

October 30, 2024

Chandler Windom, Senior Planner
PO Box 1727
200 S. Willow Street
Jackson, WY 83001

RE: Sufficiency Review for Miscellaneous Application for Northern South Park Area 1 Master Site Plan

Dear Chandler,

Thank you for providing your October 25th letter regarding the sufficiency of our October 11, 2024 submittal. We have addressed below each section in your letter designated as “insufficient.”

Section d.iv.e. of your letter states “Insufficient. Please provide the Geotechnical report, prepared by a Wyoming licensed engineer, as referenced in the narrative.”

A geotechnical report is not required by the Northern South Park Land Development Regulations (“LDRs”), and therefore we do not agree with your insufficient conclusion in Section d.iv.e of your letter. During the hearings on the LDRs, the County Commission directed that a geotechnical report was not necessary, and the LDRs reflect that direction.

However, we are happy to provide the geotechnical report prepared by Jorgensen Engineering in 2022 for the Porter Ranch Subdivision, which is the report referenced in the narrative of the geotechnical study provided by Jorgensen Engineering in the Capital Improvements Element. Teton County already has that 2022 geotechnical report in the GEC application we submitted in 2023, but we have also attached it to this letter for easy reference.

Section d.iv.f. of your letter states “Insufficient. See attached letter from Transportation Administrator, dated October 24, 2024.”

We have corrected our traffic impact study to address Section 2, Section 3, Section 4 and Section 5 of the Transportation Administrator’s letter; however, with those corrections the conclusion of our study remains the same. At this point in the application review process, County staff is tasked only with determining whether our application “contains such information and materials in sufficient detail to determine compliance with [the] LDRs.” We request that the Transportation Administrator’s technical comments regarding the traffic impact study be reserved for the Plan Review Committee’s comment period in the process.

Section d.iv.g. of your letter states “Insufficient. Lacks a description of timing for completion.”

The LDRs require that the Capital Improvements Element identify “the timing for completion of said infrastructure as it relates to development within the site area.” Per this LDR section, and as we stated in our application, development will occur at the individual block level in coordination with infrastructure to service each of those blocks. Once an individual block is identified for

development, we will plat that block as the LDRs require and then bring infrastructure to that block as the LDRs require. To be more specific:

1. If a block we identify for development is going to be conveyed to one of our nonprofit partners, the infrastructure will be provided to the block at the time we convey the block. The LDRs require the block to be “fully ready for development and construction, with roads and pathways, water supply, sewage disposal, stormwater system, communication, electricity, and other basic services installed with direct and sufficient access to the conveyed land, corresponding with the approved Master Site Plan and its Capital Improvements Element.” The Master Site Plan includes the required Capital Improvements Element illustrating such required infrastructure, which is provided to each block.
2. If a block we identify for development is not going to be conveyed to one of our nonprofit partners, the installation of the infrastructure will occur after a detailed Development Plan is approved for that block, and we obtain all necessary application physical development, subdivision and use permits for that block, as required by the LDRs.

However, as stated in the Capital Improvements Element, the water system mains and wastewater system mains will likely be installed early in the development process (i.e. with the first blocks to be developed).

Section d.iv.h. of your letter states “Insufficient. Other than Town of Jackson oversight of water & Sewer systems, the application lacks detail on funding, ownership, installation responsibility, and maintenance of infrastructure.”

The Gill Family will fund and install water, sewer, utilities, roadways, transit accommodations and pedestrian/bicycle facilities to the blocks that are being conveyed to our nonprofit partners. Then, the developer of the housing within any given block will fund and install the infrastructure within such block. As is customary, the infrastructure will be owned and maintained by the party that installed the infrastructure until such time that the infrastructure is conveyed to, for example, an improvement and service district and/or the Town of Jackson in connection with annexation.

Section d.v. of your letter states “Insufficient. Application lacks description of sequence of development or relationship of block development to capital improvements. Exact dates or timeframes are not required; however, a sufficient application will include a general sequence of on-site infrastructure installation. Example, when will major roadway installations occur relative to the blocks?”

See above answer to Section d.iv.g. of your letter.

Section d.vi. of your letter states “Insufficient. Application lacks description of housing or building types by block, even conceptually. Additionally Exhibit B (copied below) appears to be missing a reference where there are asterisks.”

The LDRs do not require detailed building types by block, even conceptually. However, we have designated each block with the three NSP standards (NSP-1, NSP-2 or NSP-3). The LDRs then provide the housing types that may be built with each of those standards (NSP-1, NSP-2 and NSP-3). Please see the maps in the application, which designate the NSP standard for each block. Even though conceptual building types by block is not required by the LDRs, and is not a reason for the

application to be insufficient, we have annotated Exhibit A to our application to show potential housing types.

Here is the missing asterisk note: *Although there is a range of estimated units on each parcel the total number of units in NSP Area 1 may not exceed 600 and the number of units in blocks with unrestricted housing designation may not exceed 30% of the total number of units.

Thank you for your time and attention to this letter. We see no reason to conclude that our application is insufficient, and look forward to a sufficiency determination as soon as possible.

Best Regards,



Susan Johnson
SJ Planning Solutions



Amberley Baker
Wylie Baker LLP



Jason Wells
Mondegreen

Enclosures: Updated Application

Northern South Park Area 1 Master Site Plan Submittal

Background

Northern South Park (“NSP”) has been envisioned as an area in the community to support additional growth and density since the first Jackson/Teton County Comprehensive Plan was adopted in 1978. In 1994, during the Comprehensive Plan update, the Futures Map again identified this area for growth, and a portion of the land was zoned by the County at that time for Suburban development. The most recent Comprehensive Plan updates in 2012 and 2020 both identified NSP as a location for future residential development, prompting a Neighborhood Planning effort that began in late 2020. The result of that effort was the Northern South Park Neighborhood Plan (“Neighborhood Plan”), adopted on July 5, 2022, which presented a vision for the development of Northern South Park. On March 5, 2024, the Board of County Commissioners adopted a set of Land Development Regulations (“LDRs”) to implement that vision, as well as a new overlay zone that covers NSP Area 1 and NSP Area 2, shown below. This Master Site Plan (“MSP”) submittal is applicable only to Northern South Park Area 1 (“Area 1”).



The MSP is the first step in a series of processes to initiate the development of Area 1, as required by LDR Section 4.5.1.C.1.

Statement of Purpose.

The purpose of the MSP is to guide future development within Area 1.

Under the LDRs and the Neighborhood Plan, the vision for NSP is *“a mixed income, multimodal, Complete Neighborhood, that delivers a high quality of life for residents, minimizes impacts to surrounding communities and ecosystems, and provides a significant quality of deed-restricted housing for people working in Teton County.”*

The proposed MSP achieves this vision by providing a mix of unrestricted (30%) and deed-restricted (70%) housing, in a variety of housing types. The MSP demonstrates multi-modal transportation options through the provision of interconnected street networks with sidewalks, pedestrian crosswalks, separated pathways with connectivity to existing pathways, as well as collector streets to accommodate transit. The east-west connector road envisioned in the Neighborhood Plan will not only provide connectivity between NSP Area 1 and NSP Area 2, but it is also intended to alleviate traffic on South Park Loop and High School Roads as build-out occurs across NSP. The Neighborhood Plan also envisioned that the least intense development occurs in the southern portion of NSP, transitioning to higher density development moving north toward High School Road along the main collector street.

The MSP proposes to deliver a high quality of life for residents by including connected neighborhood centers that support community gathering. Programmed spaces such as a neighborhood daycare facility or a small local coffee shop, are possible, in addition to the provision of land for a neighborhood school with playing fields, and interconnected parks for passive and active recreation. The design of the blocks and parks, with buildings oriented around them, create safe community gathering spaces where neighbors have “eyes on the parks,” forming connected neighborhoods with different character.

The design of the parks is intended to minimize impacts to wildlife by providing open swaths of land for wildlife movement that include green space as visual cues to move through the neighborhood to reach lower density and agricultural areas outside of NSP. The series of connected parks and pathways are intended to promote wildlife permeability through the area, allowing wildlife to move across the site to reach open agricultural land to the south—to access Flat Creek to the east, as well as the low-density subdivisions west of South Park Loop Road to get to the riparian Snake River bottomlands.

The school and park exaction lands will minimize impacts to the surrounding neighborhoods by providing additional play areas and interconnected pathways as alternative transportation options for bicycling, walking, and access to public transportation. The neighborhood will connect to the existing trail system and bus routes for easy, multi-modal access to schools, shopping, the Post Office, downtown Jackson, Snow King and even Teton Village.

Attachments

The following additional materials are provided as part of this application:

Master Site Plan. See the following attached Exhibits prepared by evolveEA, which comprise the Master Site Plan:

Exhibit A: Concept Map and Planning Concept Map

Exhibit B: Block Map and NSP Area 1 Block Table

Exhibit C: Block Plan – NSP Development Standards Designation Map

Exhibit D: Block Plan – Housing Allocation Map

Northern South Park Development Standards. See attached Exhibit C showing NSP-1, NSP-2, and NSP-3 at the block level.

Capital Improvements Element. See Capital Improvement Element, including Traffic Impact Study, from Jorgensen Associates attached as part of this application as Exhibit E.

Phasing Element. See Phasing Element on the following page 4 of this application.

Housing Element. See below Housing Element on page 4 of this application.

Findings for Approval of a Master Site Plan. See Findings on page 4 of this application.

Phasing Element

The defined development procedure in the LDRs and the capital improvement elements generally direct the nature and orderly sequencing of the development in NSP Area 1. Development will occur at the individual block level in coordination with infrastructure to service each of those blocks. Please see [Exhibit B](#), Block Map, for an overview of the blocks that define the initial unit of area development and [Exhibit E](#), Capital Improvement Element, that outline the capital improvements associated with NSP Area 1. The Capital Improvement Element enables flexibility in the development sequencing of individual blocks to accommodate the needs of non-profit housing partners and to accommodate potential horizontal and vertical construction efficiencies. For example, the Porter Ranch Subdivision provides two water and two sewer connections and the Porter Ranch Subdivision water distribution, wastewater collection and wastewater pumping systems that connect to the Town of Jackson's wastewater treatment plant are designed to accommodate NSP Area 1 development. This structure and design allow for redundancy and flexibility in block phasing. For a description of the relationship between the capital improvements and on-site infrastructure, see [Exhibit E](#) attached to this application.

Once an individual block is identified for development, we will plat that block as the LDRs require and then bring infrastructure to that block as the LDRs require. To be more specific:

1. If a block we identify for development is going to be conveyed to one of our nonprofit partners, the infrastructure will be provided to the block at the time we convey the block. The LDRs require the block to be “fully ready for development and construction, with roads and pathways, water supply, sewage disposal, stormwater system, communication, electricity, and other basic services installed with direct and sufficient access to the conveyed land, corresponding with the approved Master Site Plan and its Capital Improvements Element.” This Master Site Plan includes the required Capital Improvements Element illustrating such required infrastructure, which is provided to each block.
2. If a block we identify for development is not going to be conveyed to one of our nonprofit partners, the installation of the infrastructure will occur after a detailed Development Plan is approved for that block, and we obtain all necessary application physical development, subdivision and use permits for that block, as required by the LDRs.

However, as stated in the Capital Improvements Element, the water system mains and wastewater system mains will likely be installed early in the development process (i.e. with the first blocks to be developed).

Housing Element

Each of the categories of development standards (NSP-1, NSP-2, and NSP-3) in Northern South Park are dictated by extensive and detailed regulations that address such design parameters as setbacks, landscape surface ratios, density, parking, building height, roof pitches, access, and floor area ratio. There are significant differences in the development standards, which by their intended nature, result in different housing typologies between NSP-1, NSP-2, and NSP-3. In short, the dimensional limitations ensure a diversity of housing types throughout Northern South Park. The exact number and types of units will be provided at Development Plan. However, the submitted MSP and its use of the three development standards drive a wide variety of typologies, including single family units, townhouses, duplexes, and multiplexes, which include condominiums.

For a conceptual depiction of Area 1, including conceptual housing typologies, see [Exhibit A: Concept Map and Planning Concept Map](#). For a depiction of the location of the blocks and the allocation of units by block, see [Exhibit B: Block Map and NSP Area 1 Table](#), [Exhibit C: Block Plan – NSP Development Standards Designation Map](#), and [Exhibit D: Block Plan – Housing Allocation Map](#).

Findings for Approval for Master Site Plan

- I. **Consistent with the Northern South Park Neighborhood Plan.** The MSP shall be consistent with the Neighborhood Plan’s stated housing and connectivity objectives, as well as the Neighborhood Plan’s stated visions.

Can be made. The MSP demonstrates consistency with the housing objectives by providing a mix of unrestricted (30%) and deed-restricted (70%) housing, in a variety of housing types. Connectivity objectives are met by showing multi-modal transportation options through the provision of interconnected street networks with sidewalks, pedestrian crosswalks, separated pathways with connectivity to existing pathways, as well as collector streets to accommodate transit. An east-west connector road is shown that provides connectivity between NSP Area 1 and Area 2. MSP’s stated visions are as follows:

- A. Housing Program Vision. *The Neighborhood Plan envisions that at least 40% of these new unit entitlements in Northern South Park will be Affordable and up to 30% will be Workforce. Up to 482 bonus entitlements for housing units are envisioned in addition to the base of 1,200 new entitlements. Housing options in Northern South Park are meant to provide a variety of housing types suitable for different lifestyles and incomes.*

Consistent. The MSP is consistent with this vision – see Exhibit B Block Map and NSP Area 1 Block Table for the range of units proposed. Seventy percent of these total estimated units will be deed-restricted, with at least

40% of the total units deed restricted as Affordable housing. A variety of housing types will be provided to accommodate a variety of incomes and lifestyles, including single family homes, townhouses, duplexes, multiplexes and condominiums.

- B. Open Space Vision. *The pathways in Northern South Park should link into the existing pathway network and extend this amenity for use by Northern South Park residents and the larger community to provide for recreational use as well as to supplement the transportation network by providing non-motorized routes to destinations such as schools, employment, shopping, and entertainment. To provide a high quality of life for residents, parks in Northern South Park should provide spaces to recreate and gather within walking distance of all residents. All residential units in Northern South Park should be located within ¼ mile of a park to encourage residents to access parks by foot and bike.*

Consistent. Interconnected parks with pathways, located within a quarter mile of residences, are proposed to connect to the existing adjacent and future pathway networks, providing nonmotorized transportation networks to schools, shopping, and places of employment, as well as recreational opportunities.

- C. Mobility, Connectivity + Infrastructure Vision. *The Neighborhood Plan envisions complete streets with transit connectivity, active travel connectivity with sidewalks, as well as pathways connecting to existing trails, neighborhood schools, and shopping. An east-west connector is also envisioned.*

Consistent. MSP demonstrates infrastructure to support multi-modal transportation options through the provision of interconnected street networks with sidewalks, pedestrian crosswalks, separated pathways with connectivity to existing pathways, as well as collector streets to accommodate transit. An east-west connector road will not only provide connectivity between NSP Area 1 and Area 2, but is also intended to alleviate traffic on South Park Loop and High School Roads as build-out occurs across Northern South Park.

- D. Neighborhood Design Vision. *The Neighborhood design envisions a variety of housing types with a density transition from north to south, and a walkable neighborhood anchored by neighborhood centers, providing a mix of uses, which should provide access to the community pathway network and be serviced by transit along High School Road or new bus routes through Northern South Park. Buildings should promote high-quality pedestrian-oriented public realm with a variety of frontages facing streets and/or open space.*

Consistent. The MSP proposes a variety of housing types, with a density transition from north to south, and the highest densities in the neighborhood centers. The MSP proposes to deliver a high quality of life for residents by including connected neighborhood centers that support community gathering. Programmed spaces such as a neighborhood daycare facility or a small local coffee shop, are possible in addition to the provision of land for a neighborhood school with playing fields, and interconnected parks for passive and active recreation.

- E. Character Areas. *Character areas are used to create distinct neighborhoods within Northern South Park, where people get around by a combination of foot, bus, bike and car, and accommodates both on-site and on-street parking. The open space should allow for wildlife permeability through the site to the fields south of the project area.*

Consistent. The design of the blocks and parks, with buildings oriented around them, create safe community gathering spaces where people have “eyes on the parks,” forming connected neighborhoods with different character. The series of connected parks and pathways are thoughtfully designed to promote wildlife permeability through the site, allowing wildlife to move through the site to reach wide open agricultural land to the south.

- II. **Compliance with Northern South Park Overlay Standards.** The MSP complies with all applicable standards of the Northern South Park Overlay in Section 4.5.2. (Standards Applicable to All Northern South Park Development), as can be determined by the level of detail of a Master Site Plan.

Can be made. Applicable Standards of Section 4.5.2 are reviewed below:

- A. **Applicability.** The MSP proposes development utilizing the development standards in Division 4.5: NSP-1, NSP-2, and NSP-3.
- B. **Definitions.** Definitions used throughout the Master Site Plan proposal are in alignment with the definitions utilized in this Section of the LDRs.
- C. **Rules of Measurement.** Rules of measurement that are consistent with those defined in this Section are utilized throughout the Master Site Plan.
- D. **Exempt from Other Overlays.** While this site falls within the SRO, the SRO Standards are not applicable to the area that is part of this Master Site Planning effort. The NRO is also not applicable on this site.
- E. **Maximum Number of Dwelling Units.** The maximum number of dwelling units allowed in Area 1 is 607 units (600 new dwelling units, plus the remaining existing development potential of 7 units, after subtracting out the 79 units developed within the Porter Ranch platted subdivision). Exhibit B sets forth the estimated range of new units to be developed under this MSP.
- F. **Affordable and Workforce Housing Requirements.**

1. All of the 600 new units are subject to the Affordable and Workforce Housing Requirements in LDR Section 4.5.2.F. The 7 remaining dwelling units recognized under the existing zoning are exempt from the Affordable and Workforce Housing Requirements in LDR Section 4.5.2.F.
 2. Standards.
 - a. **Required Allocation.** Seventy percent of the total new units will be deed-restricted, with at least 40% of the total new units deed restricted as Affordable housing.
 - b. **Affordable and Workforce Housing Plan.** Not applicable at Master Site Plan. An Affordable and Workforce Housing Plan is required at the time of submittal of a Development Plan.
 - c. **Method for Providing Affordable and Workforce Housing.** All deed-restricted housing will be located within NSP Area 1, using all three NSP designations (NSP-1, NSP-2 and NSP-3), and will provide a variety of building types and sizes to accommodate a variety of incomes and lifestyles. If the land conveyance method is used, a covenant will be recorded against the conveyed land restricting future use of the site to the development of deed-restricted units pursuant to LDR Section 4.5.2.F.2.c.iii.
- G. **Exactions.** Exactions are calculated per dwelling unit, including unrestricted and deed-restricted units, and are required at the time exactions are required for the unrestricted units. Exaction land will be provided within NSP Area 1. The exact exaction acreage will be based on the final count of unrestricted units in a Development Permit. The table below shows the exaction calculations based on the potential range of new units.

Exaction Type	Minimum Estimated New Units	Maximum Estimated New Units
School Exaction	508 * 0.01 = 5.08 acres	600 * 0.01 = 6.00 acres
Park Exaction	508 * 0.02 = 10.16 acres	600 * 0.02 = 12.00 acres
Total Exaction	15.24 acres	18.00 acres

- H. **Building Frontages.** Not applicable at Master Site Plan. At the time of Development Plan submittal, all primary structures will demonstrate that they front a road right-of-way, pathway, or open space, as applicable.
- I. **Neighborhood Design Requirements.** The MSP shows higher intensity development and use closer to High School Road, with less intense development along the southern edge of the overlay. This transition in intensity from north to south provides a step-down in density across the overlay. High intensity development and use is demonstrated to be located closest to parks, transit corridors, and schools.

- J. **Parking.** Not applicable at Master Site Plan. At the time of Development Plan application, the application will demonstrate compliance with all required parking standards.
- K. **Connectivity and Transportation Facility Requirements.** Please see MSP and associated engineering materials provided by Jorgensen Associates for compliance with the standards applicable at the time of MSP approval.
- L. **Open Space Requirements.** As shown in the MSP, every dwelling unit is located within one-quarter (¼) mile, via pathway or sidewalk, of a park, playground, or open space of at least one-quarter (¼) acre. The open space has been thoughtfully designed to promote wildlife permeability in both north-south and east-west directions across the site. Landscaping will be the responsibility of Teton County or Teton County School District, as applicable, within the exaction lands. Landscaping that occurs within any common areas will be native species, which will be reviewed at the time of Development Plan and/or Building Permit. No ponds are proposed; however, appropriately sized stormwater retention basins will be utilized across the site, where needed.
- M. **Required Utilities.** The entirety of Area 1 will be connected to Town of Jackson water and sewer.
- N. **Improvement and Service District.** One or more homeowner’s associations and/or improvement and service districts will be formed that will be responsible for managing and maintaining infrastructure, including but not limited to roads, pathways, water, wastewater, and private (non-exaction) parks.

- III. **Transportation.** The Master Site Plan contains a traffic impact analysis and transportation demand management plan that:
 - a. promote multimodal forms of transportation that are consistent with the transportation goals of the Jackson/Teton County Comprehensive Plan; and
 - b. manage the generation of neighborhood-related traffic to avoid undermining community character and endangering the public health, safety, and welfare.

Can be made. Please refer to the traffic impact analysis and transportation demand management plan submitted as part of the Capital Improvements Element (Exhibit E).

- IV. **Land Use.** The Master Site Plan promotes land uses that support and maintain the character of the neighborhood as specified in the Neighborhood Plan.

Can be made. The Neighborhood Plan discusses appropriate land uses in the Neighborhood Centers section of MSP. The uses discussed include the following mix of potential uses, “including residential, community facilities such as childcare, programmed open spaces for community gathering, limited local commercial and other neighborhood-serving uses that reduce vehicle miles traveled by locating destinations within walking distance to residences.”

These various land uses were codified in the LDRs within each of the categories of development standards (NSP-1, NSP-2, and NSP-3). Only the highest density area (NSP-3), allows small commercial retail and service uses, limited to 2,000 square feet. Daycare and assembly uses are permitted in NSP-1, NSP-2, and NSP-3. While housing is the highest priority, some limited small non-residential gathering spaces, such as a coffee shop and/or a daycare may be accommodated within or near the neighborhood centers.

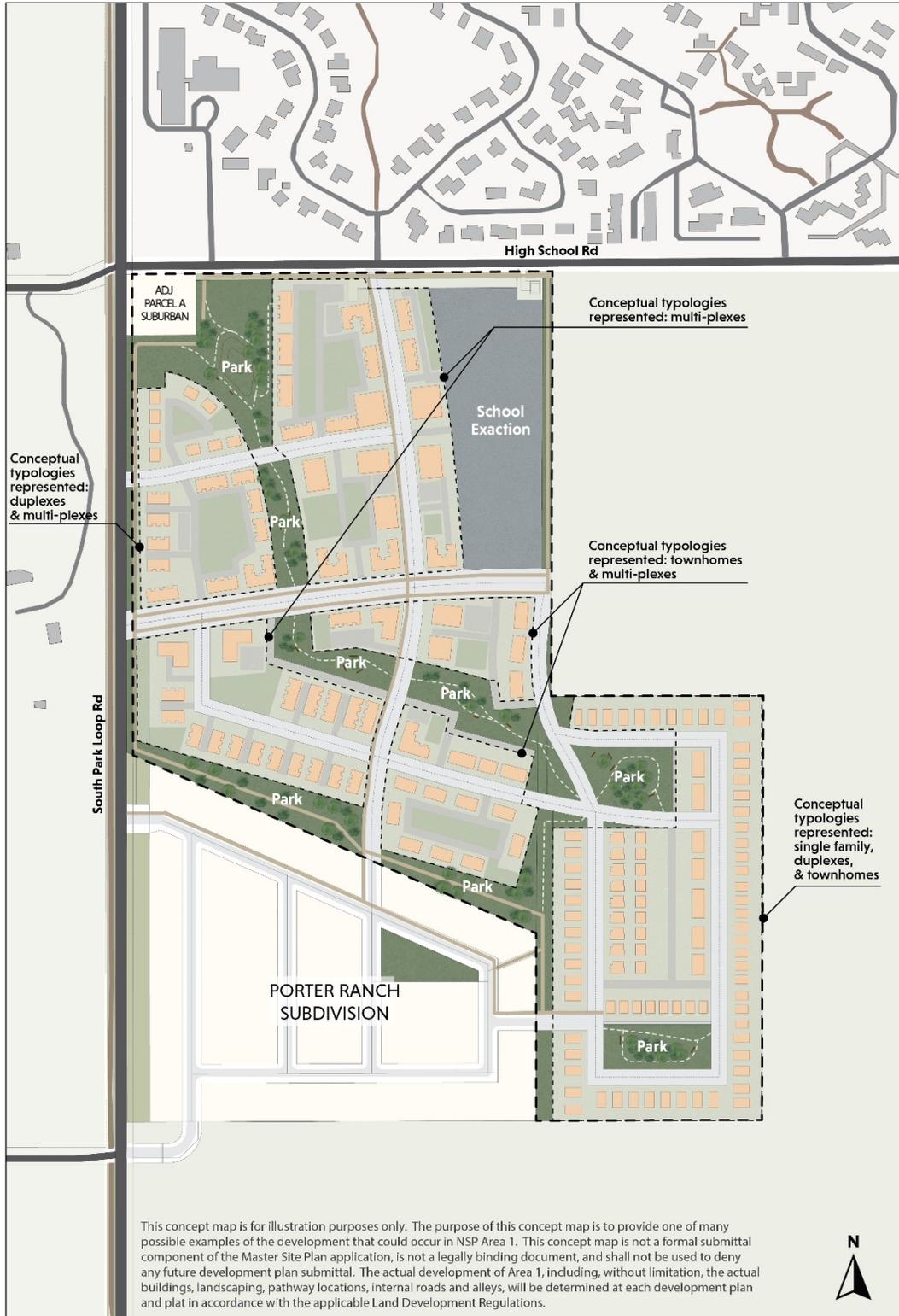
- V. **Phasing Element.** The Master Site Plan contains a phasing element that ensures development of the neighborhood, its amenities, and public facilities necessary to serve the neighborhood occur in a logical sequence.

Can be made. Pursuant to LDR Section 4.5.1.C.1.d.v, the phasing element shall describe the relationship between the capital improvements and on-site infrastructure described in the Capital Improvements Element and the sequence, location, and amount of development. Please see above Phasing Element, and the Engineering documents submitted as part of this application by Jorgensen Associates (Exhibit E).

- VI. **Housing Element.** The Master Site Plan includes a Housing Element that demonstrates a supply of affordable and workforce housing that is accordance with Section 4.5.2.F. (Affordable and Workforce Housing Requirements).

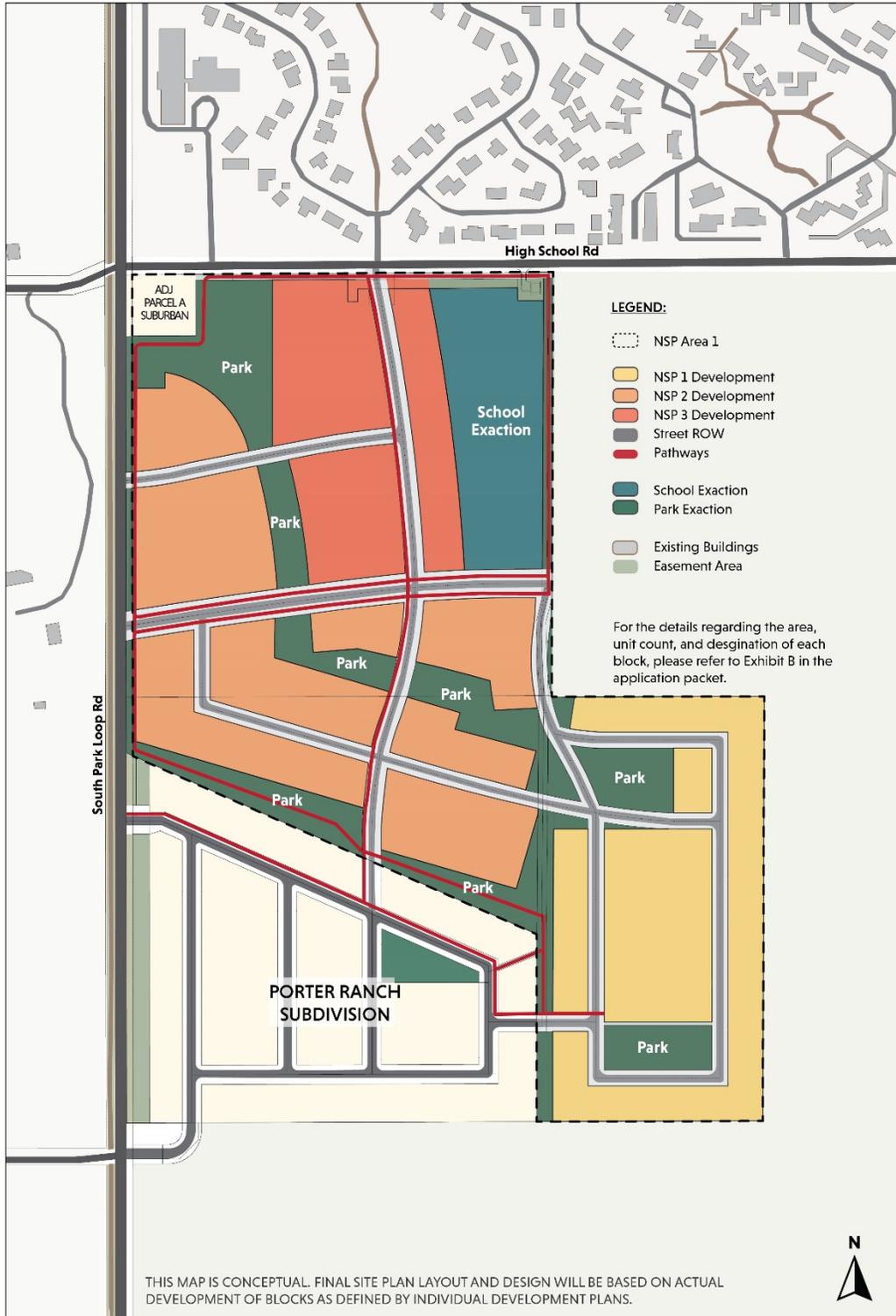
Can be made. Development of the new units will be comprised of at least 70% deed-restricted housing units, at least 40% of which will be Affordable, and will include a variety of housing types.

Exhibit A: Concept Map and Planning Concept Map



	Concept Map <small>PROJECT</small>	<small>SCALE</small> 1" = 265' 0"	<small>DATE</small> 10.11. 2024	EX-A
	Northern South Park Area 1- Jackson, WY			

Exhibit A: Concept Map and Planning Concept Map



	Planning Concept Map	<small>SCALE:</small> 1" = 265' 0"	<small>DATE:</small> 10.11. 2024	EX-A
	<small>SHEET:</small> Northern South Park Area 1- Jackson, WY			

Exhibit B: Block Map and NSP Area 1 Block Table

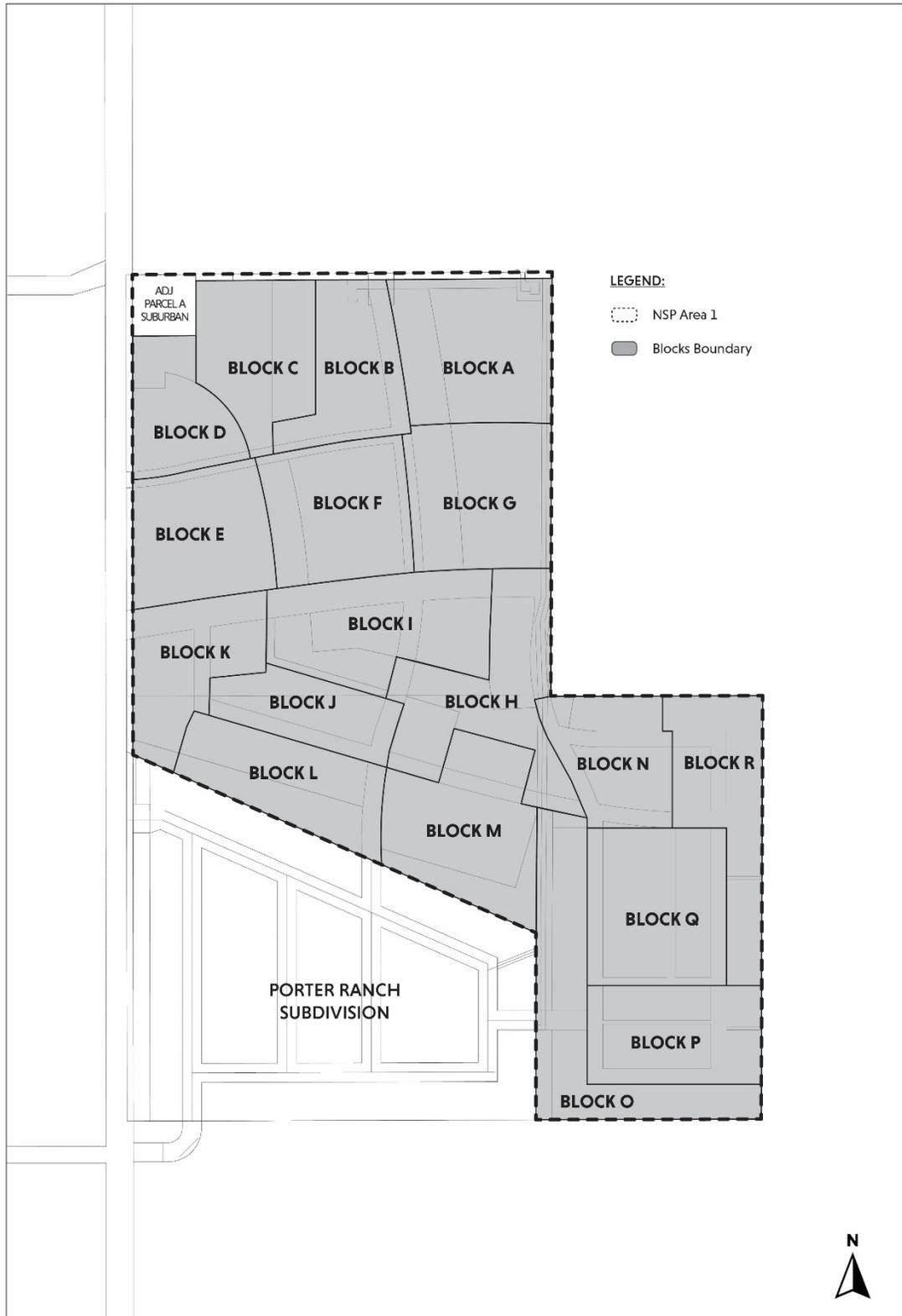


Exhibit B: Block Map and NSP Area 1 Block Table

Block	NSP Development Standard Designation	Housing Allocation	Acres Min to Max	Units Min to Max
A	NSP 3	Restricted Housing Allocation	4.5 to 5.0	32.0 to 40.0
B	NSP 3	Restricted Housing Allocation	3.0 to 3.7	45.0 to 55.0
C	NSP 3	Restricted Housing Allocation	3.4 to 4.2	16.0 to 20.0
D	NSP 2	Unrestricted Housing Allocation	2.5 to 3.0	16.0 to 20.0
E	NSP 2	Restricted Housing Allocation	3.6 to 4.4	48.0 to 60.0
F	NSP 3	Restricted Housing Allocation	3.9 to 4.8	57.0 to 71.0
G	NSP 3	Restricted Housing Allocation	4.2 to 5.0	21.0 to 27.0
H	NSP 2	Restricted Housing Allocation	4.4 to 5.0	15.0 to 19.0
I	NSP 2	Restricted Housing Allocation	4.5 to 5.0	27.0 to 33.0
J	NSP 2	Restricted Housing Allocation	2.5 to 2.9	27.0 to 33.0
K	NSP 2	Restricted Housing Allocation	3.2 to 3.9	21.0 to 27.0
L	NSP 2	Unrestricted Housing Allocation	3.4 to 4.2	32.0 to 40.0
M	NSP 2	Unrestricted Housing Allocation	4.4 to 5.0	39.0 to 49.0
N	NSP 1	Restricted Housing Allocation	2.9 to 3.5	5.0 to 7.0
O	NSP 1	Unrestricted Housing Allocation	4.4 to 5.0	23.0 to 29.0
P	NSP 1	Unrestricted Housing Allocation	3.5 to 4.3	12.0 to 16.0
Q	NSP 1	Restricted Housing Allocation	4.5 to 5.0	46.0 to 58.0
R	NSP 1	Unrestricted Housing Allocation	3.6 to 4.4	26.0 to 32.0
Total				508 to 600*
Total Units in Blocks with Unrestricted Housing Designation				148 to 180*
Total Units in Blocks with Restricted Housing Designation				376 to 420*

*Although there is a range of estimated units on each parcel the total number of units in NSP Area 1 may not exceed 600 and the number of units in blocks with unrestricted housing designation may not exceed 30% of the total number of units.

Exhibit C: Block Plan – NSP Development Standards Designation Map

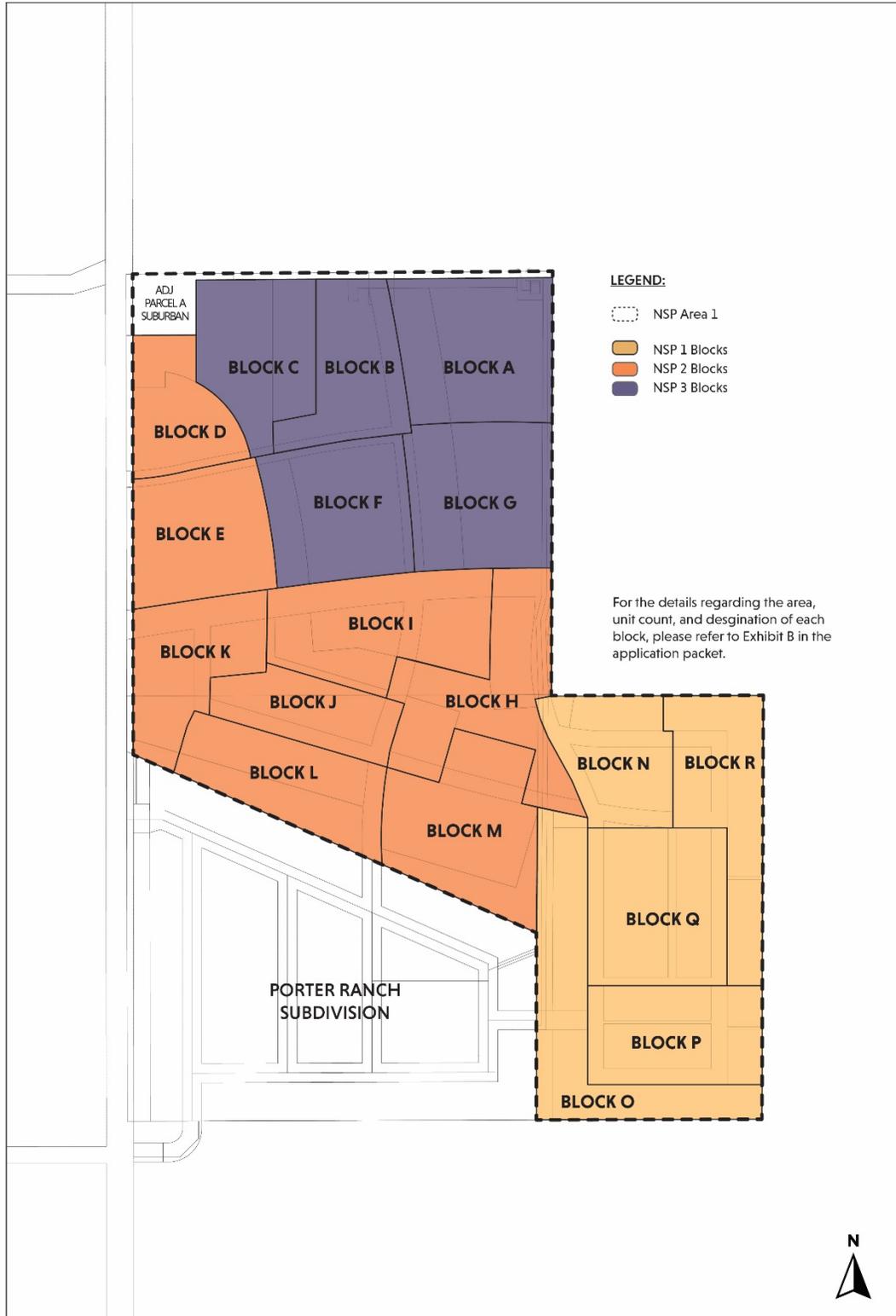


Exhibit D: Block Plan – Housing Allocation Map

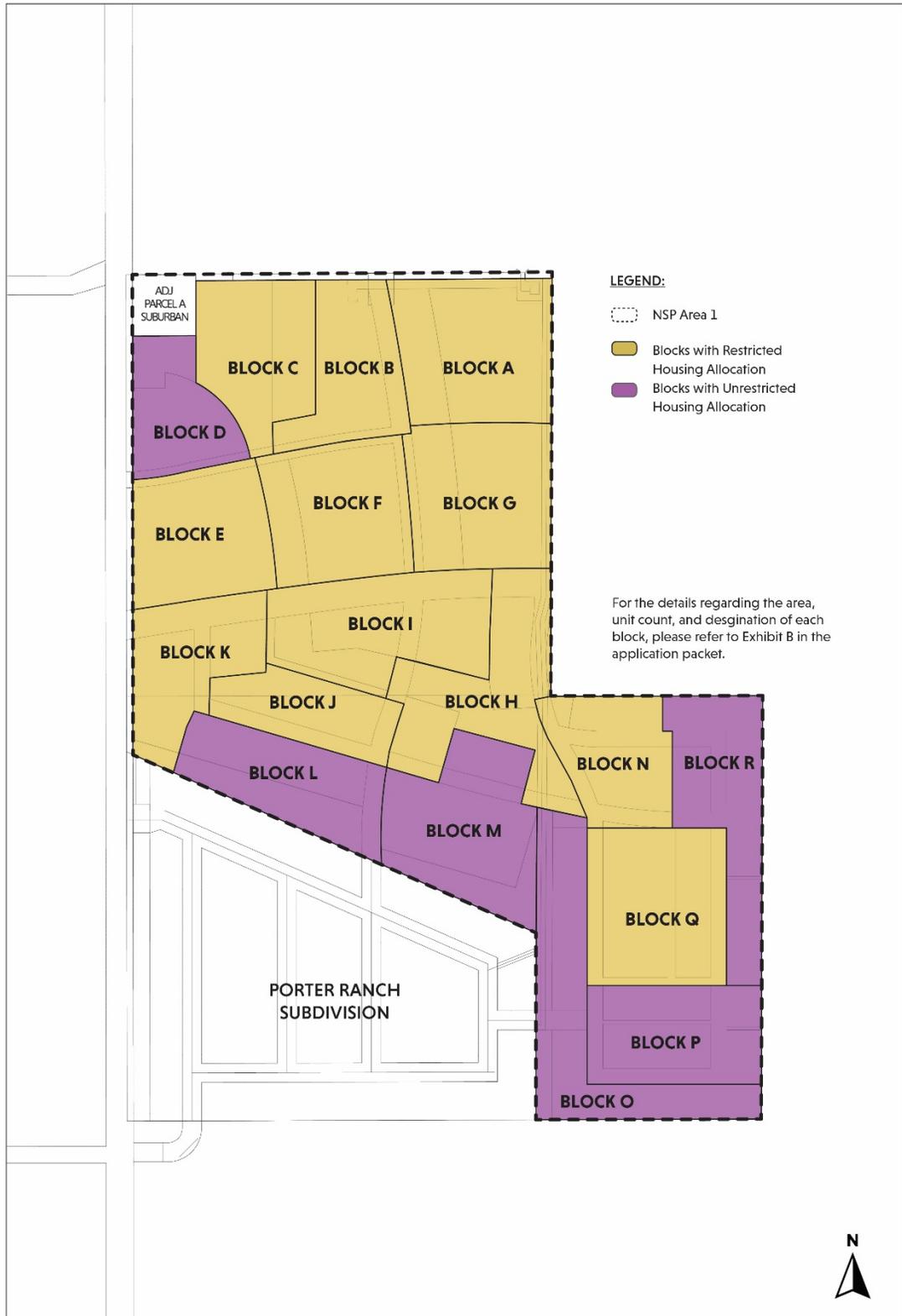


Exhibit E: Capital Improvements Element

(see attached)

NORTHERN SOUTH PARK AREA 1 CAPITAL IMPROVEMENT ELEMENTS NARRATIVE

ROADWAYS, TRANSPORTATION, AND PEDISTRIAN FACILITIES

The transportation system for Northern South Park Area 1 (NSP Area 1) will be comprised of the roadway system, pedestrian and pathway facilities, and transit stops. The transportation plan for NSP Area 1 has been developed in accordance with the Northern South Park Neighborhood Plan approved by the Teton County Board of County Commissioners in 2022 and incorporates the below goals. These goals are illustrated in the enclosed appendices of this Capital Improvement Element (CIE): Appendix 1: Road Network, and Appendix 2: Pedestrian Facilities.

- Provide a 90-foot road easement for the East-West Connector with pathway facilities on both sides. Provide a 60-foot road easement for the extension of Haystack House Road to the High School Road across from the intersection on Rangeview Drive including a pathway and sidewalk.
- Provide a 50-foot road easement for the local roads with sidewalks on both sides.
- Provide pathway connections on the south side of High School Road (property has already been transferred to Teton County by means of exaction from the creation of the Suburban Porter Ranch Subdivision).
- Provide a pathway along the eastern side of South Park Loop Road.
- Provide pathway connections to the existing Suburban Porter Ranch Subdivision.
- Provide a comprehensive pathway and sidewalk system with transit stops to develop an internal transportation network for transit and non-motorized modes of transportation.
- Space for transportation stops provided along the proposed East-West Connector Road and on South Park Loop Road on the northwest side of the Porter Ranch Subdivision connected by pathways.

Each street will provide a pathway and/or sidewalk on both sides. Pathways will meet the Teton County standards including a paved 10-foot width. The sidewalks will be concrete and a minimum of 5-foot wide. General locations of pedestrian facilities are shown in the enclosed Appendix 2. The road sections for NSP Area 1 will generally align with the Town of Jackson 2015 Community Streets Plan. The future cross-section plans to construct each roadway, pathway, sidewalk, and transit stop facility shall conform to Teton County roadway standards that exist at the time of submitting application materials for appropriate permits from Teton County.

A pathway is provided along the eastern side of South Park Loop Road adjacent to NSP Area 1, where it meets with the Porter Ranch Subdivision. Additionally, the north-east corner of Porter Ranch Subdivision provides a pathway easement that will be connected to the proposed NSP Area 1 park exaction parcels. Also, as part of the development of the Porter Ranch Subdivision, two exaction parcels were transferred to Teton County for pathway use near High School Road. Both sides of the East West Connector Road will provide space for the pathway.

TRANSPORTATION DEMAND MANAGEMENT PLAN

NSP Area 1 incorporates key elements of the West Jackson Subarea Transportation Plan. These elements were designed to create a neighborhood that provides transportation alternatives to reduce dependence on a single occupant vehicle (SOV) and mobility choices. The transportation system proposed for Area 1 is comprised of a roadway network system, pedestrian and pathway system, and transit system that provides modal choices and contributes to the character of the area. This system is a vital component of reducing SOV demand (TDM).

The location of NSP Area 1 is also a critical factor in reducing SOV transportation demand. The neighborhood is in proximity to schools (elementary, middle schools, and high schools), the Smiths Shopping Center (groceries and a variety of shops), and a variety of businesses and services along West Broadway readily accommodates walking and biking. In addition, NSP Area 1 includes connectivity to established START Bus transit routes, the Jackson Hole Community Pathway system, and adjacent neighborhoods (existing, under development, and future). As part of each development plan submitted for NSP Area 1, coordination will occur with Jackson Hole Community Pathways and START Bus to ensure updated program plans are coordinated and TDM elements are implemented consistently with each agency's current programs and plans.

The TDM measures for NSP Area 1 are as follows, which are the same measures that informed the Porter Ranch Subdivision site planning:

- Robust internal connectivity (between “blocks” designated in the NSP Area 1 Master Site Plan)
- Sidewalks along both sides of all internal streets
- Connectivity to the regional pathway facilities, particularly the Jackson Hole Community Pathway system along the west side of South Park Loop Road and future High School Road pathways
- The following measures to encourage residents to use non-auto options:
 - Bike Lanes along select internal roadways
 - Internal pedestrian accommodation
 - Pedestrian/bicycle connections to High School Road and to the regional pathway system trail along the west side of South Park Loop Road and along High School Road
 - Constructing a path along the east side of South Park Loop Road
 - Manage and/or limit vehicular parking
 - Accommodation of transit service through NSP Area 1
 - Internal parks and pocket parks to provide recreational opportunities close to residential areas
 - Utilize a Homeowners Association to provide information regarding START Bus schedule/routes and pathway routes connecting to the community system and encourage use of modes of transportation other than automobiles.

The traffic impact study is enclosed in Appendix 6: Traffic Impact Study of this CIE.

SNOW STORAGE

Snow storage will generally be available in the complete street cross section. Teton County regulations specific to the Northern South Park (NSP) areas require an area equal to 10% of off street parking, loading areas, and access drive areas be provided for snow storage. Road snow storage will be provided in a buffer strip along roads. Individual development plans will provide snow storage in green space areas and be coordinated with landscaping.

**JHHR Northern South Park Area 1
Master Site Plan Capital Improvement Element
October 2024**



WATER

Pursuant to a 2024 agreement (Doc. 1087292) with the applicant, the Town of Jackson (Town) will provide water supply to the NSP Area 1. As part of the agreement, the applicant provided an easement for two wells and a control building in the northeast of NSP Area 1 to address the capacity requirements of Zone 3B in the Town’s water system. A schematic of the water distribution system and these wells is included as Appendix 3: Water Distribution attached to this CIE.

The connection to the Town’s water system, which would be coordinated with Town’s staff, will likely be via multiple points to provide a looped system. The suburban subdivision south of NSP Area 1, the Porter Ranch, provides two connection points to the development for redundancy. The Porter Ranch Subdivision is in Zone 3B of the Town’s water system and a pressure reducing station will be required for NSP Area 1.

Internal to NSP Area 1, a network of pipes will be used to supply domestic water for residential domestic use, lawn and landscape watering, and to supply fire suppression water to the development. The Town’s water system standards will be incorporated in the design. The distribution network will limit dead-end lines and provide services to each block and subsequent development. Fire hydrants and isolation valves will be installed at appropriate intervals throughout the development. Water service connections will be provided to the parks for irrigation and other uses. All lots accessing the water system will be metered per Town of Jackson regulations. The Town has recently updated their water rates and, specifically, rates for properties outside of the Town limits.

The phasing of the water system will allow installation of mains as development occurs with the main connections constructed early in the development process. Pipe sizes will be determined through hydraulic analysis. Connection points from High School Road, Haystack House Road, and Hereford Ranch Road allow for flexibility of build out of the different blocks of NSP Area 1. Conceptual layout of the water distribution system is included as Appendix 3: Water Distribution attached to this CIE.

WASTEWATER

The applicant has been working with the Town of Jackson for connection of NSP Area 1 to the Town’s wastewater treatment plant. The Teton County Land Development Regulations require connection to a community sanitary sewer collection system if the proposed connection is within 500 feet of the development and access is obtainable and feasible. The recently completed Capacity Study (2021) undertaken by the Town indicates the Town’s wastewater treatment plant has capacity for the full buildout of the Town and all connected satellite systems, including additional units reserved for a future satellite system(s). Northern South Park, where the NSP Area 1 is located, was specifically allocated additional units. According to the study, the need for expansion at the treatment plant under the future buildout conditions, including NSP Area 1, is not projected to occur for another 30 years.

Wastewater collection internal to the development is planned as a gravity collection system with sewer mains collecting wastewater from the blocks and conveying it to the southwest corner of the Porter Ranch

**JHHR Northern South Park Area 1
Master Site Plan Capital Improvement Element
October 2024**



Development where it will be pumped to High School Road and the Town's gravity collection system. Each block will have a sewer main extension designed to Town standards. Manholes will be spaced appropriately along the gravity system. Services will be extended to lots and buildings as Development Plans are approved.

The wastewater collection system for the Porter Ranch Subdivision was designed to accommodate the wastewater from future development in NSP Area 1. Thus, pipes internal to the Porter Ranch Subdivision and the lift station are designed for future growth and the anticipated future development in the NSP Area 1.

The phasing of the collection system will allow installation of mains as development occurs with the main north-south trunk line likely constructed first to set future alignments and elevations. Connection points from Haystack House Road, and Hereford Ranch Road allow for flexibility of build out to the different areas of NSP Area 1 over time. Conceptual layout of the wastewater collection system is shown in Appendix 4: Sewer Collection attached to the CIE.

STORMWATER

Stormwater flows from the development will be controlled to limit the runoff rate to the development discharge for the 1-year through the 100-year storm events. The proposed developments will utilize vegetated swales and numerous small interception ponds and depressions to slow runoff velocities and detain stormwater runoff. The site is relatively flat, and no central stormwater system is planned. Stormwater will be retained as close as the source as practicable. This method will efficiently utilize the highly permeable soils and reduce runoff velocities and the concentration of runoff. Stormwater infiltration pits will be utilized to increase infiltration throughout the site. Vegetated surfaces of the ponds and swales will improve the stormwater quality prior to infiltration. With this localized approach to stormwater management the locations of these structures will be dependent on the building layouts.

Where appropriate (large parking areas, concentrated areas of impervious surfaces) mechanical stormwater management systems may be used to provide pre-treatment before discharge and infiltration. During construction and while revegetation efforts of individual block developments are underway, temporary silt fences, straw wattle, and straw bale barriers will be constructed to capture stormwater sediments generated from construction. Additionally, site grading will help disperse and lengthen the stormwater flow paths and, in turn, minimize the concentration of stormwater runoff.

CABLE UTILITIES

Cable and gas utilities will be provided to the blocks with the coordination of electrical power, natural gas, and communications providers. As part of the construction of the Porter Ranch Subdivision electric and gas utilities by Lower Valley Energy and communication lines by Silver Star and Spectrum were installed in anticipation of the NSP Area 1 development. A 30-foot easement runs along the eastern boundary of the NSP Area 1 from Porter Ranch Subdivision to High School Road. This easement allows for the connectivity and redundancy of these utilities and was designed to accommodate NSP Area 1. Conceptual layout of the cable utility network is included as Appendix 5: Cable Utility Infrastructure attached to this CIE.

GEOTECHNICAL STUDY

The site is located southwest of Jackson, WY approximately two miles to the east of the main channel of the Snake River and adjacent to the southeast intersection corner of South Park Loop Road and High School Road. This area is located within the Snake River alluvial floodplain, with an approximate elevation range of 6,100 to 6,120 feet above mean sea level. Past aerial images indicate that the area has been used for agricultural purposes with no improvements occurring. Several irrigation ditches and laterals are present, and are actively used.

This site is found on the geologic map Geologic Map of Grand Teton National Park, Teton County, Wyoming, by J.D. Love et al. published in 1992. According to the map, the project site is covered by Quaternary-age alluvial deposits which consist of cobbles, gravel, sand, and varying amounts of fine-grained soils. This is consistent with Jorgensen Associates' knowledge and experience in the vicinity of the project area. A subsurface exploration was performed for the Porter Ranch Subdivision in 2022. A total of nine open test pits were excavated and logged as part of the subsurface exploration. All nine test pits encountered soils that are consistent with the mapped soils: alluvial deposits comprising cobbles, gravels, and sands with varying amounts of fine-grained soils. For reference, the Porter Ranch Subdivision Geotech Report is included as Appendix 7: Geotechnical Engineering Report: Site Characterization attached to this CIE. Bedrock is assumed to be very deep. Located within the Intermountain Seismic Belt, risks associated with major earthquakes is relatively high and site-specific ground motion accelerations should be derived per the International Building Code.

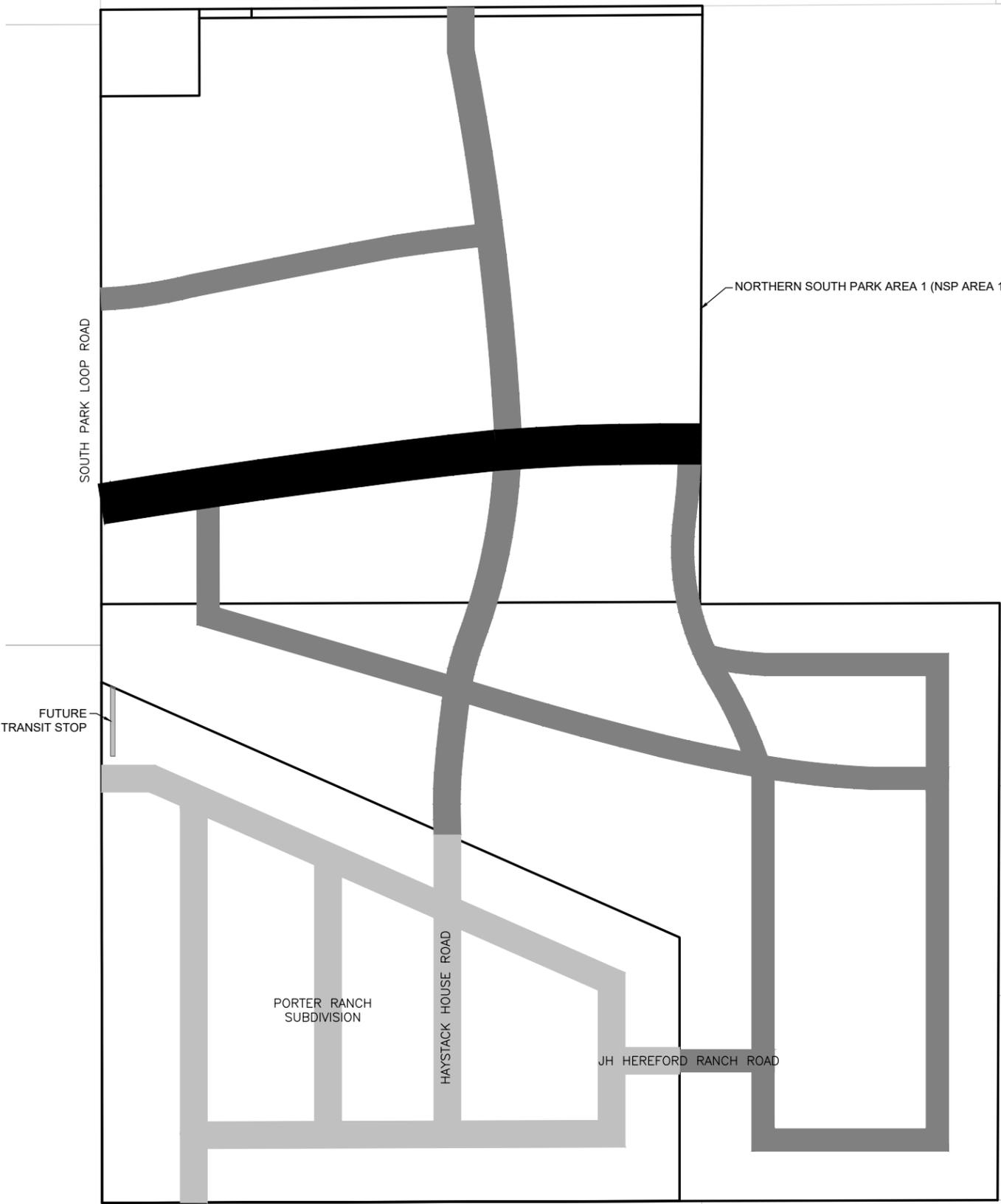
It is assumed the local groundwater levels are mainly influenced by local irrigation practices, rather than the local rivers and streams, and are expected to fluctuate seasonally. A groundwater monitoring effort was performed at the Porter Ranch Subdivision during the spring and summer of 2023. The groundwater monitoring effort indicated groundwater fluctuates prior to and after local irrigation practices (i.e. May and August) with peak groundwater levels ranging from 0.5-feet to 9.0-feet below ground surface (depending on proximity to irrigation ditches, Flat Creek, or other geographic locations). Similar groundwater conditions are expected at the proposed project site.

The existing native stony alluvial flood-plain material, consisting of sandy gravels and cobbles underlying the topsoil and fill mixture, is anticipated to provide adequate support for proposed foundations. Interbedded layers of loose sands or fine-grained flood plain deposits represent a risk of settlement.

FUNDING AND INSTALLING ON-SITE INFRASTRUCTURE

The Gill Family will fund and install water, sewer, utilities, roadways, transit accommodations and pedestrian/bicycle facilities to the blocks that are being conveyed to the family's nonprofit partners. Then, the developer of the housing within any given block will fund and install the infrastructure within such block. As is customary, the infrastructure will be owned and maintained by the party that installed the infrastructure until such time that the infrastructure is conveyed to, for example, an improvement and service district and/or the Town of Jackson in connection with annexation.

APPENDIX 1: Road Network



NOTE:

- ROADWAY MAP IS CONCEPTUAL. FINAL ROADWAY LAYOUT AND DESIGN WILL BE BASED ON ACTUAL DEVELOPMENT OF BLOCKS AS DEFINED BY INDIVIDUAL DEVELOPMENT PLANS.
- TRANSIT STOP LOCATIONS TO BE DETERMINED IN CONJUNCTION WITH START.

LEGEND

-  EAST-WEST CONNECTOR
-  LOCAL ROAD
-  EXISTING ROAD WITHIN AREA 1



0 150 300
SCALE: 1 INCH = 300 FEET
THIS SCALE VALID ONLY FOR 11x17 PRINTS

SHEET	PROJECT NUMBER	DATE
1	20030	10/14/2024

SHEET TITLE:
APPENDIX 1 ROAD NETWORK

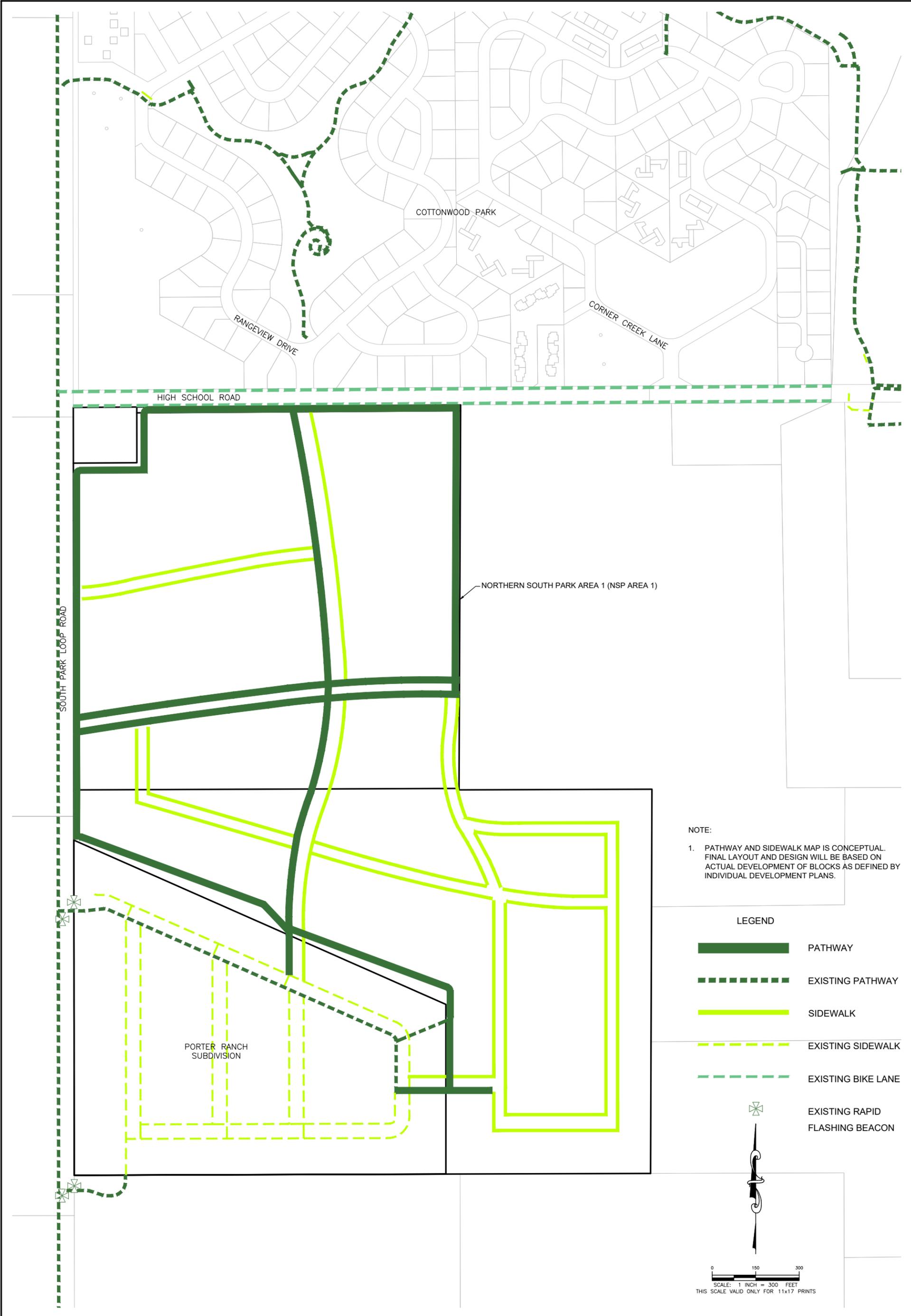
DESIGNED BY: JK
REVIEWED BY: TK

PLAN VERSION: MSP
DATE: 10/14/2024

PROJECT TITLE:
**NORTHERN SOUTH PARK AREA 1
MASTER SITE PLAN
TETON COUNTY, WY**



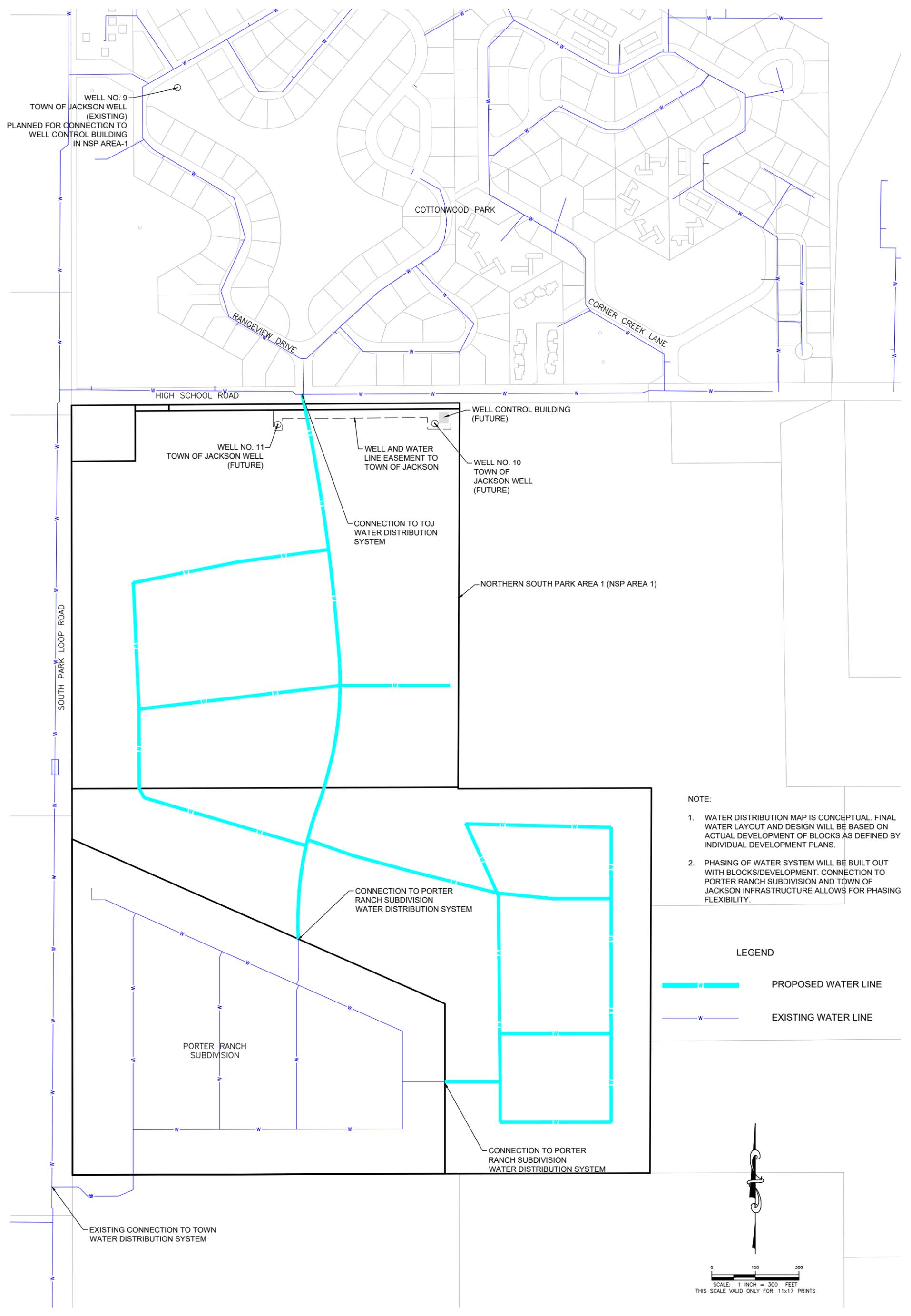
APPENDIX 2: Pedestrian Facilities



SHEET 2	PROJECT NUMBER 20030	DESIGNED BY: JK	SHEET TITLE: APPENDIX 2 PEDESTRIAN FACILITIES
		REVIEWED BY: TK	PROJECT TITLE: NORTHERN SOUTH PARK AREA 1 MASTER SITE PLAN TETON COUNTY, WY
PLAN VERSION	DATE		
MSP	10/14/2024		

JORGENSEN
JACKSON, WYOMING
307.733.5150
www.jorgeng.com

APPENDIX 3: Water Distribution



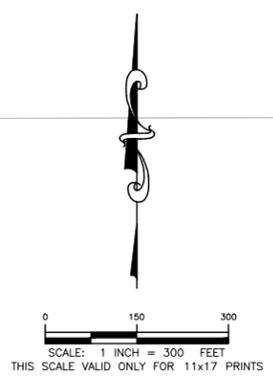
NOTE:

1. WATER DISTRIBUTION MAP IS CONCEPTUAL. FINAL WATER LAYOUT AND DESIGN WILL BE BASED ON ACTUAL DEVELOPMENT OF BLOCKS AS DEFINED BY INDIVIDUAL DEVELOPMENT PLANS.
2. PHASING OF WATER SYSTEM WILL BE BUILT OUT WITH BLOCKS/DEVELOPMENT. CONNECTION TO PORTER RANCH SUBDIVISION AND TOWN OF JACKSON INFRASTRUCTURE ALLOWS FOR PHASING FLEXIBILITY.

LEGEND

 PROPOSED WATER LINE

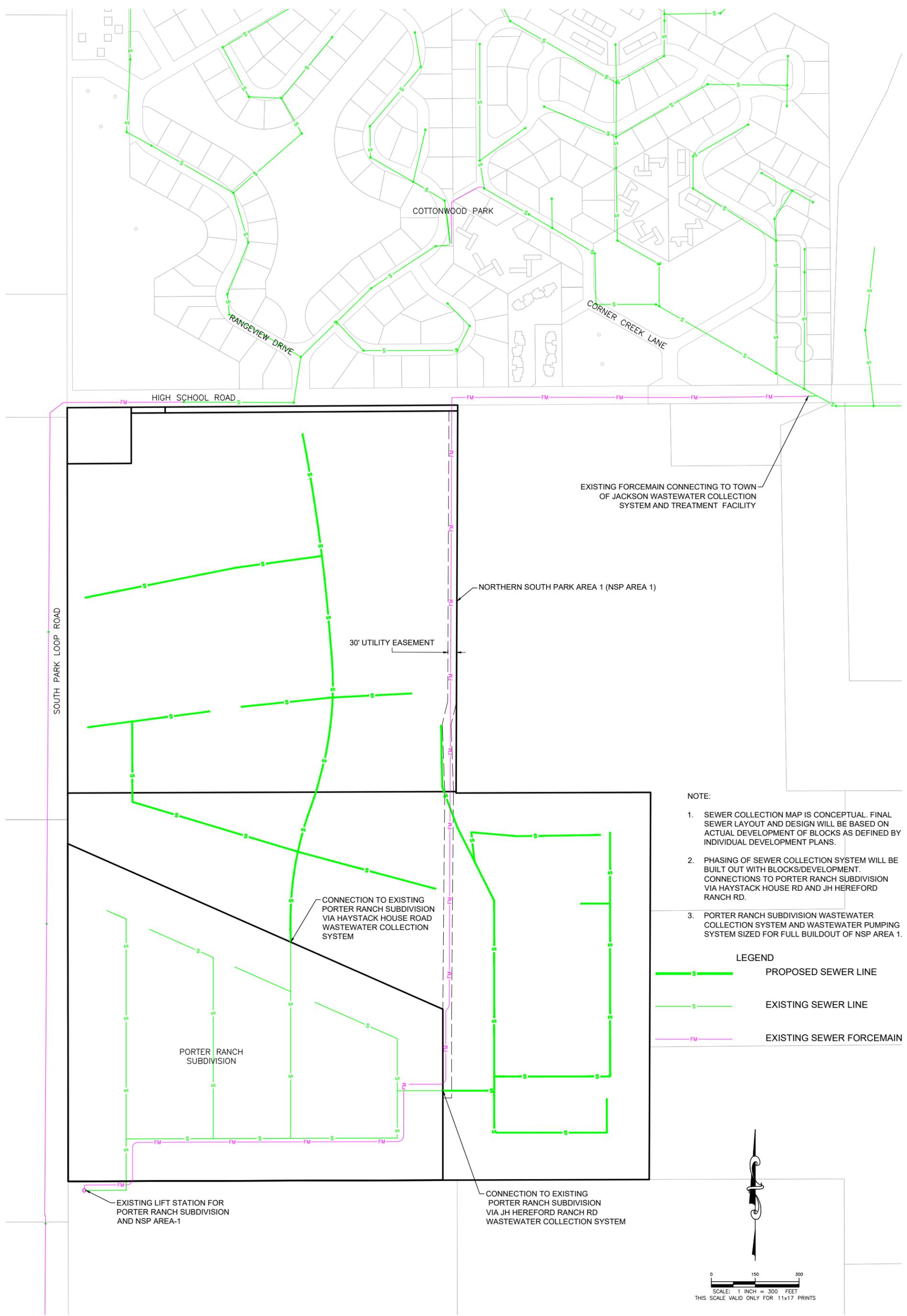
 EXISTING WATER LINE



SHEET 3	PROJECT NUMBER 20030	DESIGNED BY: JK	SHEET TITLE: APPENDIX 3 WATER DISTRIBUTION
		REVIEWED BY: TK	PROJECT TITLE: NORTHERN SOUTH PARK AREA 1 MASTER SITE PLAN TETON COUNTY, WY
PLAN VERSION NSP	DATE 10/14/2024		



APPENDIX 4: Sewer Collection



EXISTING FORCEMAIN CONNECTING TO TOWN OF JACKSON WASTEWATER COLLECTION SYSTEM AND TREATMENT FACILITY

NORTHERN SOUTH PARK AREA 1 (NSP AREA 1)

30' UTILITY EASEMENT

CONNECTION TO EXISTING PORTER RANCH SUBDIVISION VIA HAYSTACK HOUSE ROAD WASTEWATER COLLECTION SYSTEM

PORTER RANCH SUBDIVISION

EXISTING LIFT STATION FOR PORTER RANCH SUBDIVISION AND NSP AREA-1

CONNECTION TO EXISTING PORTER RANCH SUBDIVISION VIA JH HEREFORD RANCH RD WASTEWATER COLLECTION SYSTEM

NOTE:

1. SEWER COLLECTION MAP IS CONCEPTUAL. FINAL SEWER LAYOUT AND DESIGN WILL BE BASED ON ACTUAL DEVELOPMENT OF BLOCKS AS DEFINED BY INDIVIDUAL DEVELOPMENT PLANS.
2. PHASING OF SEWER COLLECTION SYSTEM WILL BE BUILT OUT WITH BLOCKS/DEVELOPMENT. CONNECTIONS TO PORTER RANCH SUBDIVISION VIA HAYSTACK HOUSE RD AND JH HEREFORD RANCH RD.
3. PORTER RANCH SUBDIVISION WASTEWATER COLLECTION SYSTEM AND WASTEWATER PUMPING SYSTEM SIZED FOR FULL BUILDOUT OF NSP AREA 1.

LEGEND

- S— PROPOSED SEWER LINE
- S— EXISTING SEWER LINE
- FM— EXISTING SEWER FORCEMAIN

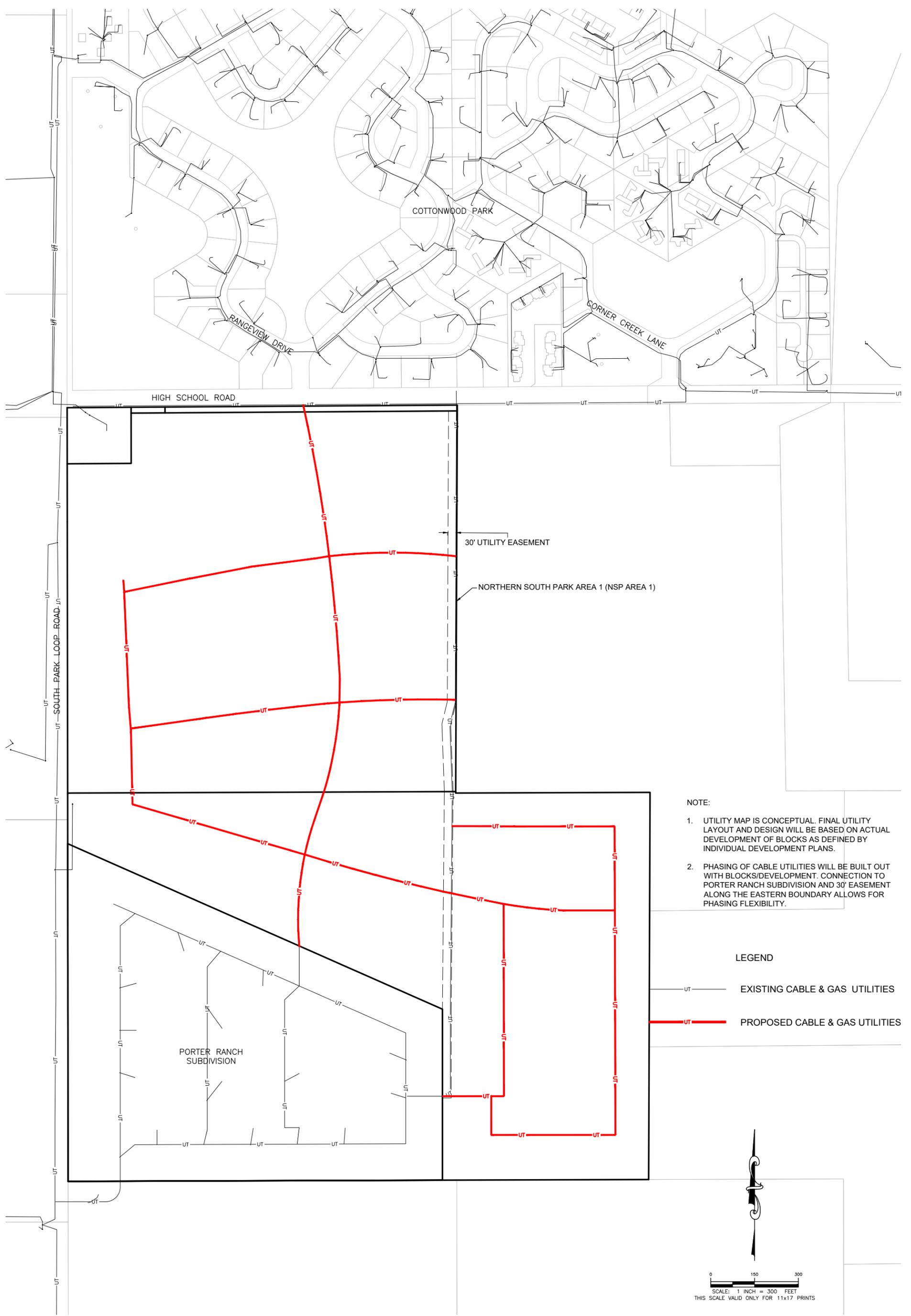


SCALE: 1 INCH = 300 FEET
THIS SCALE VALID ONLY FOR 11x17 PRINTS

SHEET 4	PROJECT NUMBER 20030	DESIGNED BY: JK	SHEET TITLE: APPENDIX 4 SEWER COLLECTION
		REVIEWED BY: TK	PROJECT TITLE: NORTHERN SOUTH PARK AREA 1 MASTER SITE PLAN TETON COUNTY, WY
PLAN VERSION	DATE	DATE	
MSP	10/14/2024		



APPENDIX 5: Cable Utility Infrastructure

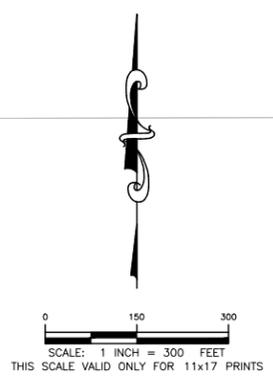


- NOTE:
1. UTILITY MAP IS CONCEPTUAL. FINAL UTILITY LAYOUT AND DESIGN WILL BE BASED ON ACTUAL DEVELOPMENT OF BLOCKS AS DEFINED BY INDIVIDUAL DEVELOPMENT PLANS.
 2. PHASING OF CABLE UTILITIES WILL BE BUILT OUT WITH BLOCKS/DEVELOPMENT. CONNECTION TO PORTER RANCH SUBDIVISION AND 30' EASEMENT ALONG THE EASTERN BOUNDARY ALLOWS FOR PHASING FLEXIBILITY.

LEGEND

— UT — EXISTING CABLE & GAS UTILITIES

— UT — PROPOSED CABLE & GAS UTILITIES



PROJECT NUMBER	20030
SHEET	5
DESIGNED BY:	JK
REVIEWED BY:	TK
PLAN VERSION	
DATE	10/14/2024
MSP	

SHEET TITLE:
APPENDIX 5 CABLE UTILITY INFRASTRUCTURE

PROJECT TITLE:
**NORTHERN SOUTH PARK AREA 1
 MASTER SITE PLAN
 TETON COUNTY, WY**



APPENDIX 6: Traffic Impact Study

Fasching Consulting



October 30th, 2024

Mr. Thomas Kirsten, PE
Senior Principal Engineer
Jorgensen
1315 Highway 89 S., Suite 201
PO Box 9550
Jackson, WY 83002

**RE: Traffic Impact Study
Northern South Park Area 1 Master Site Plan**

Dear Mr. Kirsten:

This traffic impact study provides transportation information and analysis, including the foundation for a Transportation Demand Management Plan (TDM) for the North South Park (NSP) Area 1. The proposed master site plan is located on the southeast corner of High School Road and South Park Loop Road in Teton County. The Jackson Town limits boarder the northern boundary of the site. **Figure 1** shows its location.

Residential uses are planned, and the exact number of units is to be determined in subsequent phases of the entitlement process. For purposes of this study, 572 units is a reasonable level of development, based on input from the applicant's planning team. Access to the site is planned onto High School Road directly across from Rangeview Drive and onto South Park Loop Road at two locations approximately 675 feet and 1125 feet south of High School Road. Consistent with the West Jackson Subarea Transportation Plan, the southern access is intended to accommodate a future east-west connecting road through the area (discussed later in this study). Two Roadway connections into the adjacent Porter Ranch residential development are also part of the plan.

This study is intended to meet the Northern South Park Incentive Overlay and Development Standards. Specifically, this letter-report is intended to fulfill the first major step of the development procedure with respect to the Master Site Plan. Subsequent development steps will entail additional traffic analysis studies, as appropriate.

AREA STUDIES

Several other transportation studies in the area have helped inform this traffic impact study which include:

- West Jackson Subarea Transportation Plan prepared by Mead & Hunt, dated June 20, 2024
- CWC Traffic Impact Study prepared by Jorgensen, dated March 20, 2024
- Suburban Residential Development Traffic Impact Study prepared by Felsburg Holt & Ullevig, dated August 2022

Of most significance is the West Jackson Subarea Plan since it is the most recent and documents future objectives and planned improvements for the area (while encompassing the proposed development). The West Jackson Subarea Plan considered future development levels for the entire Northern South Park area (Areas 1 and 2), assuming it would reach 1400 dwelling units. The level of NSP Area 1 development is approximately 40 percent of this total.

The key recommendations in the vicinity of the site presented in the West Jackson Subarea Transportation Plan include:

- Consider ultimately constructing a roundabout intersection or installing a signal at the High School Road/South Park Loop Road intersection as well as a westbound right turn lane. If a traffic signal is to be installed, a southbound left turn lane is to be added. This is the recommendation regardless of an east-west connector road being ultimately constructed.
- At the High School Road/Middle School Road, install a roundabout or a signal and include two through-lanes in each direction plus a center left turn lane along all approaches. However, no improvements would be needed if an east-west connector road is ultimately constructed.
- At the High School Road/High School Road East Access, install a roundabout or a signal and include two through-lanes in each direction plus a westbound center left turn lane if signalized. However, no improvements would be needed if an east-west connector road is ultimately constructed.
- At the High School Road/Gregory Lane intersection, install a roundabout or a signal and include two through-lanes in each direction plus a center eastbound left turn lane and a southbound right turn lane. This is the recommendation regardless of an east-west connector road being ultimately constructed.
- At High School Road/US 89, construct an eastbound right turn along High School Road. This is the recommendation regardless of an east-west connector road being ultimately constructed.

- Construct a pathway along both sides of High School Road from South Park Loop Road east to Middle School Road.
- Improve the existing START bus stop on the north side of High School Road (located just west of the Rangeview Drive intersection) so as to include a paved waiting area and in conjunction with the future pathway. Also, that study recommends adding a bench and a trash can.

EXISTING CONDITIONS

Land Use

Area 1 is currently vacant, other than agricultural use. To the north across High School Road is single-family residential development and a church right on the northeast corner of High School Road and South Park Loop Road; multi-family housing also exists nearby roughly 500 feet east of Area 1 (also on the north side of High School Road).

Vacant land exists immediately east of the site, and Jackson Hole High School is located beyond that approximately one-quarter mile east of the site. Southwest of the site is the Porter Ranch Subdivision that is under construction which is planned to contain 79 single-family detached units and will connect to Area 1 via local roads.

Roadways

The existing transportation system adjacent to the development proposal includes two roadways described below.

- **High School Road** – This two-lane east-west road (north of the site) extends from US 89 to South Park Loop Road. The roadway is posted at 25 mph. A signal exists at its intersection with US 89, and an All-Way Stop-Control (AWSC) is located at its intersection with Middle School Road, and a side-street-stop is located at its intersection with South Park Loop Road.
- **South Park Loop Road** – This is a two-lane half-circle roadway along the western portion of the site. It changes direction from north-south to east-west at W Boyles Hill Road to the north and at Shootin Iron Ranch Road to the south, connecting back to US 89. The posted speed limit along this roadway's length varies, but it is 40 MPH adjacent to Area 1 in the southbound direction, and 30 MPH northbound.
- **US 89** - This is a four-lane state highway located approximately 0.8 miles east of the site. This is a regional highway that has a posted speed of 55 MPH south of High School Road southbound and 40 MPH northbound. Its intersection with High School Road is signalized.

Multi-Modal

A regional pathway for bicycles and pedestrians exists along the west side of South Park Loop Road across from this site extending north and south while paralleling the roadway.

Along High School Road, bike lanes are provided along both side of the roadway. Sidewalks do not currently exist along either roadway adjacent to the site. Along US 89, a regional pathway is provided along the west side.

Transit service is currently provided to the area via START system. Two routes currently serve the one bus stop in the area located on the north side of High School Road near Rangeview Drive. As part of the Porter Ranch development, an easement for START use was provided to accommodate a possible future bus stop along South Park Loop Road.

Existing Traffic Volumes

The previously mentioned past studies were reviewed with respect to existing daily traffic information. Again, the West Jackson Subarea Transportation Plan was the primary source for data. A significant amount of traffic count data was provided in that report's appendix which including 8.5 hours-worth of turning movement counts at numerous intersections, including intersections along High School Road.

Existing daily traffic volumes are presented on **Figure 2**. The adjacent roadways generally serve 2,000 to 7,000 vehicles per day (vpd). The planning-level daily capacity of a two-lane collector roads (the West Jackson Subarea Transportation plan identifies these adjacent roads as major collectors) is on the order of 8,000 to 12,000 vpd, so both adjacent roadways are serving traffic demand well within their classification capacities. Four-lane highways like US 89 tend to reach their capacity at approximately 30,000 to 35,000 vehicles per day, and US 89 serves 25,000 vpd north of High School Road.

FUTURE CONDITIONS

NSP Area 1 is proposed to be comprised of a mix of units. While the exact number of homes is impossible to determine until development occurs, the following reflects a reasonable estimate of each unit type based on the Area 1 Master Site Plan application submittal:

- 447 multi-family units
- 69 single-family detached units
- 56 duplex units.

Daily vehicular trip generation estimates associated with the development are shown in **Table 1**. The Institute of Transportation Engineers' Trip Generation, 11th Edition, was used in estimating daily trips. This reference provides trip generation rates per unit as well as best-fit curve statistical equations for land uses in which an adequate supply of data are provided. Both were considered in this analysis, and where the rates yielded lower results, equations were used (otherwise rates were used).

Daily traffic is the primary focus of this study, but **Table 1** also shows peak hour trip generation results to eventually assess transportation demand management (TDM) considerations offered later in this study. No TDM measures have been applied in the **Table 1** vehicular trip estimates.

Table 1 - Hereford Ranch Vehicular Trip Generation Estimates*

Land Use	Daily Trip Generation Equation or Rate	AM Peak Hour Generation Equation or Rate	In/Out % or Trips	PM Peak Hour Generation Equation or Rate	In/Out %'s
Multi-Family (ITE Code 220)	6.74 / DU	0.40 / DU	24/76	0.51 / DU	63/37
Single-Family Detached (ITE Code 210)	$\text{Ln}(T) = 0.92$ $\text{Ln}(X) + 2.68$	$\text{Ln}(T) = 0.91$ $\text{Ln}(X) + 0.12$	25/75	$\text{Ln}(T) = 0.94$ $\text{Ln}(X) + 0.27$	63/37
Duplexes (SFA; ITE Code 215)	7.20 / DU	0.48 / DU	25/75	0.57 / DU	28/72
Multi-Family 447 DU's	3013	179	43/136	228	144/84
Single Family 69 DU's	717	53	13/40	70	44/26
Duplexes 56 DU's	403	27	7/20	32	19/13
Totals	4133	259	63/196	330	207/123

*No TDM Reduction applied. Rates are shown when results exceed those of the equations, and vice versa.

Build-out of the Area 1 could generate approximately 4,133 trips per day. This is an upper limit since it does not include any Transportation Demand Management (TDM) measures that will reduce vehicular trip-making (provided later in this study).

The project's specific traffic impact onto the network entails estimating the trip distribution, that is, an estimate as to where the above trips are traveling to/from through the immediate area. Distribution percentages are dependent upon the location of the destinations within the area/region. They are also based on the transportation roadway network, and there are two possible roadway network enhancements that would affect trip distribution.

- One is the possibility of an east-west connection roadway, paralleling High School Road to its south. The West Jackson Subarea Transportation Plan presents this roadway as extending from South Park Loop Road to US 89 (which is referred to as a Full Connection), OR to the High School Road/Gregory Lane intersection (referred to as a Partial Connection). The exact alignment of either option is subject to future planning of the area, and easements are required, as appropriate, for approval of master site plans. For purposes of this traffic assessment, it is assumed that the connection would NOT occur in either form; this results in higher traffic projections along High School Road.
- The second network enhancement that is being considered is the Tribal Trail Connection up to State Highway 22. This would provide the area with an alternative means of ingress and egress without relying on US 89, and it would also provide a more direct

route to Teton Village. This connection is assumed to be in place over the long-term for purposes of this assessment since it would lead to a greater amount of projected traffic along South Park Loop Road and along High School Road near their intersection (slightly less along High School Road near US 89).

Given the above and reviewing the various transportation reports mentioned, the following trip distribution percentages are assumed for purposes of this assessment.

- 25 percent to/from the north via South Park Loop Road
- 15 percent to/from the south via South Park Loop Road
- 60 percent to/from the east via High School Road, broken out further as follows
 - 10 percent to/from destinations along High School Road
 - 40 percent to/from the north on US 89
 - 10 percent to/from the south on US 89

High School Road, being the most direct connection to the regional US 89 highway, is anticipated to serve the majority of this site's traffic. South Park Loop Road to the north of the site is anticipated to be the next highest in serving the site given the assumption of the Tribal Trail connection to Highway 22 being in place. Again, an east-west connection to US 89 would tend to reduce the percentage being assigned onto High School Road, and to a lesser degree onto South Park Loop Road, but that connection is not assumed in this study.

Applying the above percentages to the trip estimates of **Table 1** and taking into account the site access roads onto High School Road and onto South Park Loop Road, the project-only daily traffic has been estimated and is included on **Figure 2** (along with other daily traffic data). Area 1's greatest impact will be on High School Road east of the site where 2,480 vpd of project traffic is estimated, dropping to 2070 vpd just west of US 89.

The long-term traffic projections are also shown on **Figure 2**. These projections are based on information provided in the West Jackson Subarea Transportation Plan, but that plan did not specifically show projections (daily or peak hour) for a scenario in which there is no East-West connection and there IS a Tribal Trail connection to State Highway 22. Judgement was made based on the projections that were shown for all the other connection combinations in the West Jackson Subarea Transportation Plan. The US 89 traffic volume projections were developed by applying a one percent annual growth factor to the existing US 89 traffic volumes. The results of this effort and judgment culminated in the long-term daily traffic projections included on **Figure 2**.

South Park Loop Road is shown to potentially serve between 4,500 and 7,500 vehicles per day, and High School Road is estimated to serve up 8,000 vehicles per day east of Area 1, increasing to 18,000 just west of US 89. US 89 traffic could reach 32,000 vehicles per day in the long-term north of High School Road. The projected long-term daily traffic volumes exceed the sum of the existing and Area 1's traffic, **suggesting there is still "reserve" reflecting other growth in the area**. This comparison also suggests that the level of development being considered in Area 1 is not out of alignment with that assumed in the West Jackson Subarea Transportation Plan from a vehicular trip-making perspective.

TRANSPORTATION DEMAND MANAGEMENT (TDM)

The traffic projections shown in this study do not incorporate any TDM measures that could be implemented as part of the development to remain conservative with respect to traffic impacts. The Area 1 Master Plan incorporates the same philosophies that informed the Porter Ranch site planning, namely:

- Robust internal connectivity (between “blocks” designated in the Master Site Plan)
- Sidewalks along both sides of all internal streets
- Connectivity to the regional pathway facilities, particularly the Jackson Hole Community Pathway system along the west side of South Park Loop Road

A TDM plan is included with the Area 1 Master Site Plan application. The Teton County Transportation Impact Study Guidelines contain a menu of TDM options that will be applied to Area 1 to encourage residents to use non-auto options, some of which include:

- Bike Lanes along select internal roadways
- Internal pedestrian accommodation
- Pedestrian/bicycle connections to High School Road and to the regional pathway system trail along the west side of South Park Loop Road
- Constructing a path along the east side of South Park Loop Road
- Manage and/or limit vehicular parking
- Accommodation of transit service through Area 1

TRANSPORTATION NEEDS

This assessment confirmed that the West Jackson Subarea Transportation Plan remains valid and accounted for this level of development of Area 1 at the location in which it is proposed. The ultimate findings and improvements of that plan remain valid, which include:

- Consider ultimately constructing a roundabout intersection or installing a signal at the High School Road/South Park Loop Road intersection and a westbound right turn lane. If a traffic signal is installed, add a southbound left turn lane. This is the ultimate recommendation regardless of an east-west connector road being ultimately constructed.
- At the High School Road/Middle School Road, install a roundabout or a signal and include two through-lanes in each direction plus a center left turn lane along all approaches. However, no improvements are to be completed if an east-west connector road is ultimately constructed.
- At the High School Road/High School Road East Access, install a roundabout or a signal and include two through-lanes in each direction plus a westbound center left turn lane if signalized. However, no improvements are to be completed if an east-west connector road is ultimately constructed.

- At the High School Road/Gregory Lane intersection, install a roundabout or a signal and include two through-lanes in each direction plus a center eastbound left turn lane and a southbound right turn lane. This is the ultimate recommendation regardless of an east-west connector road being ultimately constructed.
- At the High School Road/US 89 intersection, adding an eastbound right turn lane is the recommendation, regardless of an east-west connector road being ultimately constructed.
- Construct a pathway (beyond the existing bike lanes) along both sides of High School Road from South Park Loop Road east to Middle School Road.
- Improve the existing START bus stop on the north side of High School Road (located just west of the Rangeview Drive intersection) so as to include a paved waiting area and in conjunction with the future pathway. Also, add a bench and a trash can.

The West Jackson Subarea Transportation Plan also identifies AM peak hour traffic thresholds in which the improvements should be implemented. At the South Park Loop/High School Road intersection, the threshold is identified at 980 trips (total entering plus departing the intersection) during the AM peak hour. Currently, there are approximately 620 trips passing through this intersection during the AM peak hour (based on a table shown in the West Jackson Subarea Transportation Plan which counted each vehicle twice, once entering and once departing). From the assessment-level work conducted here, the development of Area 1 could add 130 to 140 AM peak hour trips through this intersection (again reflecting a double-counting of entering and departing). **Area 1 alone will not cause this intersection to reach the 980 AM peak hour trip threshold.**

The triggers and impact at the other High School Road intersections to the east (based on information shown in the West Jackson Subarea Transportation Plan) are as follows:

- The High School Road/Middle School Road improvements are triggered at 1110 AM peak hour movements. 850 exist today. The buildout of Area 1 will add 150 to 160 AM peak hour trips through this intersection.
- The High School Road/High School Road East Access improvements are triggered at 1390 AM peak hour movements. 880 exist today. The buildout of Area 1 will add 140 to 150 AM peak hour trips through this intersection.
- The High School Road/Gregory Lane intersection improvements are triggered at 1230 AM peak hour movements. 950 exist today. The build out of Area 1 will add 130 to 140 AM Peak hour trips through this intersection.
- The High School Road/ US 89 intersections improvement does not have a specific trigger. 2300 AM peak hour trips exist today. The build out of Area 1 will add 120 to 130

AM peak hour trips through this intersection, increasing this intersection's total AM peak hour traffic by 5 to 6 percent.

So, the recommendations remain valid once the thresholds are reached. One other roadway improvement that may be appropriate is the addition of a westbound center left turn lane at the development access road intersection onto High School Road (opposite Rangeview Drive). This access could serve 2600 trips per day and the vast majority of this traffic will be oriented to/from the east, creating a relatively heavy left turn movement into the site during the PM peak hour. The need for this left turn lane could be reassessed depending on the level of Area 1 development and whether an east-west connecting road is established through the area.

The east-west connection road would relieve High School Road, precluding some of the identified improvements along High School Road. It would also delay certain traffic thresholds from being reached before certain improvements would need to be constructed. The NSP Area 1 Master Site Plan is providing the required right-of-way for its portion of the potential future roadway; the master plan is accommodating of and planning for this roadway. Its ultimate construction is entirely subject to the development of Area 2 and the willingness of the landowner of Area 2 to grant an easement and construct the roadway on Area 2.

SUMMARY AND RECOMMENDATIONS

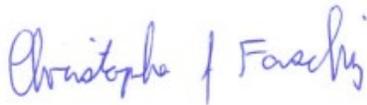
The following provides a summary of the findings and recommendations as a result of the high-level traffic assessment.

- West Jackson Subarea Transportation Plan had captured the effects of the proposed development of Area 1, and this development proposal does not suggest those recommendations would need to be altered. Pertaining to this area, those recommendations included:
 - Consider ultimately constructing a roundabout intersection or installing a signal at the High School Road/South Park Loop Road intersection, and add a westbound right turn lane. If a traffic signal is installed, add a southbound left turn lane. This is the ultimate recommendation regardless of an east-west connector road being ultimately constructed.
 - At High School Road/Middle School Road, install a roundabout or a signal and include two through-lanes in each direction plus a center left turn lane along all approaches. However, no improvements are to be completed if an east-west connector road is ultimately constructed.
 - At High School Road/East High School access, install a roundabout or a signal and include two through-lanes in each direction plus a westbound center left turn lane if signalized. However, no improvements are to be completed if an east-west connector road is ultimately constructed.

- At the High School Road/Gregory Lane intersection, install a roundabout or a signal and include two through-lanes in each direction plus a center eastbound left turn lane and a southbound right turn lane. This is the ultimate recommendation regardless of an east-west connector road being ultimately constructed.
 - At High School Road/US 89, install an eastbound right turn lane, regardless of an east-west connector road being ultimately constructed.
 - Construct a pathway along both sides of High School Road from South Park Loop Road east to Middle School Road.
 - Improve the existing START bus stop on the north side of High School Road (located just west of the Rangeview Drive intersection) so as to include a paved waiting area and in conjunction with the future pathway. Also, add a bench and a trash can.
- The additional peak hour traffic estimated to be generated by the Area 1 development alone will not trigger the improvement thresholds along High School Road as defined in the West Jackson Subarea Transportation Plan.
 - Without any TDM measures, the development of Area 1 is estimated to generate 4133 trips per day at build out. Implementing TDM measures would reduce the development's trip-making. The Area 1 Master Site Plan application includes a TDM plan which will lower this daily trip estimate.
 - A westbound center left turn lane along High School Road may be appropriate in the future to serve Area 1's access road across from Rangeview Drive.

If you have any questions, please feel free to call.

Sincerely,
Fasching Consulting, LLC



Christopher J. Fasching, PE
President/Owner

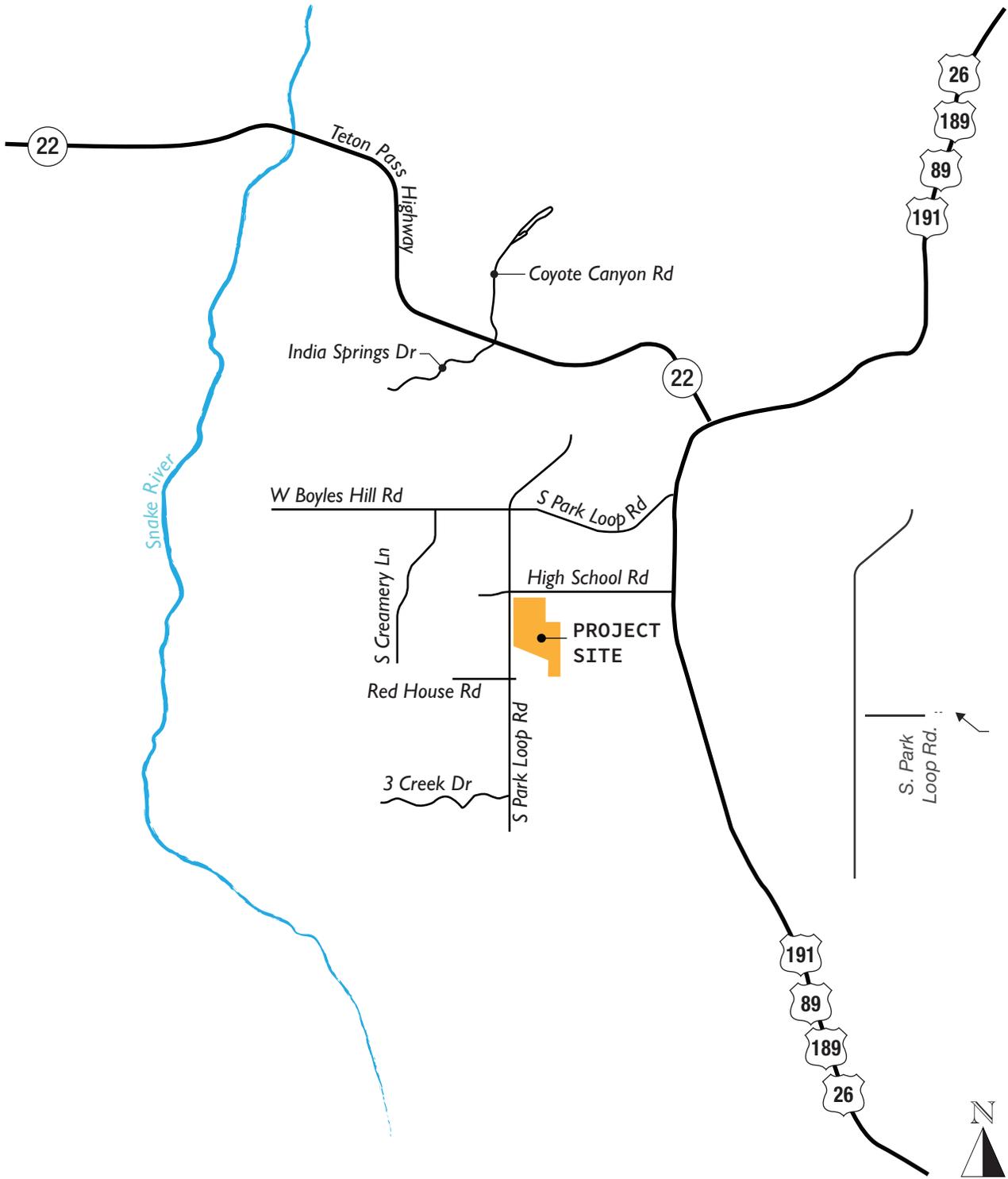
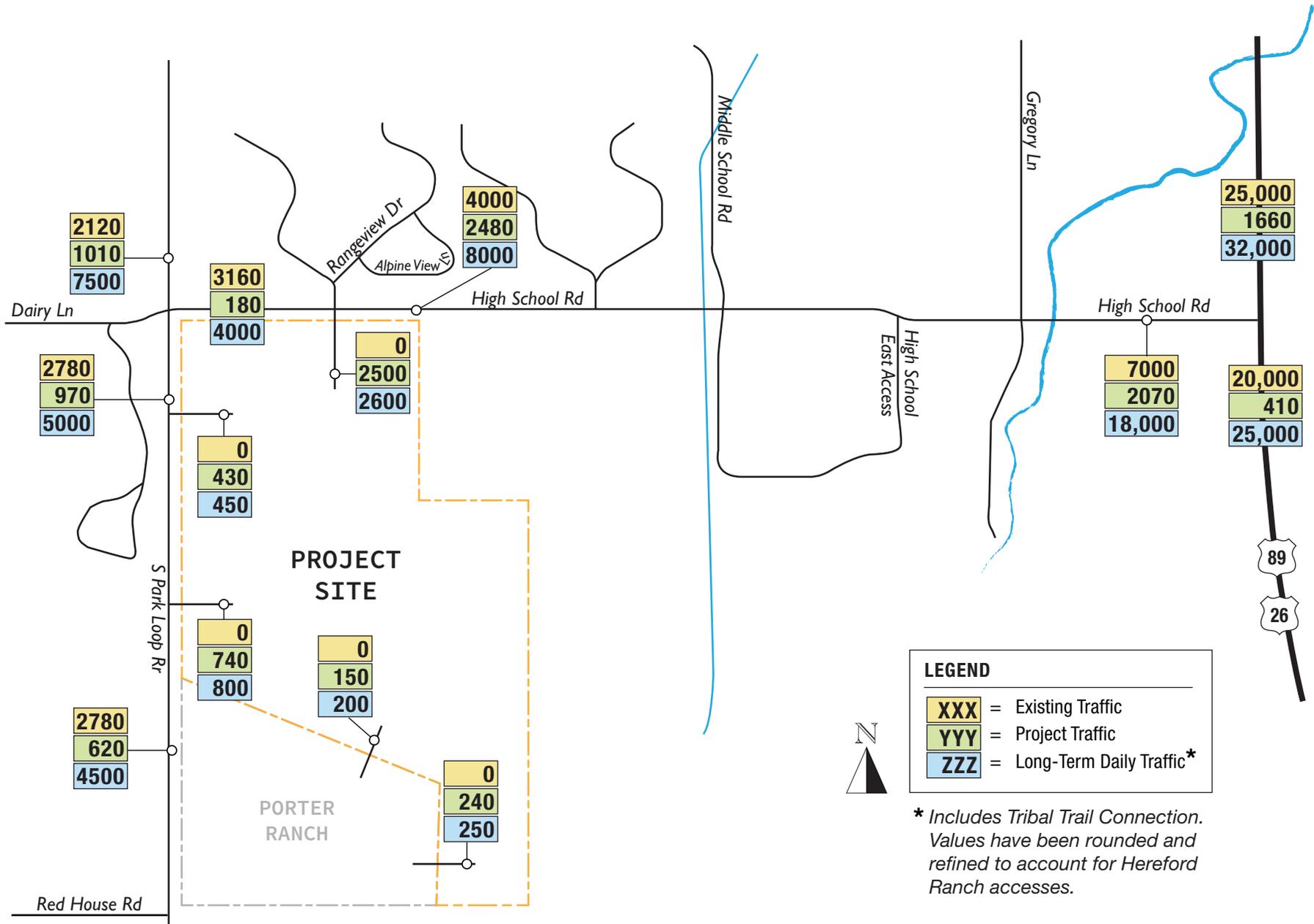


Figure 1
Vicinity Map



LEGEND

- XXX** = Existing Traffic
- YYY** = Project Traffic
- ZZZ** = Long-Term Daily Traffic*

* Includes Tribal Trail Connection. Values have been rounded and refined to account for Hereford Ranch accesses.

Figure 2
Average Daily Traffic

APPENDIX 7: Geotechnical Engineering Report



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October 27, 2022

JHHR Holdings 1 LLC
C/O Jason Wells & Sam Zuckerman
2505 Shootin' Iron Ranch Road
Jackson, WY 83001
Transmittal via email: jasonwells@hotmail.com & sam@zuckermanjh.com

**RE: GEOTECHNICAL ENGINEERING REPORT: SITE CHARACTERIZATION, JACKSON HOLE HEREFORD RANCH, 2505 SHOOTIN' IRON RANCH ROAD, TETON COUNTY, WYOMING
PROJECT NO: 22414**

Dear Mr. Wells and Mr. Zuckerman,

We are pleased to present this report of our geotechnical investigation for the proposed new Jackson Hole Hereford Ranch subdivision at 2505 Shootin' Iron Ranch Road in Teton County, Wyoming. This report describes site conditions observed during the investigation and presents engineering analyses for the proposed building of infrastructure necessary to form the future subdivision (e.g., roads and utilities).

In summary, the site is generally underlain by sandy gravels and cobbles identified as alluvium, which is expected to be a suitable load bearing layer for typical residential infrastructure. Groundwater was observed in all test pits between 3.3 and 8.7 feet below ground surface. Groundwater monitoring standpipe piezometers were installed in six of the nine test pits to facilitate monitoring during seasonal runoff in 2023.

If you have any questions about this report, or if we may provide other services to you, please contact us. As the project progresses, we will be available to answer questions.

Respectfully submitted,

JORGENSEN GEOTECHNICAL, LLC

Marlie Schell
Geotechnical Design Engineer

Colter H. Lane, P.E.
Geotechnical Project Manager

**Geotechnical Engineering Report:
Site Characterization
2505 Shootin' Iron Ranch Road
Teton County, Wyoming**



Prepared for:

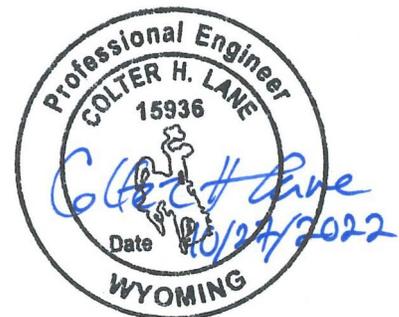
**JHHR Holdings 1 LLC
C/O Jason Wells & Sam Zuckerman
2505 Shootin' Iron Ranch Road
Jackson, WY 83001**

Prepared by:



JORGENSEN
GEOTECHNICAL, LLC

**PO Box 9550
Jackson, WY 83002**



October 27, 2022

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- Appendix A: Test Pit Logs
- Appendix B: Laboratory Testing Results

1.0 INTRODUCTION

Jorgensen Geotechnical (JG) conducted a geotechnical investigation for the proposed development of the Jackson Hole Hereford Ranch subdivision located at 2505 Shootin' Iron Ranch Road in Teton County, Wyoming (Figure 1). The purposes of the investigation were to observe soil and groundwater conditions, install standpipe piezometers for future groundwater monitoring, evaluate soil-engineering properties, and to provide recommendations to support the design and construction of infrastructure for the future subdivision. The scope of services included excavating and logging nine exploratory test pits, installing six standpipe piezometers, performing engineering analyses, and furnishing this Site Characterization Report.

2.0 PROPOSED CONSTRUCTION

Jorgensen Geotechnical understands that the proposed subdivision includes subdividing multiple lots. Infrastructure improvement, including roads and water, sewer, and electrical utilities, will be completed by the developer. We understand individual lot owners will be responsible for their own residential development. Analysis and recommendations in this report are limited to the infrastructure improvements and are not sufficient for building design.

3.0 INVESTIGATION PROCEDURES

3.1 Field Investigation

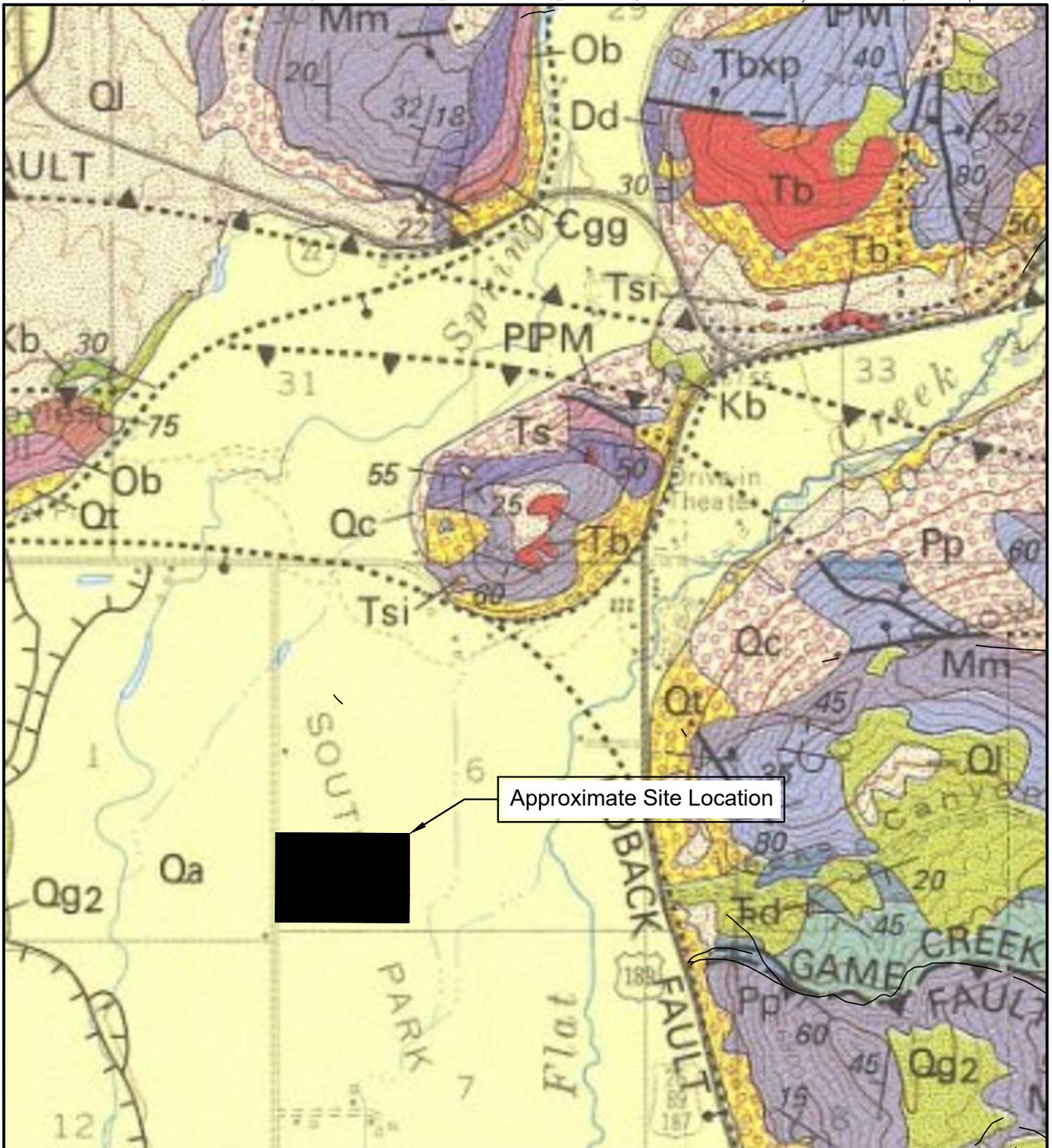
The field investigation was conducted on September 22, 2022. Nine test pits were excavated to depths ranging from 6.2-ft to 8.7-ft below the ground surface (bgs) using a John Deere 310SJ Backhoe. Soil type, thickness, consistency, and relative moisture content were observed and documented by a Jorgensen geotechnical engineer. Although relatively consistent, actual soil conditions may differ from those represented in the exploration logs as they represent observations at discrete locations. The approximate test pit locations are shown on Figure 2, and detailed test pit logs are presented graphically in Appendix A.

3.2 Laboratory Analysis

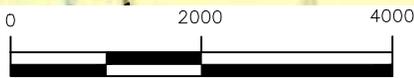
Three bulk samples were analyzed by SK Geotechnical in Billings, MT. These included samples within the two layers of silty gravel with sand that were observed at the project site. To characterize the entire spectrum of particle size distribution, a hydrometer analysis and a grain size analysis with #4 through #200 sieves were performed. In addition to examining grain size, both moisture and plasticity were analyzed in the bulk samples. Complete lab results and gradation curves can be seen Appendix B.

3.3 Report Preparation

This report describes the geologic site conditions and includes a site location and geologic map (Figure 1) and provides engineering analyses and recommendations for construction of roads and utilities necessary for the subdivision.



Approximate Site Location



SCALE: 1 INCH = 2000 FEET

THIS SCALE VALID ONLY FOR 8.5x11 PRINTS

Map symbols: Qa - Alluvium - stream and river deposits

From Love et. al, Geologic Map of Grand Teton National Park, 1992

DRAFTED BY:	MS
REVIEWED BY:	CHL
PROJECT NUMBER	20030

SHEET TITLE:
Figure 1
 Site Location and
 Geologic Map

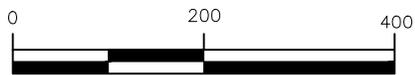
PROJECT TITLE:
 Geotechnical Site Investigation
 2505 Shootin' Iron Ranch Road
 Teton County, Wyoming



JORGENSEN
 Geotechnical, LLC
 307-733-5150 www.jorgeng.com



Proposed plan from Jorgensen Associates dated October 8, 2022
Image: Accessed from Teton County MapServer on October 8, 2022.



SCALE: 1 INCH = 200 FEET
THIS SCALE VALID ONLY FOR 8.5x11 PRINTS

Test pit locations were mapped using a professional-grade sub-meter, real-time corrected GPS unit.

DRAFTED BY:	MS
REVIEWED BY:	CHL
PROJECT NUMBER	20030

SHEET TITLE:	Figure 2
	Test Pit Location Map

PROJECT TITLE:	Geotechnical Site Investigation
	2505 Shootin' Iron Ranch Road
	Teton County, Wyoming



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4.0 SITE CONDITIONS

4.1 Description

Hereford Ranch is at the intersection of High School Road and South Park Loop in Jackson, Wyoming. The site is situated south along South Park Loop on relatively flat ground, at an approximate elevation range of 6,110 to 6,116 feet above mean sea level (AMSL). The property is currently utilized for grazing cattle, on which a pivot irrigator is operated seasonally north of the proposed location of the future subdivision. To our knowledge, the site has never been developed for purposes other than agriculture.

4.2 Geology

The site is found on the Geologic Map of the Grand Teton National Park, Teton County, Wyoming (Love, et al., 1992), which is adapted as Figure 1. The map indicates the project site is covered by Quaternary aged alluvial deposits. Alluvial deposits are described as stream and river deposits and are typically dominated by medium to large cobbles in a sandy matrix. In general, observed site soils appear to be consistent with mapped geology.

Numerous Quaternary (i.e., relatively young and assumed active) faults have been mapped in Western Wyoming (Case, 1997; USGS, 2006), notably, the Teton and Phillips Valley fault systems which lie approximately 7 miles to the northwest of the project, respectively. Slip rates on both the Teton fault and the Phillips Valley fault are estimated to be between 0.2 mm/yr and 1.0 mm/yr. The project site is near many Class B and older faults (as seen in Figure 1), but they are believed to be either inactive or pose little geological threat.

4.3 Soils

In general, site soils consist of thin topsoil, poorly graded gravel with sand and silt, and a sandy gravel and cobble alluvium. Several alluvial layers were observed and described in the field, with varying amounts of sand and gravel. The topsoil layer was very moist to wet, dark brown, and medium dense to dense (or medium stiff to stiff, in the case of fine-grained topsoil), containing up to 10% gravel, 30-60% sand, and 30-70% fines (i.e., highly variable). It was generally observed from the surface to 0.4-ft bgs, with tiny roots and a high organic content.

Below the topsoil, four soil layers ranging from 0.2-ft to 4-ft bgs were observed that consist of gravel with sand and silt. These are discussed in the list below and outline the qualities of the soil that are important to address for the road construction. Each layer is classified according to the USCS and AASHTO classification systems. The AASHTO group classification is an estimate based on the portion of fine-grained material observed in each layer. Full soil descriptions of each are presented in the test logs in Appendix A.

- Silty sand (SM): Observed in JG-1, 0.6-ft thick. This layer contains 10% cobbles by volume, and 40% gravel, 40% sand, and 20% fines by mass. Based on the percentage of fine-grained material, this soil is estimated as A-2 in the AASHTO classification system. A-2 is considered "good" as a subgrade material.
- Silty-clayey gravel with sand (GC-GM): Observed in JG-1 and JG-2 and ranged from 1.4-ft to 1.8-ft thick. This layer has 20% cobbles by volume, and 40% gravel and 20-40% sand, and 20-30% fines by mass. The estimated AASHTO classification is A-2.

- Poorly graded gravel with silt and sand (GP-GM): Observed in test pits JG-3 through JG-9 and ranged in thickness from 0.8-ft to 1.7-ft. The composition contains 10-20% boulders and cobbles by volume, and 30-60% gravel, 20-30% sand, and 20-50% fines by mass. Due to the variable fines content, the AASHTO classification varies in several test pits. This gravel in JG-4 through JG-6, and JG-8 and JG-9 contain more fine material, so the AASHTO classification is estimated to be A-4 or A-5, which is considered "fair to poor" as a subgrade material. The remaining test pits with the layer are estimated as A-2. Pinhole voids and a micro-shattered structure was observed in this layer.
- Another layer of gravel with silt and sand was observed below the layer mentioned above. This was found in test pits JG-5 through JG-9 and ranged in thickness between 0.8-ft to 2.4-ft. This layer is estimated as A-2 in the AASHTO classification system. It differs from the above layer in that it generally had a higher percentage of cobbles (up to 50% by volume) and gravel (up to 70% by mass), and less fines by mass.

The deepest soil layers, cobbles and gravels with sand, were observed as shallow as 1.7-ft bgs in JG-2, and down to 8.7-ft in JG-3. The composition of the deeper alluvial soil was described as 50-65% rounded cobbles between 3 to 8 inches in diameter by volume, and approximately 70 to 80% gravel, 20 to 30% sand, and no fines by mass. Roots appeared to extend from the surface to approximately 3.2-4.8 ft, which can be an indication of high water levels. Test pit observations are described in detail and presented graphically in Appendix A.

4.4 Groundwater

Groundwater was observed in all nine test pits. Water was encountered at 3.3-ft bgs in JG-8, the eastern most test pit, to 8.7-ft bgs in JG-3, the most northern test pit. Surface groundwater and full irrigation ditches were observed less than 50 feet south and east of JG-8. Groundwater levels seem to be variable throughout the proposed subdivision location, with the eastern portion of the ranch having generally the highest observed groundwater and the north with the lowest as of September 2022. The eastern portion exhibits signs that groundwater may be high for a large portion of the year; e.g., visible marshy and denser vegetation than other locations on the ranch.

The local groundwater levels are expected to rise due to seasonal irrigation. During summer and autumn months the northern portion of the ranch is irrigated by a pivot irrigator. There are various sizes and orientations of irrigation ditches throughout the ranch. The easternmost ditches were filled with water during the September 2022 site investigation with the remaining dry. This may partially explain relatively higher groundwater conditions on the east side of the project.

Groundwater monitoring may be performed in spring of 2023. Groundwater monitoring standpipe piezometers allow site-specific groundwater levels and will be valuable in preparing for future utility construction. Measuring groundwater levels will also show the influence of irrigation at the project site. Piezometers were installed in six of the nine test pits on September 22, 2022. Four-inch slotted PVC was inserted into the deepest part of the test pit and gently backfilled with spoils. To prepare for the cattle in the future, each standpipe was cut between 0.6-ft and 1.5-ft above the ground surface and capped.

Groundwater levels, especially on the eastern portion of the site, will likely affect utility construction. If the groundwater level is high or at the surface during construction, it will be very difficult to backfill and compact appropriately. Secondly, when digging utility trenches, high groundwater will likely cause

sloughing of the sides of trenches. Depending on the time of year construction begins, dewatering may be required in order to prevent the subgrade soils from “pumping” during compaction and enable them to be compacted to a non-yielding condition. Alternatively, to avoid dewatering, earthwork activities should be planned between October and April when water levels are predicted to be lower.

4.5 Earthquakes and Seismicity

The project site is located within the Intermountain Seismic Belt, a zone of seismicity that extends from southern Utah through eastern Idaho, western Montana and western Wyoming (Smith and Arabasz, 1991). Predicted recurrence intervals for maximum credible earthquakes have passed for most of the fault systems capable of generating magnitude 7.5 events in western Wyoming (Case, 1997), implying the risk of major earthquakes is relatively high.

Ground motion accelerations should be derived for the project site in accordance with the general procedure defined in the International Building Code (IBC). The IBC references ASCE 7-16 to determine the ground motion accelerations. Based on subsurface soils, mapped geology, and our experience in the area, the site may be classified as Site Class D (“Stiff Soil”).

4.6 Geologic and Geotechnical Hazards

In our opinion, the most significant geologic hazard is the site’s close proximity to the Teton and Phillips Valley fault systems, which are roughly 7 miles to the northwest. The owner should be aware that in the event of a large magnitude earthquake, strong ground shaking and ground cracking could potentially cause damage to structures (Smith et al., 1993). The owners may wish to consider the option of carrying earthquake insurance in addition to homeowner’s insurance. However, the distance from any Quaternary (i.e., relatively young) faults implies surface rupture at the project site is unlikely to occur.

Loose, saturated sands and silty sands, and in some cases, silts and gravels may liquefy when exposed to seismic shaking. The gravels and cobbles observed throughout the site are unlikely to liquefy in a seismic event. Liquefaction, if it were to occur, could cause differential settlement, particularly if a structure is placed partially on sand and partially on stony alluvium. However, liquefaction is unlikely to cause lateral spreading, which is major slope movement commonly responsible for catastrophic damage during earthquakes, at this relatively flat site.

5.0 RECOMMENDATIONS AND ENGINEERING ANALYSIS

5.1 Site Preparation

Frost heave is an important factor to consider in our climate. The soil qualities at the project site that increase frost susceptibility include silty materials, which results in high capillary rise, and high groundwater. Even though the silty gravels are considered a good subgrade (AASHTO, 1993), the frost susceptibility of these soils is high. Therefore, to decrease cracking and deformation of roads and sidewalks due to frost heave, our recommendation is to remove the topsoil and silty gravels prior to construction and replace with a clean, stony material.

Prior to the placement of infrastructure subgrade elements, the site should be cleared and stripped of topsoil and organic debris. No brush, roots, frozen material, or other deleterious or unsuitable materials shall be incorporated in the subgrade or structural fill. Pavement performance would increase with the removal of the silty and clayey gravels and replacing these materials with a cleaner fill. If this option is

selected during road construction, it is recommended a separation fabric be placed between any subbase and the native subgrade.

All exposed subgrade surfaces should be free of mounds and depressions which could prevent uniform compaction. If unexpected fills or obstructions are encountered during site clearing or excavation, such features should be removed and the excavation thoroughly cleaned prior to backfill placement and/or construction. All excavations should be inspected by representative of Jorgensen prior to fill or concrete placement, especially if questionable materials are exposed.

Once into the stony alluvial material, removal of large cobbles may disturb and loosen the surrounding soil. All disturbed areas should be compacted with a smooth-drum vibratory roller, in vibratory mode with a minimum of three passes, prior to placement of concrete and asphalt. The actual number of passes should be determined by observing whether the surface is yielding after each pass. If the surface appears to be yielding, the number of passes should be increased until a non-yielding condition is observed and approved by Jorgensen.

As discussed in Section 4.4, depending on the time of year construction begins, groundwater levels may be at or near the surface making compaction difficult, if not impossible. Dewatering efforts may be required in order to compact the alluvial soils to a non-yielding condition. If employed, dewatering operations should be able to lower the water level to at least 2-ft below the bottom of the excavation to reduce the possibility of pumping during fill placement and compaction.

5.2 Excavation and Cut Slope Stability

OSHA regulations (29CFR1926) appear to classify the alluvium as Type C soil. Simple cut slopes should be no steeper than 1.5H:1V. These recommendations are based on observations made at the time of the investigation. If trenches greater than 4-ft deep are not able to be sloped, trench boxes or other shoring should be employed to protect workers. High groundwater is expected to further decrease the stability of the excavation walls. The contractor shall ultimately be responsible for adherence to OSHA and other safety regulations based on soil and groundwater conditions at the time of construction.

5.3 Final Backfilling and Grading

It is assumed that native or imported stony material (e.g., "pit-run") will be used as subbase material for the proposed roads. Stony fill (e.g., site-derived cobble alluvium or imported "pit-run") will compact into a dense, strong, well-draining engineered fill, and strict moisture control is usually not required, making it a preferred alternative for many contractors for exterior backfills, utility trenches, and subbase under interior and exterior slabs. However, compaction testing with a nuclear density gauge is usually problematic due to the presence of large stones. Therefore, we recommend compacting stony fills using a **method specification**, for which Table 5-1 provides initial guidelines.

The method specification may be established as follows:

- The contractor will place fill in loose lifts no greater than specified in Table 5-1 for whichever class of compactor is used.
- Fill will be compacted with the *minimum* number of passes specified in Table 5-1. The actual number of passes should be determined by observing compaction after each pass to determine if the surface is non-yielding. If the fill surface appears to be yielding, the number of passes should be increased until a non-yielding condition is observed.

- Once the number of passes is determined, this **method** (unique to the material type, compactor, lift thickness, and number of passes) may be continued for the rest of the project as long as fill material properties and subgrade soil conditions remain the same.

Table 5-1: Compaction Parameters for Stony Fill

Compactor Type	Lift Thickness	Maximum Particle Size	Minimum Number of Passes*
5-ton vibratory	12 inches	9-inch**	3
1.5-ton vibratory	9 inches	6-inch	5
Hand-held	4 inches	4-inch	5

*The actual number of passes should be determined by observing whether the surface is yielding after each pass. If the surface appears to be yielding, the number of passes should be increased until a non-yielding condition is observed.

** Occasional clasts to 12-inch are permitted, if encountered, but should not be nested.

It is important to establish a method specification as early in the construction as possible and apply it consistently for the entirety of the project. Jorgensen should observe lift thickness, number of passes, and equipment used during compaction. Additional guidance on construction observations may be found in Section 5.4. The stony soils will require a vibrating smooth-drum roller or vibratory plate (i.e., hoe-pack or "jumping jack") for compaction.

As discussed in Section 4.4, depending on the time of year construction begins, compaction of subbase could be difficult due to wet soil conditions. The contractor should be prepared to manage water and potentially provide dewatering.

5.4 Observation during Construction

Recommendations in this report are contingent upon our involvement. If any unexpected soils or conditions are revealed during construction, this office should be notified immediately to survey the conditions and make necessary modifications. All excavations should be observed by a representative of JG prior to fill or concrete placement, especially if questionable materials are exposed. Notice shall be provided at a minimum of 24 hours before the requested observation.

We can provide the most value observing site conditions at the following times:

1. Upon completion of site preparation to verify stony alluvial soils have been reached and prepared in accordance with Section 5.1,
2. During the placement of the first couple lifts of structural fill, if required, to observe compaction (i.e., develop a method specification, see Section 5.3), and
3. Once the site has been prepped to the bottom of footing elevation to witness a proof roll with the compactor.

6.0 LIMITATIONS

This report has been prepared based on inherently limited data. Actual site conditions may vary. These services have been performed in a manner consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions. No other warranty is made or implied.

This report is site-specific and has been prepared in support of the proposed project. The report is for the sole use of the current property owner and their design and construction team and shall be considered non-transferable to future property owners without the written consent of Jorgensen Geotechnical. Under no circumstances are the figures and text to be used separately.

7.0 REFERENCES

American Association of State Highway and Transportation Officials (AASHTO), 1993, AASHTO Guide for Design of Pavement Structures, AASHTO Washington D.C.

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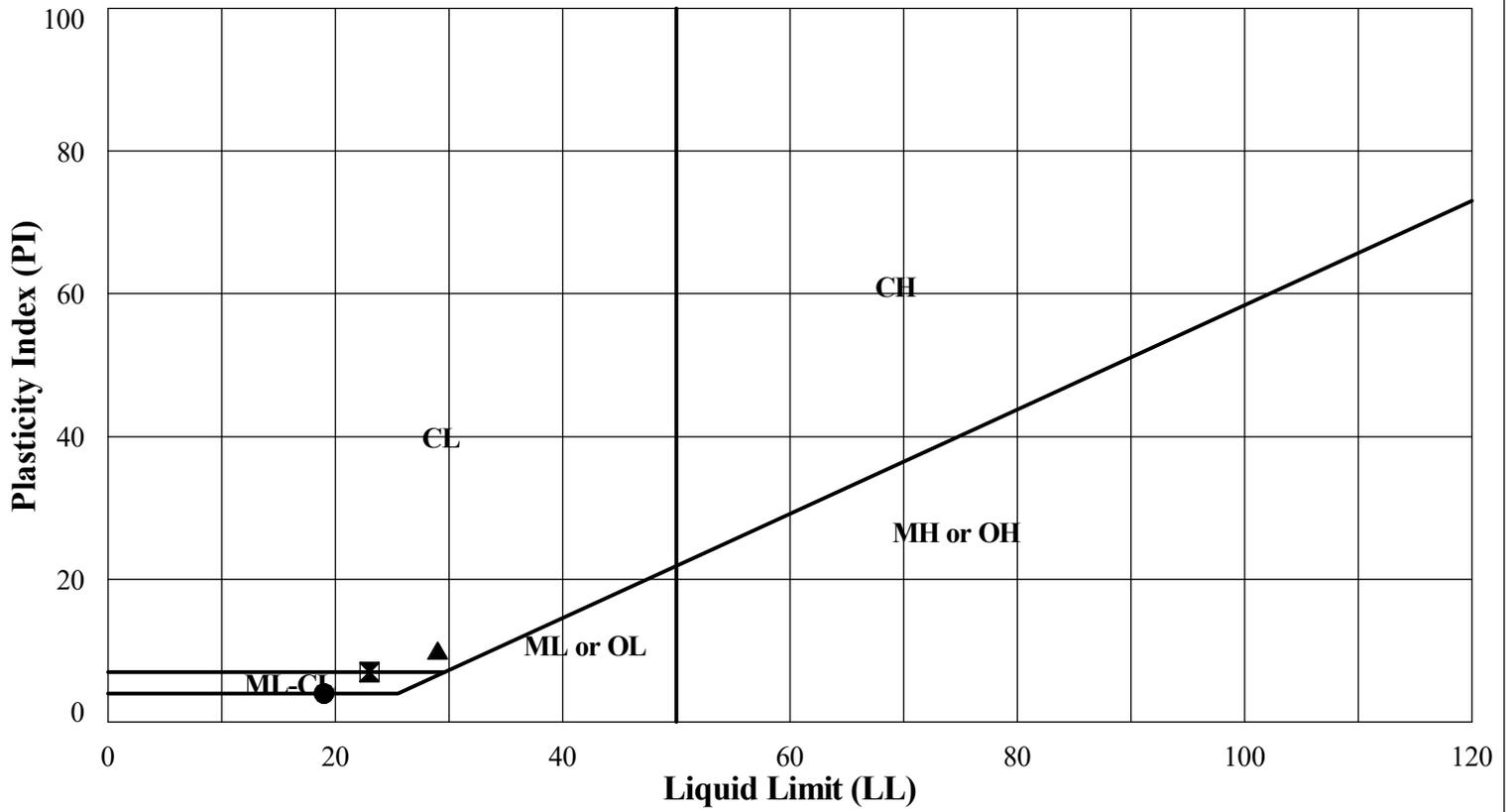
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APPENDIX A

Test Pit Logs

APPENDIX B

Laboratory Test Results



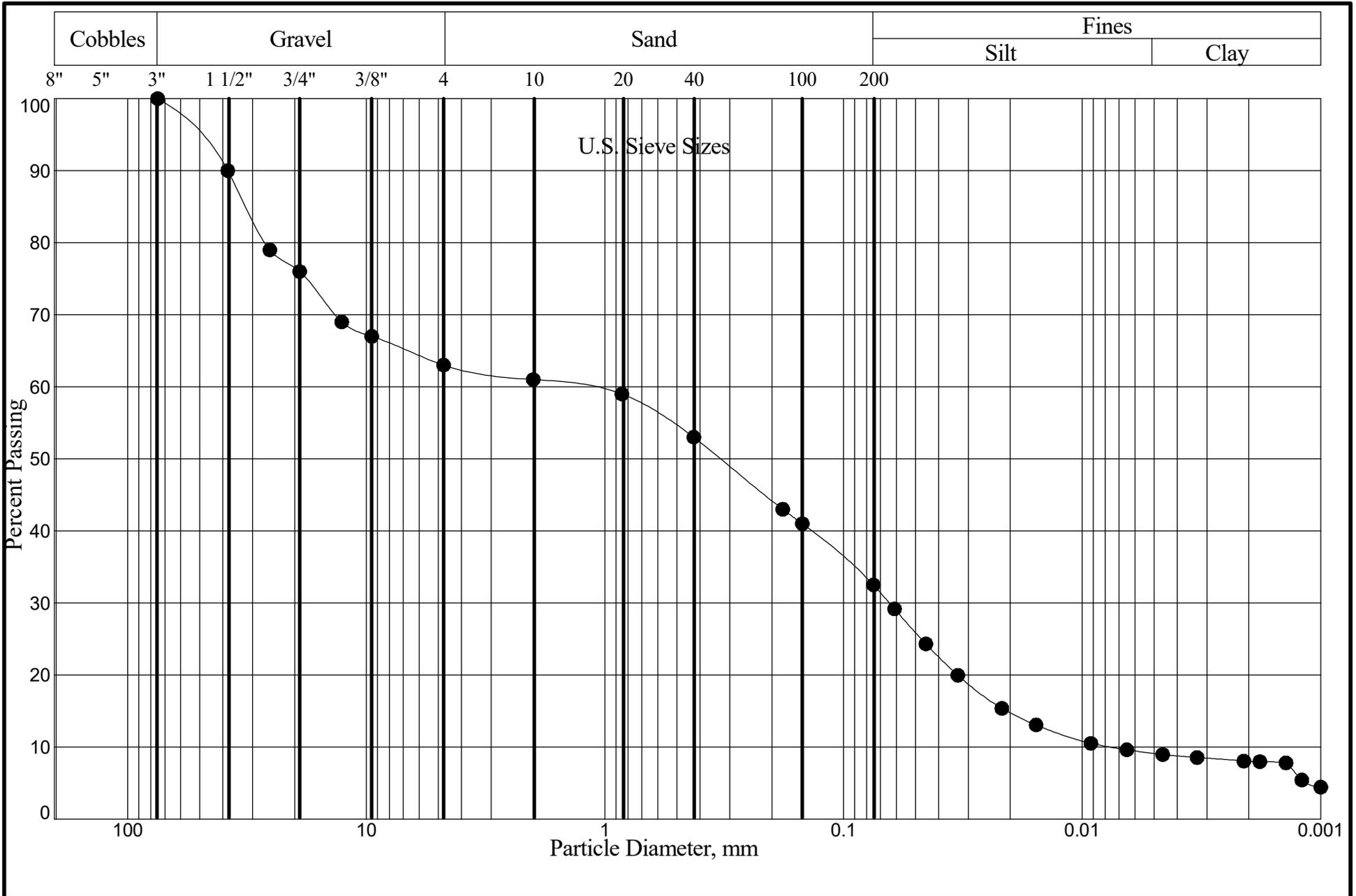
Legend	Boring	Sample No.	Depth	LL	PL	PI	P 200, %	MC	Classification
●	JG-1	Layer 3	2.5'	19	15	4	32.5	4.2%	GC-GM
▣	JG-2	Layer 2	0.7'	23	16	7	32.4	5.1%	GC-GM
▲	JG-7	Layer 2	1'	29	19	10	18.5	6.7%	GC



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Atterberg Limits Tests

Project Number: 15-3404L
Jorgensen Geotechnical
20030 1-HS Road Housing



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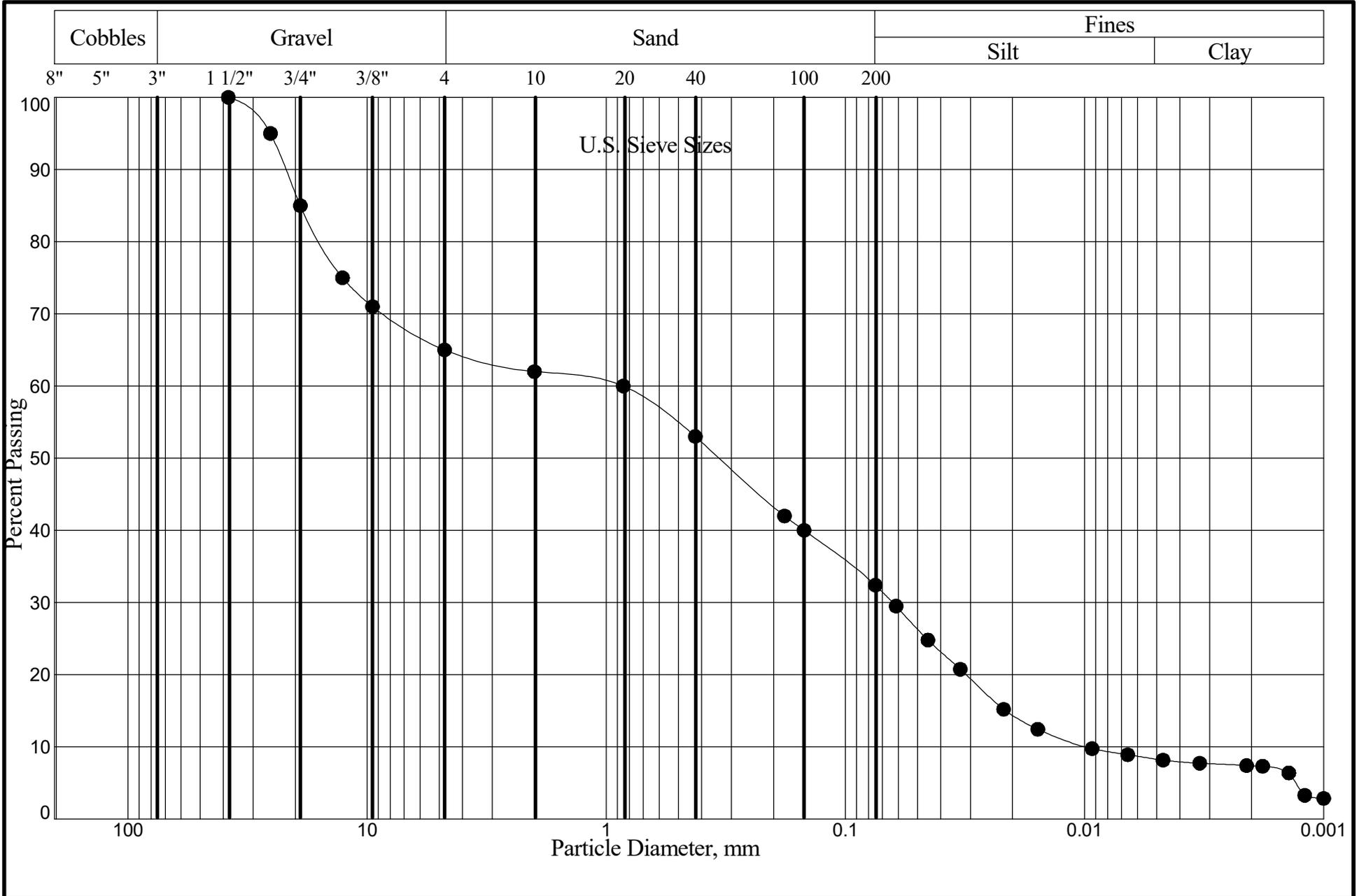
Grain Size Analysis Curve

Project Number: 15-3404L
 Jorgensen Geotechnical
 20030 1-HS Road Housing

Boring No.: JG-1
 Sample No: Layer 3
 Depth: 2.5'
 Date Received: 10/3/22

% Gravel:	37.0	LL:	19
% Sand:	30.5	PL:	15
% Silt:	23.4	PI:	4
% Clay:	9.1	MC:	4.2%
Class:	GC-GM	SG:	2.600
Silty, Clayey Gravel With Sand			

10/6/22



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Grain Size Analysis Curve

Project Number: 15-3404L
 Jorgensen Geotechnical
 20030 1-HS Road Housing

Boring No.: JG-2
 Sample No: Layer 2
 Depth: 0.7'
 Date Received: 10/3/22

% Gravel:	35.0	LL:	23
% Sand:	32.6	PL:	16
% Silt:	24.1	PI:	7
% Clay:	8.3	MC:	5.1%
Class:	GC-GM	SG:	2.600
Silty, Clayey Gravel With Sand			

10/6/22

