what will be resolved at final design.

4.1 Assumptions Requiring Confirmation

- Runoff coefficients are planning assumptions for full build-out, taken as the impervious fraction of each land use: 0.40 for single-family lots, 0.65 for the multi-family area, 0.60 for public right-of-way, and 0.20 for open space. The final drainage report for this project may modify these values.
- Storage volumes are computed as a critical-duration water balance against the Section 104 Table 1 data, crediting infiltration occurring during the design storm. Governing durations are 15 to 60 minutes.
- Areas, street centerline length, and swale length are taken from the Preliminary Plat geometry per plans dated July 2026.
- The design infiltration rate of 2.22 in/hr is one-half of the average of the three falling-head tests reported in the project geotechnical report. Only one of those tests is within or immediately adjacent to this plat, and it returned the highest of the three rates at 5.5 in/hr.

5. References

- City of Tetonia Standards and Technical Specifications, Section 104 — Storm Drainage Design Standards.
- Allied Consulting Services, Geotechnical Soil Study for Tetonia PFG, Tetonia, Idaho, Project No. 26006, February 13, 2026.
- Eagle Rock Engineering, Preliminary Plat — Pinnacle Peak Subdivision, Project No. 25172, Sheets 1–3, July 15, 2026.
- Idaho Department of Environmental Quality, Catalog of Stormwater Best Management Practices for Idaho Cities and Counties, latest edition.
- USDA Natural Resources Conservation Service, Urban Hydrology for Small Watersheds, Technical Release 55, June 1986.