Application for Conditional Use

Municipality of Anchorage
Planning Department
PO Box 196650
Anchorage, AK 99519-6650

PETITIONER*	PETITIONER REPRESENTATIVE (if any)
Name (last name first) Anchorage Sand & Gravel	Name (last name first) S4 Group, LLC
Mailing Address 1040 O'Malley Road, Anchorage, AK 99515	Mailing Address 124 E 7th Ave, Anchorage, AK 99501
Contact Phone – Day Evening 907-348-6433	Contact Phone – Day Evening 907-306-8104
E-mail ryan.morman@anchsand.com	E-mail craigb@s4ak.com, kate@s4ak.com

*Report additional petitioners or disclose other co-owners on supplemental form. Failure to divulge other beneficial interest owners may delay processing of this application.

PROPERTY INFORMATION

Property Tax # (000-000-00-000): 011-201-92, 011-16-242

Site Street Address: 8501 Sand Lake Road

Current legal description: (use additional sheet if necessary)

Polen Park Tract 1, Lancaster Tract A

Zoning: PLI	Acreage: 66	Grid #: SW2324

CONDITIONAL USE APPROVAL REQUESTED

Use:

Land Reclamation

○ New conditional use	◉ Amendment to approved conditional use	Original Case #: 2010-007

I hereby certify that (I am)(I have been authorized to act for) owner of the property described above and that I petition for a conditional use permit in conformance with Title 21 of the Anchorage Municipal Code of Ordinances. I understand that payment of the application fee is nonrefundable and is to cover the costs associated with processing this application, and that it does not assure approval of the conditional use. I also understand that assigned hearing dates are tentative and may have to be postponed by Planning Department staff or the Planning and Zoning Commission for administrative reasons.

CB — 02/08/2023

Signature ○ Owner ◉ Representative (Representatives must provide written proof of authorization) — Date

Craig Bennett

Print Name

Accepted by:	Poster & Affidavit:	Fee:	Case Number:	Meeting Date: PZC:
			2023-0030	05/01/2023

COMPREHENSIVE PLAN INFORMATION

Improvement Area (per AMC 21.08.050B.): (•) Class A ( ) Class B

Anchorage 2040 Land Use Designation:

- ☐ Neighborhood (Residential)
- ☐ Center
- ☐ Corridor
- ☑ Open Space
- ☐ Facilities and Institutions
- ☐ Industrial Area

Anchorage 2040 Growth Supporting Features:

- ☐ Transit-supportive Development
- ☐ Greenway-supported Development
- ☐ Traditional Neighborhood
- ☐ Residential Mixed-use

Eagle River-Chugiak-Peters Creek Land Use Classification:

- ☐ Commercial
- ☐ Industrial
- ☐ Parks/opens space
- ☐ Public Land Institutions
- ☐ Marginal land
- ☐ Alpine/Slope Affected
- ☐ Special Study
- ☐ Residential at _____ dwelling units per acre

Girdwood- Turnagain Arm

- ☐ Commercial
- ☐ Industrial
- ☐ Parks/opens space
- ☐ Public Land Institutions
- ☐ Marginal land
- ☐ Alpine/Slope Affected
- ☐ Special Study
- ☐ Residential at _____ dwelling units per acre

ENVIRONMENTAL INFORMATION (All or portion of site affected)

Wetland Classification:	(•) None	( ) "C"	( ) "B"	( ) "A"	
Avalanche Zone:	(•) None	( ) Blue Zone	( ) Red Zone		
Floodplain:	(•) None	( ) 100 year	( ) 500 year		
Seismic Zone (Harding/Lawson):	( ) "1"	(•) "2"	( ) "3"	( ) "4"	( ) "5"

RECENT REGULATORY INFORMATION (Events that have occurred in last 5 years for all or portion of site)

- ☑ Rezoning - Case Number: 2022-002
- ☐ Preliminary Plat ☑ Final Plat - Case Number(s): 2019-41
- ☑ Conditional Use - Case Number(s): 2019-0138, 2014-056, 2010-007
- ☐ Zoning variance - Case Number(s):
- ☐ Land Use Enforcement Action for
- ☐ Building or Land Use Permit for
- ☐ Wetland permit: ☐ Army Corps of Engineers ☐ Municipality of Anchorage

SUBMITTAL REQUIREMENTS

(One copy of applicable items is required for initial submittal; additional copies required after initiall submittal)

1 copy required:

- ☐ Signed application (original)
- ☐ Ownership and beneficial interest form
- ☐ Watershed sign off form
- ☐ Underlying plat
- ☐ Special limitations from the underlying zoning, if applicable

16 copies required:
- ☐ Signed application (copies)
- ☐ Map of area surrounding petition site within 500 feet, including zoning and existing uses
- ☐ Map of existing conditions, to scale, including:
  - ☐ land uses ☐ structures ☐ utilities ☐ vegetation ☐ soils
  - ☐ natural features ☐ drainage ☐ topography ☐ site access ☐ pedestrian facilities
  - ☐ vehicle circulation and driveways ☐ easements and/or reservations
- ☐ Project narrative explaining:
  - ☐ the project ☐ planning objectives ☐ facility operations
  - ☐ an analysis of how the proposal meets the standards on page 3 of this application
  - ☐ construction and operation schedule ☐ final ownership
  - ☐ gross and net density (PUDs only)
- ☐ Site plan(s) to scale depicting, with dimensions:
  - ☐ building footprints ☐ parking areas ☐ vehicle circulation and driveways
  - ☐ pedestrian facilities ☐ lighting ☐ grading ☐ landscaping
  - ☐ loading facilities ☐ fences ☐ drainage ☐ required open space
  - ☐ snow storage area or alternative strategy ☐ trash receptacle location and screening detail
  - ☐ easements ☐ significant natural features ☐ freestanding sign location(s)
- ☐ Building plans to scale depicting, with dimensions:
  - ☐ floor plans ☐ building elevations ☐ exterior colors and textures
- ☐ Summary of community meeting(s)

(Additional information may be required.)

GENERAL CONDITIONAL USE STANDARDS (AMC 21.03.080D.)

The Planning and Zoning Commission may only approve the conditional use if the Commission finds that **all** of the approval criteria are satisfied. Each standard must have a response in as much detail as it takes to explain how your project satisfies the standard. The burden of proof rests with you.

1. The proposed use is consistent with the comprehensive plan and all applicable provisions of this title and applicable state and federal regulations;
2. The proposed use is consistent with the purpose and intent of the zoning district in which it is located, including any district-specific standards set forth in chapter 21.04;
3. The proposed use is consistent with any applicable use-specific standards set forth in chapter 21.05;
4. The site size, dimensions, shape, location, and topography are adequate for the needs of the proposed use and any mitigation needed to address potential impacts;
5. The proposed use will not alter the character of the surrounding area in a manner which substantially limits, impairs, or prevents the use of surrounding properties for the permitted uses listed in the underlying zoning district;
6. The proposed use is compatible with uses allowed on adjacent properties, in terms of its scale, site design, operating characteristics (hours of operation, traffic generation, lighting, noise, odor, dust, and other external impacts);
7. Any significant adverse impacts anticipated to result from the use will be mitigated or offset to the maximum extent feasible;
8. The proposed use is appropriately located with respect to the transportation system, including but not limited to existing and/or planned street designations and improvements, street capacity, access to collectors or arterials, connectivity, off-site parking impacts, transit availability, impacts on pedestrian, bicycle, and transit circulation, and safety for all modes; and
9. The proposed use is appropriately located with respect to existing and/or planned water supply, fire and police protection, wastewater disposal, storm water disposal, and similar facilities and services.

SPECIFIC CONDITIONAL USE STANDARDS (AMC 21.05)

Certain conditional uses have detailed standards that relate only to that type of conditional use. When there are detailed standards, the Planning and Zoning Commission may only approve the conditional use if the Commission finds that **all** general standards listed in the previous section and detailed standards listed for that conditional use in AMC 21.05 are satisfied. Each detailed standard must have a response in as much detail as it takes to explain how your project satisfies the standard. The burden of proof rests with you.

AS&G Recreational Sports Park
Conditional Use Permit Amendment Application Narrative
For Land Reclamation
March 2023

Project Location
The proposed project is located at 8501 Sand Lake Road and contains approximately sixty six (66) acres. The project includes two parcels 011-201-92 and 011-162-42, known legally as Polen Park Tract 1 (plat 2019-41) and Lancaster Tract A (plat 80-59), respectively. These parcels are commonly known as the Sand Lake Fill Site.

Request for Approval
With this Conditional Use Permit Amendment Application we are requesting approval for the (1) continued land use reclamation and (2) amending the final grading, drainage, and restoration plans to conform to the proposed AS&G Recreational Sport Park site. We request that the approval be good for ten (10) years.This approval will allow the continued land reclamation of the site and transition of the site to its end use as a recreational sports park and community open space.

History
The petition site was a large natural resource extraction site that became a fill operation under a conditional use permit (case #2005-134 & 2010-007). In 2014 the permit was amended to end a seven (7) year abeyance at the site, make minor changes to the site plan, and move equipment further south (case #2014-056, resolution #2014-029). In 2020 the permit was amended to update the legal description of the site, include the five acres at the southwest corner of the site which were previously left out of the reclamation area, and update the grading and drainage plan (case # 2019-0138, resolution # 2020-010). In 2022 the petition site was rezoned from R-1A district (single-family residential district, large lot) to PLI district (public lands and institutions) (case # 2022-0002, resolution #2022-001). The longstanding end use plan for the site has been sports fields, recreational uses, and community uses. This application for a conditional use permit amendment is the next step in the process.

Summary of related planning case numbers: 2005-134, 2010-007, 2014-056, 2019-0138, 2022-0002

Project Description
The purpose of this conditional use amendment application is to allow for the continued construction and fill of the petition site and the transition of the site to its end use as a recreational park. Final reclamation of the site will include grading the site to the approved contours of the end use, applying topsoil, seeding with grass, installing required landscaping along the perimeter of the site, and leaving the site in a safe, stable, and aesthetically pleasing condition for its intended end use.

Additional fill needs to be brought to the site to create the wind and noise break berms, sledding hill, and raised amphitheater seating for the championship sports field . This amendment proposes an increase in fill of 900,000 cubic yards from the previously approved grading plan. Fill and grading will depend on the availability

of fill from Anchorage Sand & Gravels' other activities. The historical average amount of imported material is 200,620 cubic yards per year. Roughly 7.3 million cubic yards have been deposited in the Sand Lake Reclamation Site since 1983. Adjusting for this final site plan, the remaining estimated fill quantity is 1.7 million cubic yards. At the average yearly fill rate of 200,000 cubic yards, Sand Lake Reclamation Site should be complete in another ten (10) years, which moves the estimated completion date to December 1st, 2033.

AS&G plans to transition the property to its end use from north to south, starting with the construction of the northern sports fields and parking lot. The wheel wash will eventually need to be eliminated upon completion of land reclamation activities and the transition to the site's end use. Gate entrances, exits, and security fencing will need to be moved as the site transitions, to accommodate the north to south build out and protect the active construction site from the end use areas. Site plan flexibility will be very important due to the size of the project, the multitude of uses being integrated together, and the type of aggregate being worked with on site.

The project is consistent with the following *Anchorage 2020* policies:

- **Policy 7 - Avoid incompatible uses adjoining one another.** The property has gone through many previous conditional use permits and a rezone and was determined to be compatible with the surrounding uses.
- **Policy 65 - Promote and encourage the identification and conservation of open spaces.** The proposed end use is open space, after the land reclamation activities are completed.

The project is consistent with the following *Anchorage 2040* goals:

- **Goal 5 Infrastructure Land Use**. Parks and natural areas serve as green infrastructure by absorbing storm water, maintaining water and air quality, managing flooding, wildlife habitat, and access to recreation and nature.
- **Policy 5.1 Implement recommended land use patterns and growth in context with existing infrastructure capacity and planned improvements, for utilities, streets, trails, public transit, parks, green infrastructure, and schools.** The *Anchorage 2040 Land Use Plan Map* designates the site as "Other Open Space" and the *West Anchorage District Plan* designates the site as "Other Area that Functions as Park and Natural Resource". The end use of as a park will implement the recommended land use patterns for the site.
- **Goal 8 Open Space and Greenways**. Parks and green spaces are highly valued and supported amenities in the *Anchorage 2040 Plan* that enhance land values, public access, and support growth and liveability of neighborhoods and centers.
- **Policy 8.1 Ensure all neighborhoods and communities have access to nearby parks and recreational opportunities that support well-being.** The proposed end use is as a recreational sports park, after the land reclamation activities are completed.
- **Policy 8.2 Provide new and improved trails, greenbelts, and other pedestrian facilities as alternative travel ways connecting open spaces, neighborhoods, and centers.** The multi-use trails running throughout the park and connecting to all abutting rights-of-way provide new and improved opportunities for pedestrian travel in the area.

The project is consistent with the following *West Anchorage District Plan* policies and objectives:

- "Encourage collaboration for acquisition, development, and maintenance of recreation spaces and facilities." (WADP, pg 58)
- "As the population increases, so does the demand for parks and indoor recreation areas. Changes in socioeconomic makeup of the community may result in changes to recreational needs." (WADP, pg 61)

- "As the number of housing units in West Anchorage increases, so will the demand for public transportation, recreation opportunities (indoor and outdoor), schools, and other services." (WADP, pg 62)
- "Maintaining and protecting open spaces, green spaces, and mature trees are important to area residents." (WADP, pg 65)
- "Objective #4 Preserve and enhance the physical character of land uses valued by the local community, including established residential neighborhoods, proximity to natural open space, and the historic Spenard Road corridor." (WADP, pg 85)
- "According to the *Parks Plan*, as the population continues to increase, the Northwest and Southwest Parks Districts will be deficient in NU parks."(NU, close-to-home recreation areas) (WADP, pg 187)

Community Support

Included in this Application is a letter of support from the Cook Inlet Soccer Club which states that Cook Inlet Soccer Club intends to partner with AS&G in this endeavor and plans to use this new facility as their home for outdoor training and games for many years to come.

Property Ownership

The property is privately owned by Anchorage Sand and Gravel, an Alaskan corporation, and they are expected to retain ownership at the end of this conditional use permit.

Description of Land Reclamation Operations

Access

The site is currently accessed by two driveways by Sand Lake Road, approximately 900 feet from each other. As the site transitions the northern driveway will be recommissioned as a public entrance and will no longer be used for fill and construction activities. A new driveway, located between the existing driveways will serve as the new temporary entrance for fill activities. This driveway is to be permitted through a State of Alaska Department of Transportation and Public Facilities (DOT&PF) driveway permit.

Clearing and Grubbing

Most of the fill area has been cleared and grubbed due to prior natural resource extraction and continued land reclamation happening on site.

Stripping

The fill area has previously been stripped due to prior natural resource extraction activities on the site. No additional stripping is anticipated.

Grading and Drainage

The site will be graded per the grading plan provided by TRIAD Engineering, this grading plan proposes an increase in fill of 900,000 cubic yards more than the previously approved grading plan. The primary controls used for stormwater management will be vegetated swales and a constructed retention pond. See the Stormwater Management Report by TRIAD Engineering. Two monitoring wells exist on the site.

Fill Operations

AS&G will continue to follow the existing fill procedures for their current operations. Allowed materials will not change from the previously approved CUP. These allowed materials include: peat, clay, silty soil, hydro-axed materials, tree fragments, stumps, turf, and other organics associated with clearing and grubbing operations, including wood chips from grinding operations, and concrete remnants related to demolition, concrete testing leftovers, or construction site clean-up.

Materials not accepted are to include asphalt, hazardous or contaminated materials, grass clippings, trash/garbage, building materials, lumber, pallets, and the like.

Equipment Maintenance

AS&G will continue to maintain a zero-leak policy on the site. All routine lubrication and fueling of equipment will be performed off-site.

Shipping

Fill materials will continue to be brought on the site with end dumps, semi-end dumps, side dumps, and end dumps with pup trailers. No material shall be delivered with belly dumps. During fill operation periods, there will be an average of 250 one-way project-related trips per day of operation for fill operations at the site.

Reclamation

The overall site will be graded per the approved grading plan. Once an area of the site is filled to the desired grade, it will be reclaimed. Reclamation will include seeding with an erosion control seed mix. As the site is reclaimed it will be constructed to reflect the approved final site plan for the site's end use as a recreational sports park.

Development Schedule

The site is currently operating under a land reclamation conditional use permit that is in effect until May 5, 2024 (Resolution 2020-010). The variability of available fill and the increased fill amounts required for the final site plan put the expected completion date to December 1st, 2033. We request that the approval be good for ten (10) years. If the amount of fill being brought onto the site is decreased from recent years, then the petitioner may require a time extension beyond the 10 years currently being requested. The time extension period recommended by the Planning Department continues to 5 year extensions, to be approved by the Planning and Zoning Commission through a non-public hearing review.

Construction and Operation Schedule

Hours of operation for construction and operation of the land reclamation activities on site will be Monday through Saturday from 7:00 am to 6:00 pm. No fill activities will be permitted on Sundays or holidays. Operations would continue to typically occur between early April and late October.

Final Site Plan

The final site plan includes seven (7) olympic size sports fields (360' x 225'), each of which can be divided into three (3) youth size sports fields. One of these fields is a championship field located closest to the parking lots near Sand Lake Road and partially encircled by tiered amphitheater seating. To the rear of the amphitheater seating the terrain starts to slope up a grassy hill, on top of which sits a pavilion. Three more pavilions are on the site; two down near the sports field and one on another grassy hillock to the southeast of the first. Multi-use trails meander around the park, past the sports fields, pavilions, and parking lots. The trail system also connects to each nearby dedicated right-of-way for a more interconnected neighborhood and trail system. Extensive parking is available on-site parallel to Sand Lake Road and access gates are provided at entrances and key points around the site that will be closed and secured after hours. Portable restrooms and hand washing stations will be brought onto site, as needed; will be centrally located and screened. See provided site plan and accompanying details for reference.

Project Phases

There are three main phases for the project. See the Phasing and Access Plan Detail for reference.

During Phase 1 the scale house, water tank, and anti-track out pads used for fill operations will be moved to new locations to allow for the construction of the first three sports fields and a temporary parking lot on the northern side of the site. A separation berm will be built to the south of the temporary parking lot and new sports fields to separate community recreational activities from fill and construction activities happening on the rest of the site. The northernmost driveway will be used to access the Phase 1 recreational area. The new driveway entrance and the southernmost driveway will be used for fill activities.

Phase 2 will include the continued fill operations and the construction of the permanent parkings lot and two additional sports fields.

Phase 3 will include the continued fill operations to the contours of the approved final site plan and the construction of the championship sports field, amphitheater seating, multi-use trails, pavilions, storage areas, and other items included on the final site plan. As the site transitions to being fully reclaimed and fill operations cease, the separation berm will be removed to allow full access to the completed site, the scale house, water tank, and anti-track-out pads will be removed, the temporary parking lot will be retired, and the final sports field will be completed.

Operation Schedule

Hours of operation for the completed end use as a recreational sports park will be Monday through Sunday from 7:00 am to 10:00 pm. The main gates used for access to the site will be closed and locked after hours of operation.

Parking

The site plan includes approximately 414 parking spaces for the public. 137 parking stalls are included in a year-round parking lot parallel to Sand Lake Road. Nine (9) of those stalls will be ADA compliant parking spaces, with two (2) being van accessible. 277 parking stalls are included in an overflow summer parking lot located east of the main parking lot. In the winter the overflow parking lot will be gated off from vehicle access. A small parking lot on the northwest corner of the site is included for storage and maintenance vehicle parking. All parking lot surfaces will be Reclaimed Asphalt Pavement (RAP) and lighting will be provided where required by MOA, when the parking area is constructed.

During Phase 1 of the project the northeast sports field will be used as a temporary parking lot for the other three sports fields. Once the permanent parking lots are constructed and open for use the temporary parking lot will be retired and repurposed as a sports field, per the site plan.

Multi-Use Trails

Multi-use trails run throughout the park, they will connect to all of the parking areas and abutting rights-of-way for neighborhood pedestrian access. The soft-surface trails will be six (6) to eight (8) feet wide and constructed to recommended specifications from Northern Geotechnical Engineering (NGE).

Pavilions

Four pavilions are proposed on the final site plan for public use. Northern Geotechnical Engineering (NGE) recommends the use of a structural floating slab for the pavilions. Which can be re-leveled in the future, if needed, with foam.

Landscaping

L1 and L2 landscaping will be installed along the perimeter of the site, per the Landscape Plan. Vegetated berms will be placed strategically along the perimeter of the site to create windbreaks and to mitigate light and sound pollution from the park to the surrounding areas. High winds are common in the area and vegetated windbreaks can reduce wind speed for the site by approximately 60%, provide a barrier from sights, sounds, and smells, and are an aesthetically pleasing landscape element.

Conformance with the Approval Criteria for Conditional Uses (AMC 21.03.080.D)

1. **The proposed use is consistent with the comprehensive plan and all applicable provisions of this title and applicable state and federal regulations**

The project is consistent with the following *Anchorage 2020* policies:

- **Policy 7 - Avoid incompatible uses adjoining one another.** The property has gone through many previous conditional use permits and a rezone and was determined to be compatible with the surrounding uses.
- **Policy 65 - Promote and encourage the identification and conservation of open spaces.** The proposed end use is open space, after the land reclamation activities are completed.

The project is consistent with the following *Anchorage 2040* goals:

- **Goal 5 Infrastructure Land Use**. Parks and natural areas serve as green infrastructure by absorbing storm water, maintaining water and air quality, managing flooding, wildlife habitat, and access to recreation and nature.
- **Policy 5.1 Implement recommended land use patterns and growth in context with existing infrastructure capacity and planned improvements, for utilities, streets, trails, public transit, parks, green infrastructure, and schools.** The *Anchorage 2040 Land Use Plan Map* designates the site as "Other Open Space" and the *West Anchorage District Plan* designates the site as "Other Area that Functions as Park and Natural Resource". The end use of as a park will implement the recommended land use patterns for the site.
- **Goal 8 Open Space and Greenways**. Parks and green spaces are highly valued and supported amenities in the *Anchorage 2040 Plan* that enhance land values, public access, and support growth and liveability of neighborhoods and centers.
- **Policy 8.1 Ensure all neighborhoods and communities have access to nearby parks and recreational opportunities that support well-being.** The proposed end use is as a recreational sports park, after the land reclamation activities are completed.
- **Policy 8.2 Provide new and improved trails, greenbelts, and other pedestrian facilities as alternative travel ways connecting open spaces, neighborhoods, and centers.** The multi-use trails running throughout the park and connecting to all abutting rights-of-way provide new and improved opportunities for pedestrian travel in the area.

The project is consistent with the following *West Anchorage District Plan* policies and objectives:

- "Encourage collaboration for acquisition, development, and maintenance of recreation spaces and facilities." (WADP, pg 58)

- "As the population increases, so does the demand for parks and indoor recreation areas. Changes in socioeconomic makeup of the community may result in changes to recreational needs." (WADP, pg 61)
- "As the number of housing units in West Anchorage increases, so will the demand for public transportation, recreation opportunities (indoor and outdoor), schools, and other services." (WADP, pg 62)
- "Maintaining and protecting open spaces, green spaces, and mature trees are important to area residents." (WADP, pg 65)
- "Objective #4 Preserve and enhance the physical character of land uses valued by the local community, including established residential neighborhoods, proximity to natural open space, and the historic Spenard Road corridor." (WADP, pg 85)
- "According to the *Parks Plan*, as the population continues to increase, the Northwest and Southwest Parks Districts will be deficient in NU parks."(NU, close-to-home recreation areas) (WADP, pg 187)

The proposed end use of this site as a recreational sports park, as well as its continued land reclamation use to implement the end use, is consistent with the comprehensive plan and all applicable provisions.

2. **The proposed use is consistent with the purpose and intent of the zoning district in which it is located, including any district-specific standards set forth in chapter 21.04.**

The petition site is zoned PLI (public lands and institutions) which Title 21 states the purpose to be, "intended to include major public and quasi-public civic, administrative, and institutional use and activities."

The *Anchorage 2040 Land Use Plan Map* shows the site as "Other Open Space", which is described as follows:

> "This designation applies to non-municipal public and private open spaces that function as part of the Anchorage Bowl's system of parks, open spaces, outdoor recreational facilities, and natural preservation areas. It includes state and federal lands currently used or designated by an adopted plan as park or natural resource use or that are environmentally unsuitable for development. It also includes private lands that - by easement, subdivision, permit conditions, agreement, commercial activity, or environmental constraints - will continue to function as open space. Many are private lands set aside as common open space tracts in residential development. Some open spaces in this designation are not intended to provide public recreation access.
>
> Uses: Natural areas, passive use areas, indoor and outdoor recreation facilities, community playgrounds, community or interpretive gardens, outdoor commercial recreation, or agricultural nursery and horticultural uses."

The *West Anchorage District Plan* shows the site as "Other Area that Functions as Park and Natural Resource" and states the following:

> "Intent: This designation applies to non-municipal lands, or other municipal non-park parcels that, by adopted plan, formal agreement, subdivision or easement, function as part of the community system of parks, outdoor recreational facilities or natural preservation areas (e.g., HLB mitigation parcels).

The proposed land reclamation does not change the existing uses approved under previous conditional uses. The proposed end use of this site as a recreational sports park is consistent with the PLI zoning district. No district-specific standards are set forth for the PLI zoning district.

3. **The proposed use is consistent with any applicable use-specific standards set forth in chapter 21.05.**
   All use-specific standards are met and covered below.

4. **The site size, dimensions, shape, location, and topography are adequate for the needs of the proposed use and any mitigation needed to address potential impacts.**
   The site is adequate for the needs of the proposed use, as determined by the existing conditional use approvals. The site is adequately sized at 66 acres for the end use as a recreational sports park and community open space. The site will be contoured to the exact needs of the end use site plan and drainage plan.

5. **The proposed use will not alter the character of the surrounding area in a manner which substantially limits, impairs, or prevents the use of surrounding properties for the permitted uses listed in the underlying zoning district.**
   The conditional use for land reclamation will allow for the continued land reclamation of the property that has been in process since 1983 and prepare the land for its intended end use as a recreational sports park and community open space. The addition of this recreational sports park will result in a positive addition to the surrounding uses and a benefit to the general welfare of the city.

6. **The proposed use is compatible with uses allowed on adjacent properties, in terms of its scale, site design, operating characteristics (hours of operation, traffic generation, lighting, noise, odor, dust, and other external impacts).**
   The proposed use is compatible with the adjacent properties. The continuing uses of the site have been approved and permitted under past and current conditional use permits and amendments. The existing approved hours of operation, traffic generation, lighting, noise, odor, dust, or other external impacts will not change for filling activities under this CUP.

   The final site plan as a recreational sports park will be compatible with adjacent properties, by providing a community open space and recreational area. Hours of operation and traffic will be consistent with other public parks, lighting and noise from the site will be mitigated by berms and landscaping surrounding the park. Lighting will be provided where required by MOA, no permanent amplified sound systems are proposed.

7. **Any significant adverse impacts anticipated to result from the use will be mitigated or offset to the maximum extent feasible.**
   No significant adverse impacts have arisen from the past and current land reclamation conditional use permits, no changes are being made that would significantly change the on-site activities for land reclamation for this permit. See the use-specific standard for land reclamation above for the security plan, noise, and dust mitigation plans for the site. Upon transitioning to the end use; L1 and L2 landscaping will be installed, along with berms to mitigate light and sound pollution from the park to the surrounding area. Any other adverse impacts will be mitigated to the maximum extent possible.

8. **The proposed use is appropriately located with respect to the transportation system, including but not limited to existing and/or planned street designations and improvements, street capacity, access to collectors or arterials, connectivity, off-site parking impacts, transit availability, impacts on pedestrian, bicycle, and transit circulation, and safety for all modes.**
   The site borders two Class A arterial streets; West Dimond Boulevard and Sand Lake Road. There are separated multi-use pathways on each of these roads. The current site plan proposed interior multi-use trails throughout the site, which will connect to each available public right of way.

9. **The proposed use is appropriately located with respect to existing and/or planned water supply, fire and police protection, wastewater disposal, storm water disposal, and similar facilities and services.**
   The site is located within the Building Safety, Fire, and Parks and Recreation Service areas. Natural gas, electricity, and public water and sewer are available to this property.

Conformance with Use-Specific Standards for Land Reclamation (AMC 21.05.060.E.5)

A. **A site plan showing: drainage, existing and proposed topographical contours (ten-foot contour), water table information, points of vehicular access to the site.**
   Site plans are attached to this application.

B. **An erosion and sediment control plan.**
   The continued filling activities will continue to be conducted so that storm water or sediment does not leave the site. Reference the Stormwater Management Report by TRIAD Engineering.

C. **A description of the soil types encountered on the site.**
   Roughly 6.8 million cubic yards of material have been deposited in the Sand Lake Reclamation Site since 1983. Existing soil types are as follows: peat, clay, silty soil, hydro-axed materials, tree fragments, stumps, turf, and other organics associated with clearing and grubbing operations, including wood chips from grinding operations, and concrete remnants related to demolition, concrete testing leftovers, or construction site clean-up.

D. **A landscaping plan for the period of land reclamation operations and for final restoration of the site.**
   Final reclamation will entail seeding, landscaping, and creating a site that compliments the surrounding area. L1 and L2 landscaping will be installed along the entire perimeter of the site, per the Landscape Plan. Vegetated berms will be placed strategically along the perimeter of the site to create windbreaks and to mitigate light and sound pollution from the park to the surrounding areas. High winds are common in the area and vegetated windbreaks can reduce wind speed for the site by approximately 60%, provide a barrier from sights, sounds, and smells, and are an aesthetically pleasing landscape element.

E. **A security plan to prevent casual trespass**
   All gates are locked during off hours. The entire site is monitored via live video camera and is also being recorded via DVR. The wheel wash electrical control panel is fenced in and has razor wire at the top to prevent anyone from climbing over the secured area. Site security, including gates, cameras, and fencing, will be adjusted as necessary as the site evolves towards its end use.

F. Proposed hours of operation

Hours of operation to remain 7:00 am to 6:00 pm, Monday through Saturday, for fill activities on the site. No fill activities will be permitted on Sundays or holidays. Hours of operation for the completed end use as a recreational sports park will be Monday through Sunday from 7:00 am to 10:00 pm.

G. A description of land reclamation and processing operations proposed for the site.

The overall site will be graded per the approved grading plan. Once an area of the site is filled to the desired grade, it will be reclaimed. Reclamation will include seeding with an erosion control seed mix. As the site is reclaimed it will be constructed to reflect the approved final site plan for the site's end use as a recreational sports park.

H. Projected traffic counts for each point of vehicular access to the site.

Historically, the total number of truck trips for the site has averaged 250 one-way project-related trips per day of operation for fill operations at the site. This is not expected to change.

I. An estimate of the quantity of materials to be imported to the site and timetable, with supporting calculations conforming to generally accepted principles.

This amendment's new grading plan proposes an increase of 900,000 cubic yards from the previously approved grading plan. The increase is due to the proposed end-use design creating landscape elements that benefit future uses.

According to Anchorage Sand & Gravel (AS&G), the Annual Status Report submitted to the MOA for the current CUP is as follows. The historical average amount of imported material is 200,620 cubic yards per year. Roughly 6.8 million cubic yards have been deposited in the Sand Lake Reclamation Site since 1983. Adjusting for this final site plan, the remaining estimated fill quantity is 1.8 million cubic yards. At the average yearly fill rate of 200,000 cubic yards, Sand Lake Reclamation Site should be complete in another ten (10) years, which moves the estimated completion date to December 1st, 2033.

J. A statement of the types of materials that will be accepted at the site.

There are no proposed changes in the allowed types of fill from what is currently permitted by the existing CUP. The list of acceptable fill materials is as follows: peat, clay, silty soil, hydro-axed materials, tree fragments, stumps, turf, and other organics associated with clearing and grubbing operations, including wood chips from grinding operations, and concrete remnants related to demolition, concrete testing leftovers, or construction site clean-up.

K. Such other materials as the director may require by regulation pursuant to AMC chapter 3.40.

Any other materials required by the director will be included to the greatest extent feasible.

V. Additional Standards

A. Principal access to the site shall minimize the use of residential streets, and access roads shall be treated in a manner so as to make them dust free. Where access roads intersect arterials, suitable traffic controls shall be established.

The petition site does not utilize any local residential streets for access. The current approved steps to minimize dust by the use of a watering truck and anti-track-out pads will continue to be used. A new driveway, located between the existing driveways will serve as the new temporary entrance for fill activities. This will allow for the continued use of suitable traffic controls, by having separate access points for fill

activities and park activities, as well as maintaining a one-way entrance and exit for fill activities to keep access roads dust free.

B. The site will not accept materials that are hazardous or flammable.
No hazardous or flammable materials are allowed as fill material.

C. The site will not accept junk as defined in chapter 21.15.
No junk, as defined in chapter 21.15, is allowed as fill material.

D. The site will not accept soils contaminated with petroleum products or byproducts.
No soils contaminated with petroleum products or byproducts are accepted as fill material.

E. The reclamation operations will not pose a hazard to the public health and safety.
The security measures taken for the site, along with the dust and noise suppression techniques enacted will prevent any hazards to the public health and safety. Existing site security, including gates, cameras, and fencing, will be adjusted as necessary as the site evolves towards its end use.

F. The reclamation operations will not generate noise, dust, surface water runoff, groundwater pollution, or traffic that will unduly impact surrounding land uses.
Noise will be kept to a minimum and to specific hours of operation as approved. All on-site equipment shall be muffled and use white noise alarms or motion detectors for backing up. Dust will be kept at a minimum with the use of a water truck. Surface water runoff will be strictly regulated as per public works standards, as detailed within the Stormwater Management Report by TRIAD Engineering, traffic will not be on any local residential streets.

G. The restoration plan for the site ensures that after reclamation operations cease, the site will be left in a safe, stable, and aesthetically acceptable condition.
The overall site will be graded per the approved grading plan. Once an area of the site is filled to the desired grade, it will be reclaimed. Reclamation will include seeding with an erosion control seed mix. As the site is reclaimed it will be constructed to reflect the approved final site plan for the site's end use as a recreational sports park.

The final site plan includes seven (7) olympic size sports fields (360' x 225'), each of which can be divided into three (3) youth size sports fields. One of these fields is a championship field located closest to the parking lots near Sand Lake Road and partially encircled by tiered amphitheater seating. To the rear of the amphitheater seating the terrain starts to slope up a grassy hill, on top of which sits a pavilion. Three more pavilions are on the site; two down near the sports field and one on another grassy hillock to the southeast of the first. Multi-use trails meander around the park, past the sports fields, pavilions, and parking lots. The trail system also connects to each nearby dedicated right-of-way for a more interconnected neighborhood and trail system. Extensive parking is available on-site parallel to Sand Lake Road and access gates are provided at entrances and key points around the site that will be closed and secured after hours. See provided site plan and accompanying details for reference.

L1 and L2 landscaping will be installed along the entire perimeter of the site, per the Landscape Plan. Vegetated berms will be placed strategically along the perimeter of the site to create windbreaks and to mitigate light and sound pollution from the park to the surrounding areas. High winds are common in the

area and vegetated windbreaks can reduce wind speed for the site by approximately 60%, provide a barrier from sights, sounds, and smells, and are an aesthetically pleasing landscape element.

H. The proposed use meets such additional standards for land reclamation conditional uses as the director may establish by regulation pursuant to AMC chapter 3.40.

Any additional standards established in the future by regulation pursuant to AMC 3.40 for land reclamation conditional uses will be met to the best extent possible.

Dear Planning & Zoning Commission,

Cook Inlet Soccer Club is pleased to provide this letter of support to Anchorage Sand & Gravel Company for their proposal to build the AS&G Sports Complex.

Cook Inlet Soccer Club intends to partner with Anchorage Sand & Gravel to provide the members of the club and their families, and the Anchorage community with a safe place to be active and play soccer. This wonderful facility will allow us to continue to develop the youth of Alaska both on and off the field in a nurturing environment.

Cook Inlet Soccer Club plans on using this new facility as our home for outdoor training and games for many years to come. This facility will also allow us the ability to host multiple events in Anchorage upon the completion of the project. These events will include but are not be limited to Cook Inlet Soccer Club Tournament, College ID Camps, Alaska Youth Soccer State Cup, United States Youth Soccer Presidents Cup, and the United States Youth Soccer Far West Regionals. These events are proven opportunities to have a positive economic boost for the community.

I encourage your consideration of this proposed facility. If I can be of any further assistance in this matter, please do not hesitate to contact me via email shane@cookinletsc.com or via phone (907) 727-6140.

Sincerely,

Shane Calvert
Cook Inlet Soccer Club
Executive Director

WMS Archive File Name: 23SandLakeRd8501

WMS WATERCOURSE MAPPING SUMMARY

Per the requirements for watercourse verification outlined in Project Management and Engineering Operating Policy and Procedure #8 and Planning Department Operating Policy and Procedure #1 (*effective June 18, 2007*), MOA Watershed Management Services has inspected the following location for the presence or absence of stream channels or other watercourses, as defined in Anchorage Municipal Code (21.35).

- Project Case Number or Subdivision Name: 2023-0030
- Project Location, Tax ID, or Legal Description: 8501 Sand Lake Road
  Tax IDs: 011-201-92, 011-162-42
- Project Area (if different from the entire parcel or subdivision): _____

In accordance with the requirements and methods identified, WMS verifies that this parcel, project area, or application:

☒ **DOES NOT** contain stream channels and/or drainageways, as identified in WMS field or archival mapping information.*

☐ **DOES** contain stream channels and/or drainageways ***AND*** these are located and identified on submittal documents in general congruence with WMS field and archival mapping information.
*New or additional mapping **IS NOT REQUIRED**.**

☐ Contains stream channels and/or drainageways ***BUT*** one or more streams or other watercourses:
- are ***NOT*** shown on submittal documents, or
- are ***NOT*** depicted adequately on submittal documents for verification, or
- are ***NOT*** located or identified on submittal documents in general congruence with WMS field and archival mapping information.

*New or additional mapping **IS REQUIRED** and must be re-submitted for further review and verification.**

☐ Presence of stream channels and/or drainageways is unknown ***AND*** field verification is not possible at this time. WMS will verify as soon as conditions and prioritized resources allow.

** **Streams omitted in error by WMS or others remain subject to MOA Code and must be shown in new mapping upon identification of the error.***

ADDITIONAL INFORMATION:

☐Y ☐N	WMS written drainage recommendations are available.	☐Preliminary	☐Final
☐Y ☐N	WMS written field inspection report or map is available.	☐Preliminary	☐Final
☐Y ☐N	Field flagging and/or map-grade GPS data is available.		

Inspection Certified By: _____ **Date:** 2/2/23

Letter of Authorization

I, Ryans Zins, the Vice President and General Manager of Anchorage Sand and Gravel Co., an alaskan corporation which holds ownership of the property located at Polen Park Tract 1 and Lancaster Tract A, Tax IDs 011-201-92 & 011-162-42, authorize S4 Group to represent me before the Municipality of Anchorage in the request for a conditional use permit and everything related to that activity.

Signature

1/30/2023

Date

Supplemental Form: *OWNERSHIP AND BENEFICIAL INTEREST DISCLOSURE*

PETITIONER: CORPORATE OFFICERS OR PARTNERS

Applicants for an entitlement that will be in possession and the responsibility of more than one individual, such as a co-owner, joint venture, partnerships, corporations, company, or other similar form of ownership, are required to disclose a full and complete list of the name and address of each principal. (use additional paper if necessary)

Name	Title or Office(if any)	Address
David C. Barney	Chair of the Board & CEO	1150 West Century Ave, Bismarck, ND 58503
Stephen Essoyan	Region President	655 W Clay Street, Stockton, CA 95206
Chris Taylor	President	1040 O'Malley Road, Anchorage, AK 99515
Ryan Zins	VP & GM	1040 O'Malley Road, Anchorage, AK 99515
Nancy Christenson	Treasurer and CFO	1150 West Century Ave, Bismarck, ND 58503
Jenna Maurer	Controller	1040 O'Malley Road, Anchorage, AK 99515
Karl Liepitz	Secretary	1150 West Century Ave, Bismarck, ND 58503

PROPERTY OWNER: CORPORATE OFFICERS OR PARTNERS

The petitioner of a property owned by more than one individual that will benefit from an entitlement is required to disclose a full and complete list of the name and address of each partner, officer, or co-owner. The other owner interest to be reported is co-owner, joint venture, partnership, corporation, company, or other similar form of ownership. (use additional paper if necessary)

Name	Title or Office(if any)	Address
Anchorage Sand & Gravel	Corporation	1040 O'Malley Road, Anchorage, AK 99515
Co., Inc. (AS&G)		

Attach this sheet to your application form

Accepted by:	Date	Application for	Case Number

Supplemental Form: *ADDITIONAL PETITIONERS*

ADDITIONAL PETITIONERS:

Applicants for an entitlement involving more than one property description and owned by more than one individual are required to provide the name, legal description of property owned, and signature of each petitioner. Persons signatory to this application supplement are deemed to be petitioners (use additional paper if necessary)

We, the undersigned, hereby apply for: zoning amendment from R-1A to PLI

Signature	Name (printed or typed)	Legal description of property owned within petition area
1.	AS&G	LANCASTER TR A
2.	AS&G	POLEN PARK TR 1
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		
17.		
18.		
19.		
20.		

Attach this sheet to your application form

Accepted by:	Date	Application for	Case Number

ANCHORAGE SAND & GRAVEL, INC.
1040 O'MALLEY ROAD
ANCHORAGE, ALASKA 99515
PHONE: (907) 349-3333
FAX: (907) 344-2844
WWW.ANCHSAND.COM

Date: January 2022

To: Mr. Francis McLaughlin
Senior Planner, Municipality of Anchorage
P.O. Box 196650
Anchorage, Alaska 99519-6650

Subject: AS&G - Sand Lake Fill Site Reclamation Project, 2021 Annual Status Report, C.U.P. Permit 2020-010

Dear Mr. McLaughlin:

Anchorage Sand and Gravel (AS&G) is providing the Municipality of Anchorage the 2021 Annual Status Report for their Sand Lake Clean Fill Site. This report is provided pursuant to the Conditional Use Permit (CUP) 2020-010 (formerly 2005-074). This permit allows AS&G to dispose of waste peat, soil, organics, and concrete as a means of reclaiming the pit.

According to AS&G records, roughly **194,000 cubic yards (CY)** of material was deposited at the Sand Lake Clean Fill Site in 2021. Roughly 7,300,000 CY have been deposited in the AS&G Sand Lake Pit since 1983. The following is an annual breakdown of deposits.

1983 – 167,000 CY	1991 – 20,250 CY	2001 – 341,074 CY	2009 – 354,422 CY
1984 – 251,000 CY	1992 – 60,724 CY	2002 – 305,599 CY	2010 – 75,654 CY
1985 – 136,000 CY	1993 – 48,599 CY	2003 – 335,345 CY	2011 – N/A CY
1986 – 26,000 CY	1994 – 34,242 CY	2004 – 443,248 CY	2012 – N/A CY
1987 – 8,500 CY	1995 – 158,312 CY	2005 – 402,770 CY	2013 – 108,414 CY
1988 – 2,402 CY	1996 – 123,384 CY	2006 – 361,552 CY	2014 – 120,981 CY
1989 – 1,306 CY	1997 – 168,699 CY	2007 – 207,023 CY	2015 – 379,476 CY
1990 – 83,659 CY	1998 – 205,865 CY	2008 – 506,610 CY	2016 – 270,000 CY
2017 – 420,000 CY	2018 – 269,000 CY	2019 – 212,000 CY	2020 – 212,000 CY
2021 – 194,000 CY	2022 – TBD	2023 - TBD	2024 – TBD

In the past, AS&G has provided Zoning Enforcement with aerial photographs and overlays to document the history of reclamation. We are again providing a picture of the Sand Lake Pit as it appeared in October 2020. Notes on the photograph indicate where the material has been deposited. AS&G continues to work towards its reclamation plan, which includes reseeding to prevent erosion and reduce dust. Topographic change has not been significant at this time; therefore, we are not including any adjusted topography of the Sand Lake Pit.

AS&G recognizes the scope of this ambitious project and maintains an ongoing commitment to the community to redevelop the property. AS&G continues to be responsible for counting loads, directing fill placement, and maintaining clean roads. They have explicit authority to handle road cleanup and can call on a grader, sweeper, and water truck as needed.

In the past, Zoning Enforcement has requested a contact person to handle public inquiries. That person is Mr. Ryan Morman, Operations Manager for AS&G; Ryan is available to respond directly to any public or municipal agency questions or concerns by contacting his office at 349-3333.

If you have any questions regarding this report, please get in touch with me at your convenience at mobile number 907-529-0556 and ryan.morman@anchsand.com.

Sincerely,

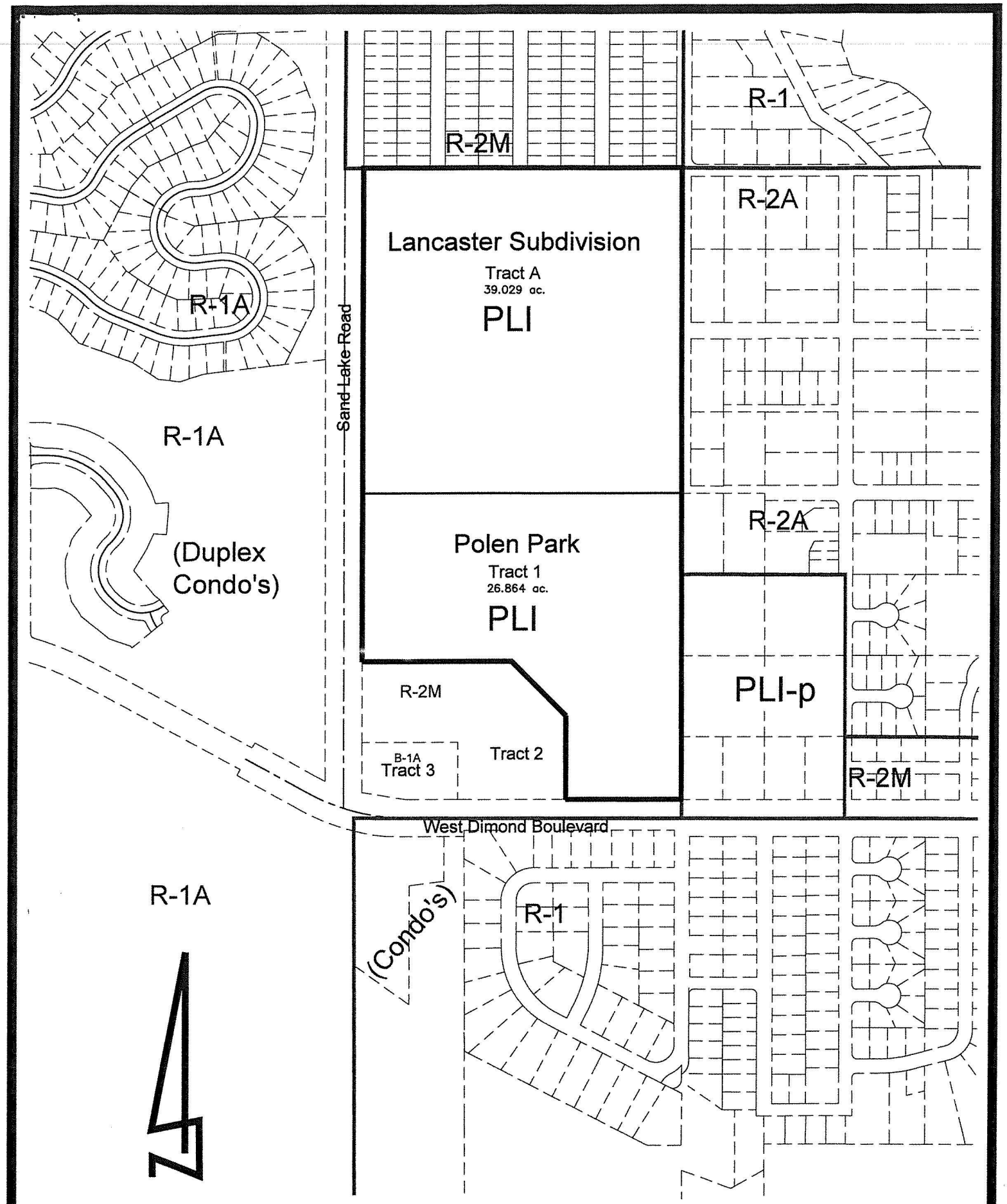
Anchorage Sand & Gravel, Inc.

Ryan M. Morman

Ryan Morman

Operations Manager

Attachment(s): As stated


R-1A
R-2M
R-1
R-2A
Lancaster Subdivision
Tract A
39.029 ac.
PLI
Sand Lake Road
R-1A
(Duplex
Condo's)
R-2A
Polen Park
Tract 1
26.864 ac.
PLI
PLI-p
R-2M
B-1A
Tract 3
Tract 2
R-2M
West Dimond Boulevard
R-1A
(Condo's)
R-1

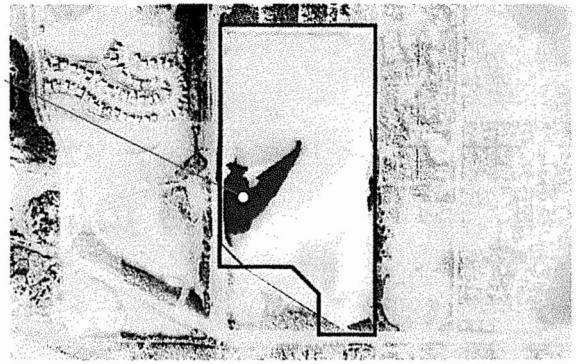
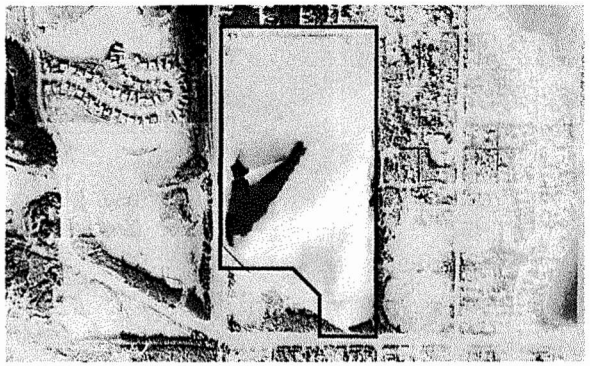
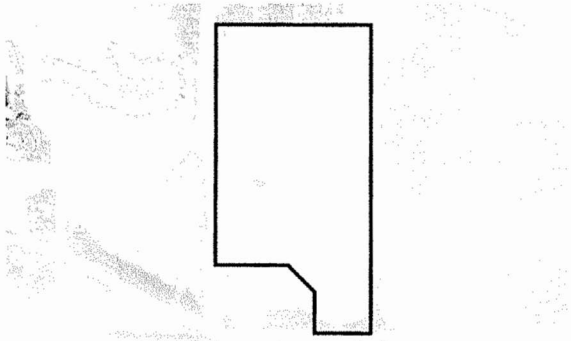
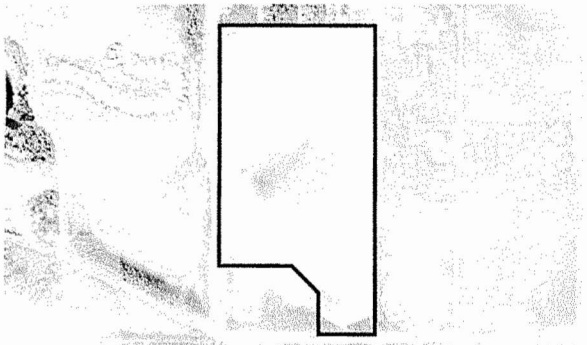
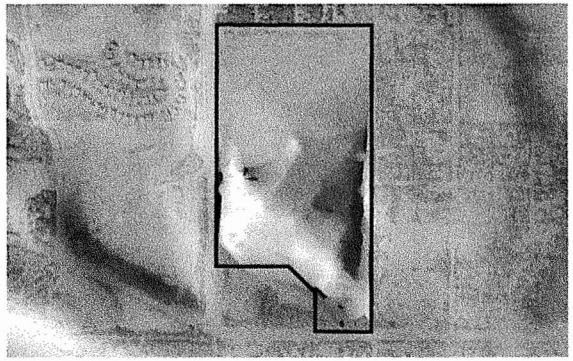
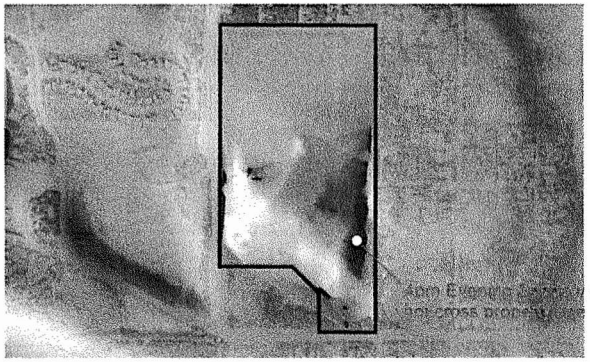
Zoning Map

AS&G Recreational Sports Park Shadow Study

Scale 1"=500'

This study is showing the shadows on the solstice and equinox days with the proposed grading.

Surrounding properties are not affected by shadow from the site with these days and times.

	March 20th	September 22nd
8:00AM Morning	8am Morning Shadow does not cross property line 	
Noon		
4:00PM Evening		 4pm Evening Shadow does not cross property

AS&G Recreational Sports Park Shadow Study

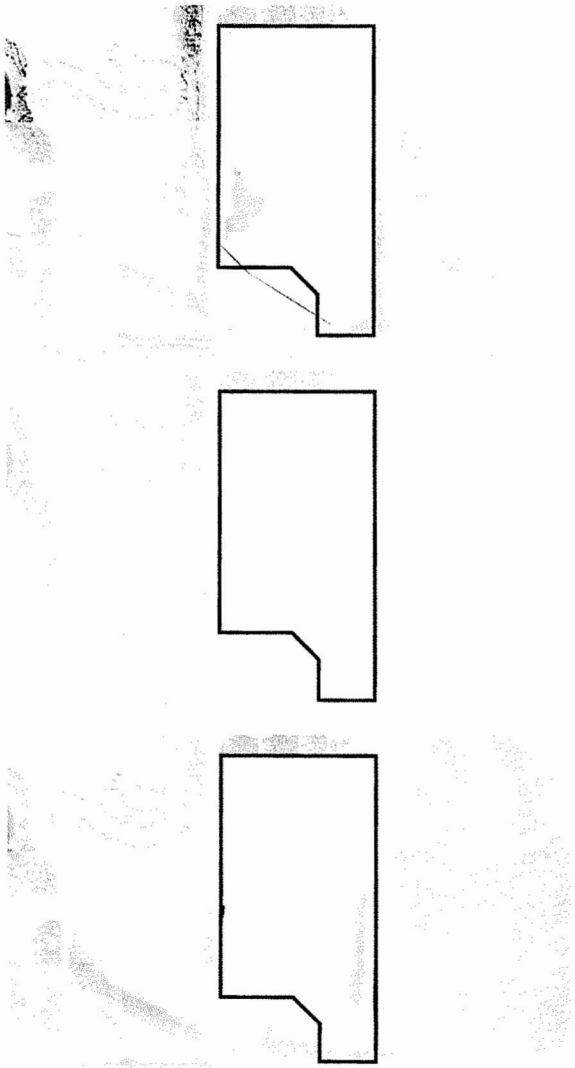
Scale 1"=500'

This study is showing the shadows on the solstice and equinox days with the proposed grading.

Surrounding properties are not affected by shadow from the site with these days and times.

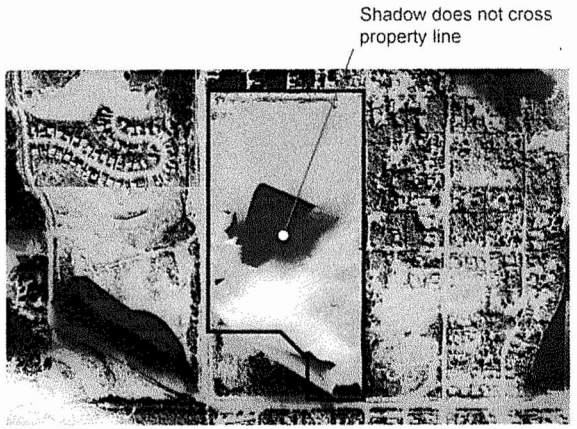
June 21st

December 21st



Sunrise 10:11AM

8:00AM
Morning



Noon

Sunset 3:40PM

4:00PM
Evening

January 30, 2023 NGE-TFT Project # 6605-23

Anchorage Sand and Gravel, Inc.
1040 O' Malley Road
Anchorage, Alaska

Attn: Ryan Morman – Operations Manager

RE: PRELIMINARY GEOTECHNICAL ENGINEERING ASSESSMENT OF THE PROPOSED AS&G RECREATIONAL SPORTS PARK – ANCHORAGE, ALASKA (PO#: 28636)

Ryan,

We (Northern Geotechnical Engineering, Inc. *d.b.a.* Terra Firma Testing) have completed a preliminary geotechnical engineering assessment of the proposed Anchorage Sand and Gravel (AS&G) Recreational Sports Park, located at the Sand Lake Pit in Anchorage, Alaska. The results of our assessment indicate that the subgrade conditions are suitable to support the proposed improvements, provided that proper engineering controls are incorporated into the design and construction of the proposed improvements. We detail our recommendations in the following letter.

1.0 Overview

The pit has already been filled with undocumented fill, close to 100 feet in some areas with more fill activities planned to bring the project site to final grade.

Based on meetings with AS&G, it is our understanding that the following features are being considered as a part of the proposed park:

- Year-round parking area
- Sports fields
- Multi-use trails
- Occasional use service roads
- Storage areas
- Pavilions
- Grass berm seating
- Light poles

2.0 Conclusions

The settlement of the non-structural fill and organics is unavoidable, but can be mitigated in the design phase. For areas where it is not economically feasible to mitigate the settlement, the settlement can be anticipated and handled as a part of maintenance and upkeep of the park.

We anticipate that any large organics (i.e., trees, stumps) that are deeply buried within the fill will take a long time to decompose and will not significantly contribute to the settlement of the site.

11301 Olive Lane Anchorage, Alaska 99515 · Phone: (907) 344-5934 · Fax: (907) 344-5993 · Website: www.nge-tft.com

3.0 Recommendations

As needed, we have provided recommendations for the proposed features of the park in the following subsections.

As the project develops, we can be consulted to consider alternative design options. Additionally, we recommend having inspections at the time of construction to help finalize the design of proposed improvements.

3.1 Year-Round Parking Lot

We recommend using a "floating" section for the parking lot using geotextile fabric and appropriate amounts of classified structural fill. It is our understanding that RAP is planned to be used as the surface material. RAP is an acceptable material to use in a floating section and can more easily repaired if any differential settlement occurs.

We recommend that there be a minimum 36-inch section of RAP and Type II/Type II-A over a reinforcement (Type B, Class 1) geotextile fabric.

3.2 Occasional Use Service Roads

Our preliminary recommendation for gravel surfaced roads that are expected to have vehicular traffic is that the roads should be constructed with 36 inches of Type II/Type II-A on top of reinforcement geotextile fabric. The final design (i.e., section thickness) can be determined during construction when the subsurface conditions are exposed.

3.3 Multi-Use Trails

Soft-surface trails that have no vehicular traffic can be constructed with the desired surface material and 8 inches of Type II/Type II-A over geofabric.

Soft-surface trails that are anticipated to have any vehicular traffic (for trash collection, portable toilet maintenance, etc.) should be constructed with reinforcement. The final design can be determined during construction when the subsurface conditions are exposed. Underneath the desired surface material, preliminary options are: 1) to have a reinforcement geotextile fabric with a 36-inch layer of Type II/Type II-A on top; or 2) use a cellular confinement system, or geocells.

3.4 Sports Fields

The northern sports fields will most likely settle differentially due to the difference in fill thickness underneath the fields. We anticipate that the fields will settle towards the south. Keeping the fields flat is unlikely to be economically feasible. As such, we recommend anticipating needing to bring in fill periodically to maintain a level field. Cellular confinement systems are useful to mitigate differential movements over large areas.

11301 Olive Lane Anchorage, Alaska 99515 · Phone: (907) 344-5934 · Fax: (907) 344-5993 · Website: www.nge-tft.com

It is our understanding that some of the fields will have vehicular traffic. Fields with vehicular traffic should be constructed with additional reinforcement underneath the topsoil. The final design can be determined during construction when the subsurface conditions are exposed. Preliminary options are: 1) to have a reinforcement geotextile fabric with a 36-inch layer of Type II/Type II-A on top; or 2) use a cellular confinement system, or geocells. A cellular confinement system may provide better drainage for topsoil and grass.

3.5 Pavilions

We recommend using a structural floating slab for the pavilions. If the slab settles differentially, foam can be used to re-level the slab.

3.6 Storage Areas

We recommend using either a 1) floating concrete slab; or 2) reinforcement geotextile fabric with a levelling course for the storage areas.

If the slab settles differentially, foam can be used to re-level the slab.

3.7 Light Poles

We recommend using a standard foundation for the light poles but having a provision in the design that allows for the light poles to be adjusted to be kept vertical.

4.0 Closure

We greatly appreciate the opportunity to provide you with our professional service. Please contact us directly with any questions or comments you may have regarding the information that we present in this letter, or if you have any other questions, comments, and/or requests.

Sincerely,
Northern Geotechnical Engineering, Inc. *d.b.a.* Terra Firma Testing

Josselynn P. Schneider-Curry, EIT
Project Engineer

Keith F. Mobley, P.E.
President

11301 Olive Lane Anchorage, Alaska 99515 · Phone: (907) 344-5934 · Fax: (907) 344-5993 · Website: www.nge-tft.com

Brailey Hydrologic Consultants

3527 North Point Drive
Anchorage, AK 99502
907-242-6324
dbrailey@alaska.net

January 28, 2023

Anchorage Sand & Gravel, Inc.
1040 O'Malley Road
Anchorage, AK 99515-3032

Attn: Mr. Ryan Mormon

Subject: Sand Lake Pit Conditional Use Amendment

Dear Ryan:

As explained in my February 13, 2020 letter (attached), the proposed increase in final grade at the Sand Lake fill site will not affect subsurface hydrology including groundwater quality or quantity in Sand Lake drinking water aquifers. The proposed change will not affect the quantity of surface runoff directed to the on-site stormwater detention basin, which is separated from drinking water aquifers by the Cohesive Facies of the Bootlegger Cove Formation (Figure 2, attached). Annual monitoring of perched aquifer wells indicates stable conditions over the past decade, during which the overall site drainage has remained constant (Brailey Hydrologic 2023). As a result, no impacts to subsurface hydrology are anticipated.

Sincerely,

David E. Brailey
Brailey Hydrologic Consultants

Brailey Hydrologic

3527 North Point Drive
Anchorage, AK 99502
phone: 907-248-0058
dbrailey@alaska.net

February 13, 2020

Anchorage Sand and Gravel Co., Inc.
1040 O'Malley Road
Anchorage, Alaska 99515-3032

Attn: Mr. Ryan Morman

Subject: MOA questions regarding Sand Lake groundwater

Dear Ryan:

During preparation of their staff report for the proposed amendment of Conditional Use Permit (CUP) No. 2010-005, the Municipality of Anchorage requested a simple explanation of the water table depth below final grade, and how this would affect groundwater contamination. This letter provides a summary of water table information beneath the Sand Lake fill site, and addresses the potential for groundwater contamination.

Groundwater beneath the Sand Lake fill site is perched on a low-permeability formation that was mapped extensively as part of post-1964 geotechnical studies (Ulery and Updike, 1983). The presence of this formation was confirmed by independent groundwater studies performed by the University of Alaska-Anchorage (Munk et al. 2004) and the University of Alaska-Fairbanks (Kane et al. 2008). This low-permeability formation (termed the cohesive facies of the Bootlegger Cove Formation) serves as a barrier between shallow groundwater and deeper drinking-water aquifers. Based on groundwater monitoring wells installed by AS&G, the flow direction of shallow groundwater beneath the Sand Lake fill site is toward the northwest, whereas the flow direction at the nearby Lucy Street fill site is toward the southeast (Figure 1). Figure 2 shows the vertical relationship between the two aquifers, indicating that the shallow aquifer is perched above the cohesive facies. Shallow groundwater was not encountered during installation of the Lucy Pit monitoring wells (Brailey 2010), which confirms the cohesive facies limit mapped by Ulery and Updike (Figure 1).

Consistent with conceptual models of the Anchorage Bowl (e.g., Figure 3), flow in the sea-level aquifer is toward Cook Inlet. An extensive well survey performed by the University of Alaska-Fairbanks shows that most Sand Lake drinking water wells tap aquifers below sea level, and that the deepest wells are located in the Sand Lake Subdivision (Figure 4).

Due to the fine-grained nature of the cohesive facies, the shallow aquifer beneath the Sand Lake fill site and the surrounding area is not suitable for water supply development. During

Figure 1. Water Table Elevation on December 19, 2019

Figure 2. Hydrogeologic Cross Section, Lucy Pit to Sand Lake Pit

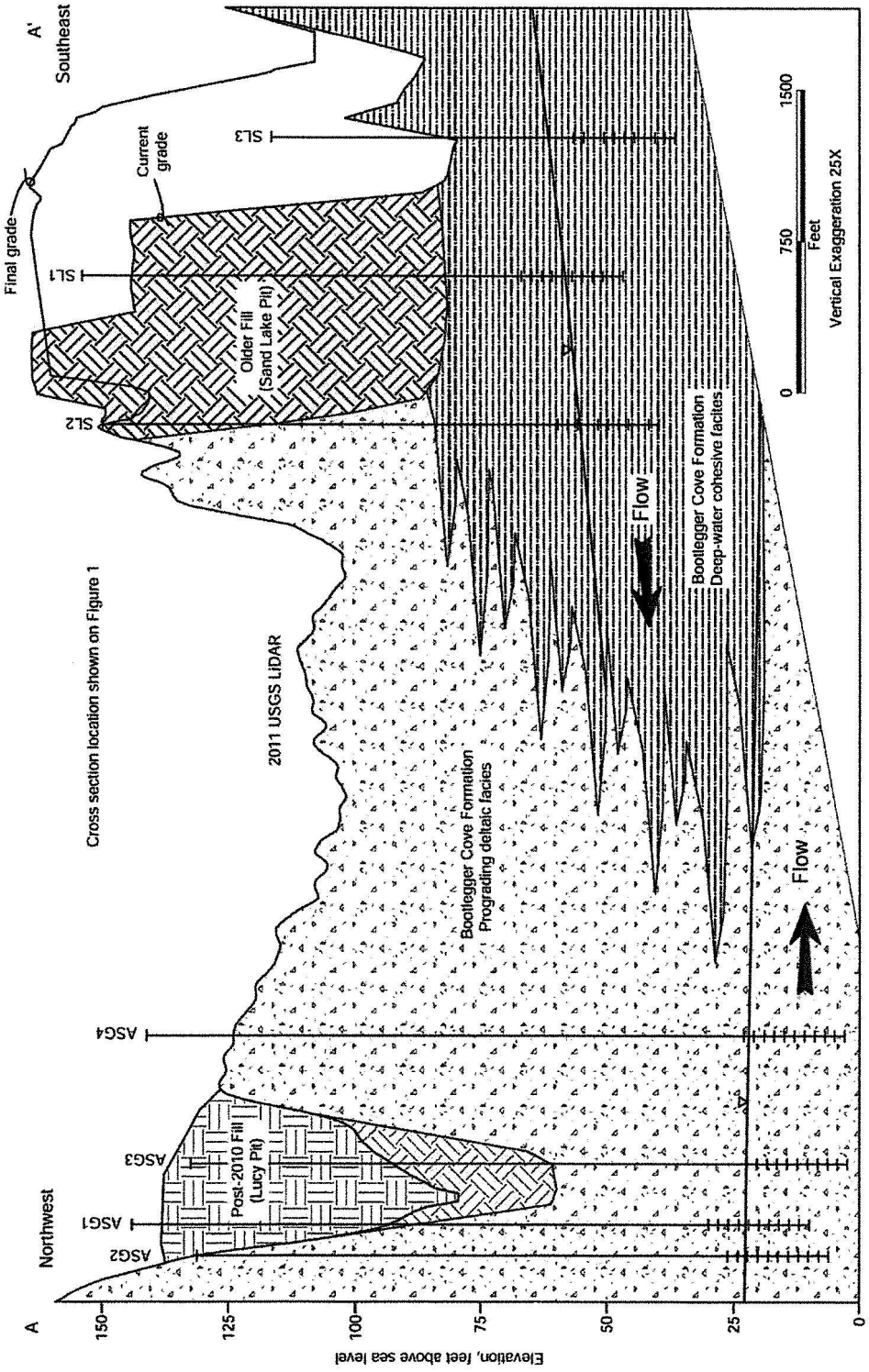
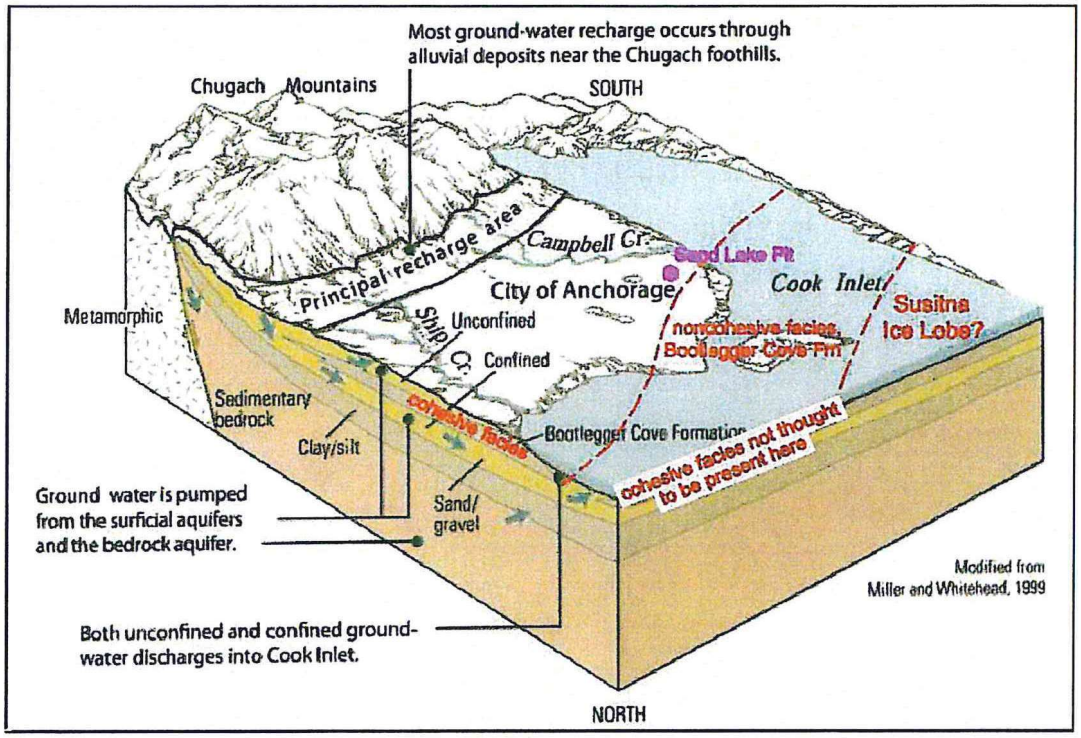


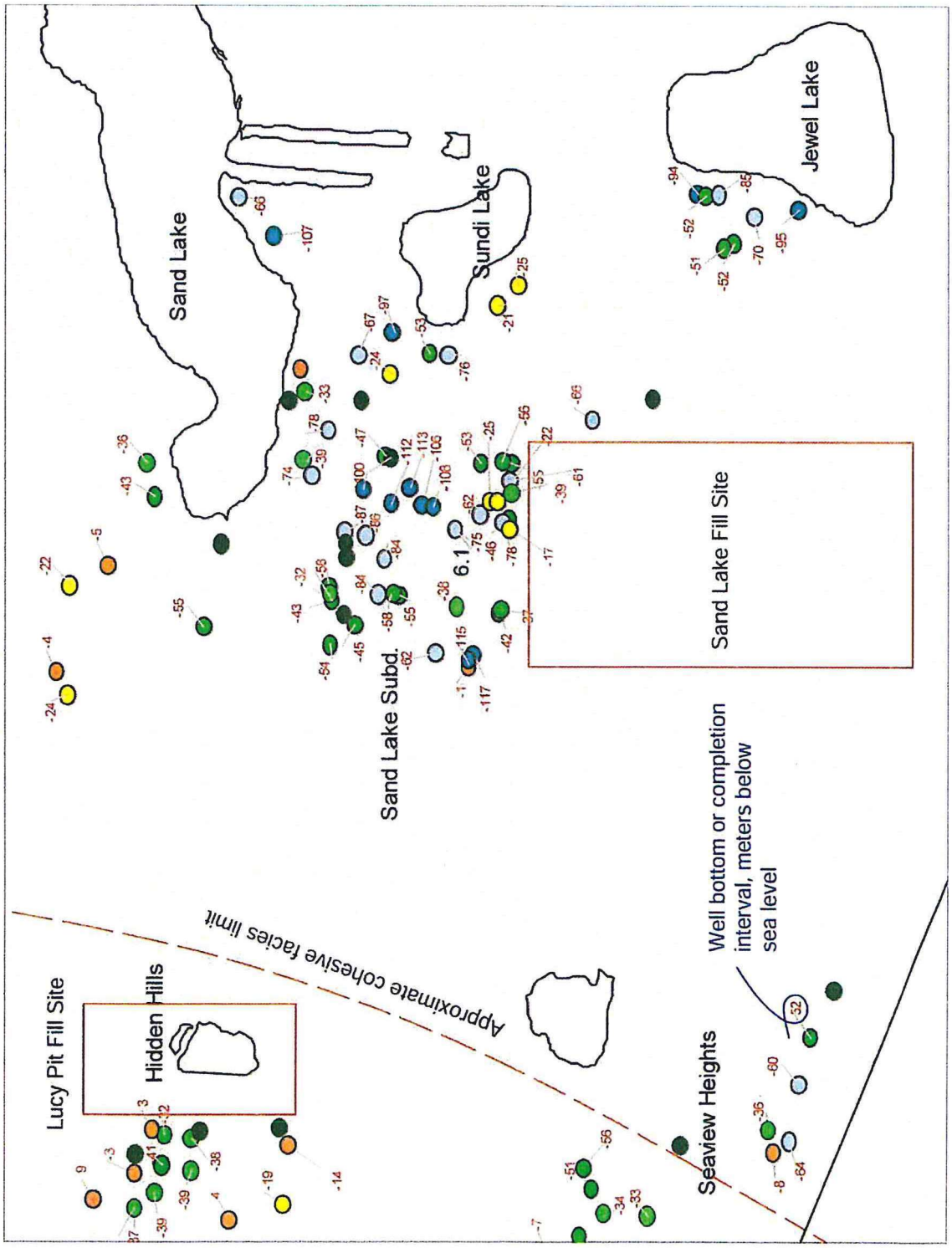
Figure 3. Conceptual Hydrogeologic Model of the Anchorage Bowl



installation of the Sand Lake monitoring wells, water was barely perceptible in the air-rotary cutting returns, and the well casings needed to be left overnight to determine whether sufficient water was available to warrant well completion. During sampling, the Sand Lake monitoring wells must be purged slowly to avoid dewatering, and standard well screens do not exclude the formation's fine-grained sediment. Excessive sediment in the discharge has caused damage to submersible sampling pump impellers. This explains why all of the drinking water wells identified by Kane et al. (2008) tap deeper aquifers (Figure 4).

Surface soils presently exposed in the southeast corner of the Sand Lake fill site consist of silty sand, which is consistent with the cohesive facies of the Bootlegger Cove Formation. As shown on Figure 2, final grade in this area will be about 40 feet above the water table. This substantial vertical separation, together with the fine-grained nature of the intervening soils, will tend to reduce the potential for groundwater contamination.

Figure 4. Well Completion Intervals from Kane et al. 2008



Thank you for the opportunity to provide this information. Please call should you have any questions.

Sincerely,

David E. Brailey
Brailey Hydrologic

References Cited:

Brailey Hydrologic Consultants (Brailey) 2010. Groundwater Monitoring Plan, Lucy Street Fill Site. Brailey Hydrologic Consultants, Anchorage, Alaska, November 2010.

Kane, D., Youcha, E., Billings, S., and R. Gieck, 2008. Flow Patterns and Chemistry of Groundwater Aquifers in Southwest Anchorage, Alaska. July 2008, University of Alaska Fairbanks, Water and Environmental Research Center, Report INE/WERC 08-03, Fairbanks, Alaska, 90 pp.

Munk, L., Metheny, M., and Schnabel, W. 2004. Review of Geologic and Hydrogeologic Studies Related to the Proposed Kincaid Estates Subdivision, Anchorage, Alaska. University of Alaska Anchorage, October 2004.

Ulery, C.A. and Updike, R.G. 1983. Subsurface Structure of the Cohesive Facies of the Bootlegger Cove Formation, Southwest Anchorage, Alaska. Alaska Division of Geological and Geophysical Surveys Professional Report No. 84.

SAND LAKE FILL SITE

Tract A, Lancaster & Tract 1, 2, & 3, Polen Park Subdivision

PRELIMINARY
STORMWATER MANAGEMENT REPORT

Anchorage Sand & Gravel Co, Inc.

1040 O'Malley Road

Anchorage, AK 99507

Prepared By:

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January 2023

Prepared By: **Brandon J. Marcott, P.E.**

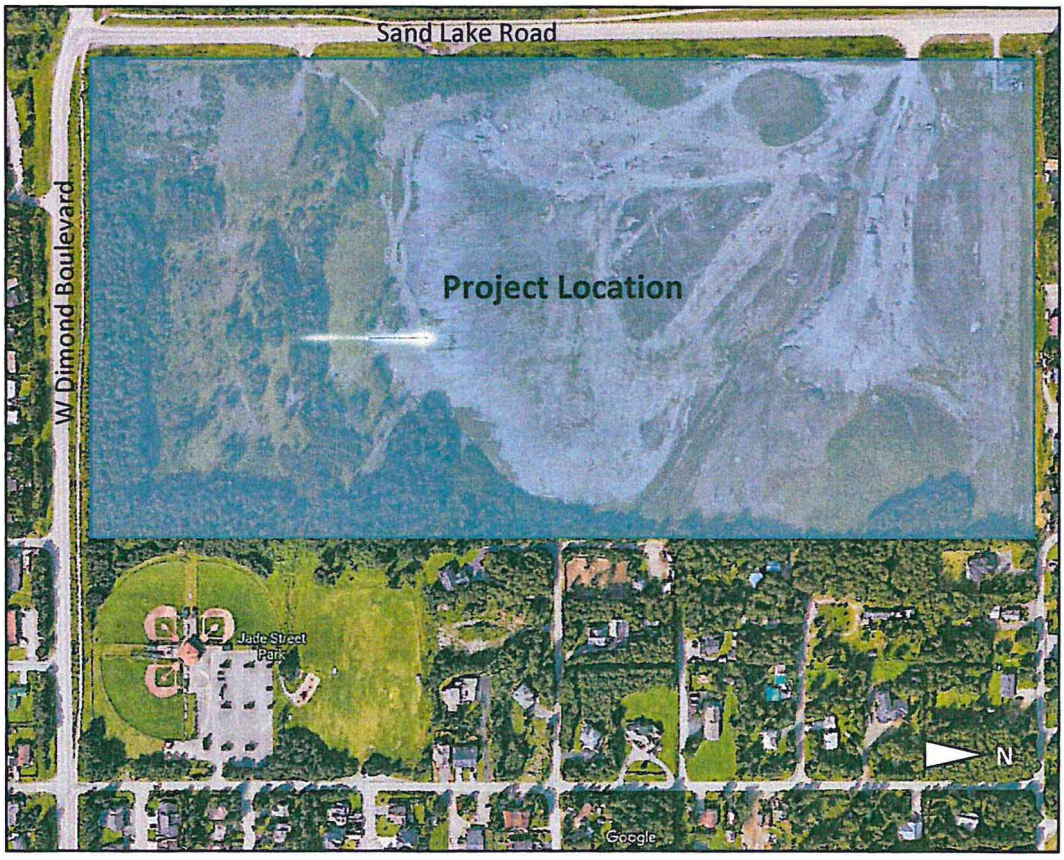
Table of Contents

1. Project Overview

1.1 Location

The project site is located in the northeast quadrant of the W. Dimond Boulevard and Sand Lake Road intersection in Anchorage, Alaska. The site address is 8501 Sand Lake Road. See below for a location map. Both Dimond Boulevard and Sand Lake Road are publicly dedicated streets owned and maintained by ADOT. In addition to these two streets, the site is bordered by residential development to the north and Jade Street Park and a residential development to the east. Vehicular access to the site is currently from Sand Lake Road. An additional access point is permitted from Dimond Boulevard when the site is subdivided and developed.

Due to the project's location, an orographic factor of 1.0 was used for this drainage analysis. An orographic map is included in Appendix 7.1.



Location Map

1.2 Description

The site is zoned PLI, R-2M SL and B-1A SL and contains four separate parcels, Tract A of Lancaster Subdivision and Tracts 1-3 of Polen Park Subdivision with a total area of approximately 79.2 acres. All parcels are owned by Anchorage Sand & Gravel Co, Inc. The site is currently operating under a Land Reclamation Conditional Use Permit for a fill operation. Approximately 10 acres in the southwest corner is planned for

commercial/residential use and the remaining 69.2 acres are to remain undeveloped as open space, soccer fields and parking.

1.3 Category Determination

The Anchorage Stormwater Manual, Version 1.0 (December 2017) will be used for the analysis and relevant stormwater management requirements. The project will disturb more than 10,000 square feet and is categorized as a "Large Project" per Table 3.3.1.

1.4 Drainage Project Notification

Mapping has been completed by Watershed Management in June of 2018. The site does not contain stream channels or MOA-identified drainageways.

2. Drainage Basin

2.1 Basin size

The overall drainage basin analyzed within this report is approximately 111 acres and includes portions of Sand Lake Road to the west, Jade Park baseball fields to the east, and portions of the existing neighborhood to the north up to W 82nd Avenue.

2.2 Existing Conditions & Land Cover

The site was once a natural resource extraction site and is currently undergoing land reclamation. The site has operated as a natural resource extraction site since 1979 and has received various types of fill over the past 40 years, including unusable excavated material, peat and concrete.

The primary landcover is bare soil and dirt access roads with some grass and mature vegetation present on site. Sand Lake Road and Dimond Boulevard contribute to the basin, as well as a residential neighborhood to the north, and Jade Park along with portions of the backyards of properties to the east of the parcel. The overall drainage basin is designated as a sink with the low point shown in the map on the following page. All 111 acres of the drainage basin contribute runoff. The proposed land cover for the basin is shown in the table below.

Contributing Pre-development Land Cover

Land Cover	Slope	Area [Acre]	Percent
Impervious	1-4%	17.7	15.9%
Bare Soil or Dirt Access Rd	2-50%	52.7	47.3%
Natural Forest (Poor)	2-5%	11	9.9%
Lawn (Moderate Slopes)	1-5%	30	26.9%

2.3 Proposed Conditions & Land Cover

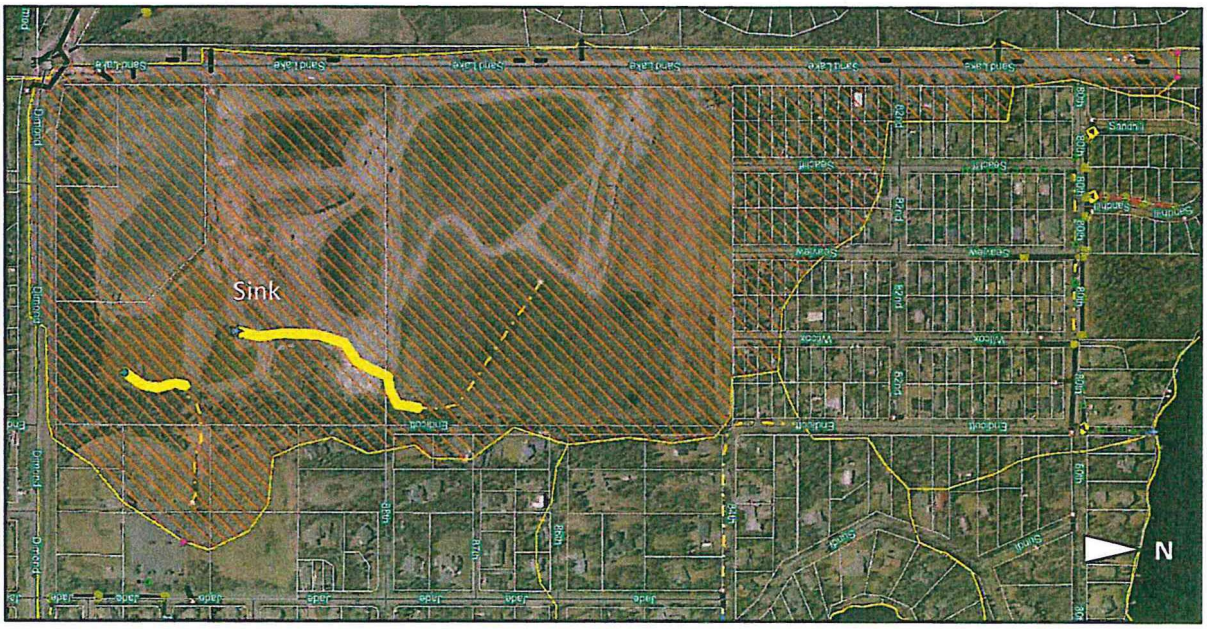
The future commercial/residential development within Tracts 2 and 3 creates approximately 8 acres of impervious area. Additionally, 4.3 acres of parking for the soccer fields within Tract A was modeled as impervious area. The remaining area, roughly 71.2 acres, was modeled as Lawn with varying slopes. The proposed land cover for the drainage basin is shown in the table on the following page.

Contributing Post-development Land Cover

Land Cover	Slope	Area [Acre]	Percent
Impervious	1-4%	33.1	29.8%
Lawn (Moderate Slopes)	2-5%	66.2	59.6%
Lawn (Steep Slopes)	6-50%	11.7	10.6%

2.4 Map of Basin

See below for a map of the MOA-delineated drainage basin. The entire 111-acre basin drains to an existing low point on site near the south end of the existing fill operation. Portions of Sand Lake Road and the residential subdivision to the north eventually drain south into and through the project.



MOA Drainage Map – Screenshot 1/20/23

3. Existing Conditions

3.1 Predevelopment Site Plan

Existing conditions are shown on the following page. Overland flow from the contributing area sheet drains towards the project where, over time, it infiltrates on site.

There are no established storm drains or conveyance systems present on site. Runoff from surrounding drainage basins is collected in swales or catch basin inlets and conveyed through the municipal storm system where it is discharged to nearby water bodies including Jewel Lake, Sundi Lake, Sand Lake and Cook Inlet.

Pre-development Site Plan

3.2 Floodways, Floodplains and Problem Areas

The site is not located within a floodplain and there are no known problem areas in the project's immediate vicinity. There have been no known flooding incidents and there is no standing water visible at the low point on site.

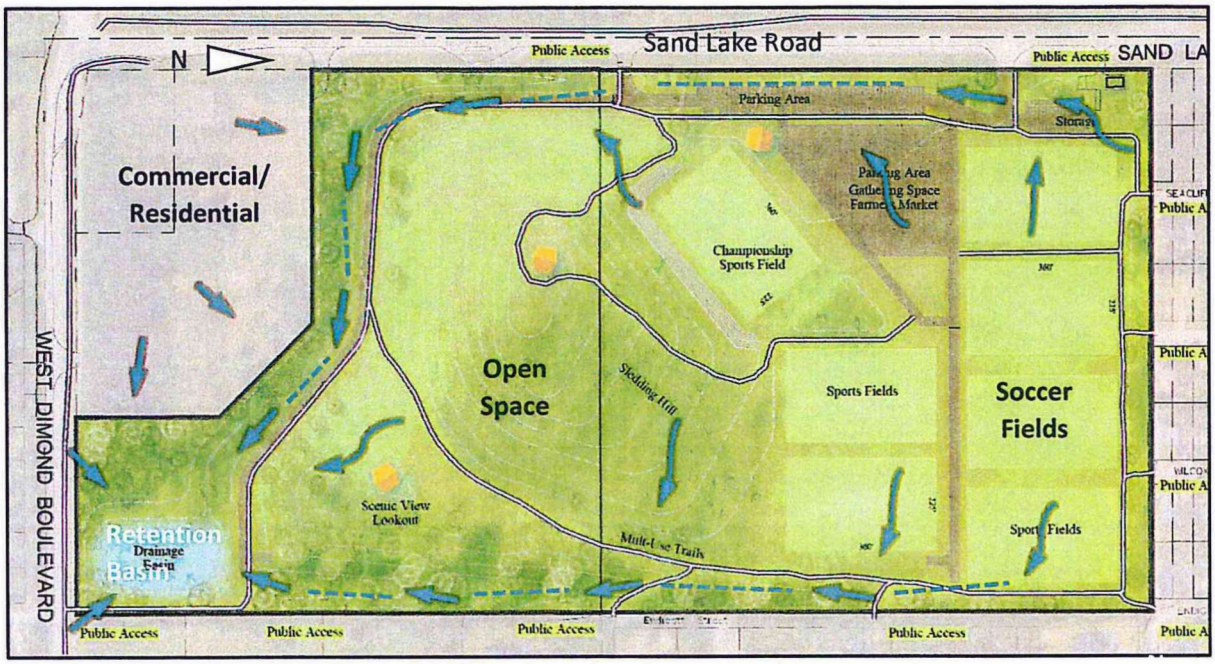
3.3 Soils

As mentioned in Section 2.2, portions of the site have received various fill types under a Conditional Use Permit. The material has been placed and track-walked to an unknown density. Based on the site's history and overall uncompacted nature of the fill, a hydrologic soils group "C" was used for the drainage analysis. The USGS Web Soil Survey has no data for the subject property or immediate surrounding area.

4. Proposed Conditions

4.1 Post-development Site Plan

Post-development conditions will include approximately 10 acres of commercial and residential development and approximately 69.2 acres of lawn and park land. Runoff will be collected in vegetated swales and directed to an onsite retention pond that will be sized to contain the entire 100-year storm event. A post-development site plan is shown on the following page.



Post-development Site Plan

4.2 Discharge Points and Receiving Water Bodies

There is no proposed off-site discharge point. All runoff from the entire 111-acre drainage basin will be contained and infiltrated on site.

5. Stormwater Controls Construction Consideration Plan

The primary controls used for stormwater management will be vegetated swales and a constructed retention pond. A piped storm drain system may be incorporated into the final design for the commercial/residential portion of the site. Any future piped systems within the commercial/residential area will outfall to the retention pond. Construction of a storm drain connection to the existing municipal system is not anticipated.

5.1 Vegetated Swale

Vegetated swales will be constructed around the perimeter of the open space and commercial area to pick up runoff generated on site as well as runoff flowing into the project from the surrounding area. The vegetated swales will be constructed per the Anchorage Stormwater Manual recommendations. To meet water quality requirements, the swales will be trapezoidal with a minimum 2-foot bottom and 3:1 maximum side slopes. The maximum longitudinal slope will be 6% and check dams will be installed as necessary to limit the velocity to 1 foot per second or less during the first 0.52 inches of rainfall.

5.2 Retention Pond

A retention pond will be constructed in the southeast corner of the project. The pond will be constructed per the Anchorage Stormwater Manual recommendations and is sized to retain the 100-year storm event on site. The footprint of the pond floor is approximately 40,000 square feet with 4:1 side slopes around the perimeter. Pond

depth varies between 10 and 15 feet. An infiltration rate of 0.5 in/hr was used. This is equivalent to 120 min/in and is based on an "upper limit" infiltration rate of 60 min/in with a factor of safety of 2.

6. Compliance with Stormwater Management Requirements

To comply with the stormwater management requirements, the predevelopment peak runoff was compared to post-development peak flows and the system was designed and sized to meet the requirements of Section 3 of the Anchorage Stormwater Manual.

The Autodesk Storm and Sanitary Sewer program was utilized to model the drainage system. SCS TR-55 methodology with hydrodynamic routing was used for the runoff model. The SCS Type I Cumulative Dimensionless 24-hour Rainfall Distribution in 6-minute increments (Anchorage Stormwater Manual Page D-3) was used for the precipitation model. Time of concentration values for the post-development sub-basins vary from 5 minutes to 45 minutes. Calculations are included in Appendix 7.3.

6.1 Water Quality Treatment

Stormwater management systems must be designed to provide water quality treatment through the use of Green Infrastructure. Treatment must be provided for runoff generated from the first 0.52 inches of rainfall from a 24-hour rainfall event preceded by 48 hours of no precipitation (Section 3.3.2.1).

The first 0.52 inches of precipitation will be treated through the use of vegetated swales and a constructed retention pond. Both of these management tools qualify as Green Infrastructure per Section 3.3.2.1.

6.2 Extended Detention (Channel Protection)

Extended detention is not required since the design will incorporate Green Infrastructure. However, all runoff generated by the 1-year event. is retained on site.

6.3 Conveyance

The storm system must be designed to convey the 10-year 24-hour event (Section 3.3.2.3).

The vegetated swales will be sized to convey the 10-year storm event. The swale used in the analysis is 2-feet deep, with a 2-foot bottom and 3:1 side slopes. At a 2% slope, the swale has a capacity of 111 cfs. The peak runoff carried by the swale during the 10-year event is 15 cfs or less than 14% of the swale's capacity. During the 10-year event, the maximum depth of flow is 0.6 feet with 1.4 feet of additional freeboard.

6.4 Detention and Peak Flow Control

For this analysis, Option 2 of Section 3.3.2.4 was utilized. Three requirements for Option 2 must be met:

1) ***Peak Flow Control***
   a. *Maintain the post-development project runoff peak flow from the 10-year, 24-hour storm to less than or equal to the pre-development runoff peak flow at all project discharge points. AND*
   b. *Maintain the post-development project runoff peak flow from the 100-year, 24-hour storm to less than or equal to 1.05 times the pre-development runoff peak flows.*

   The drainage design retains all runoff on site for both the 10 and 100-year events.

2) ***Project Flood Bypass:*** *Design bypass diversions for the post-development, 100-year, 24-hour storm runoff event or show an unobstructed, overland flow path safely bypassing project structures and/or overtopping project conveyance routes without impact to property affected by bypass route.*

   No runoff is discharged off site during the 100-year event. The conveyance systems are designed to carry the peak flow from the 100-year event without adverse impacts to the site or to neighboring properties.

3) ***Downstream Impacts:*** *A downstream impact analysis is not required for this option if the project is located within the Anchorage Roads and Drainage Service Area (ARDSA).*

   The project is located within ARDSA, therefore a downstream impact analysis is not required.

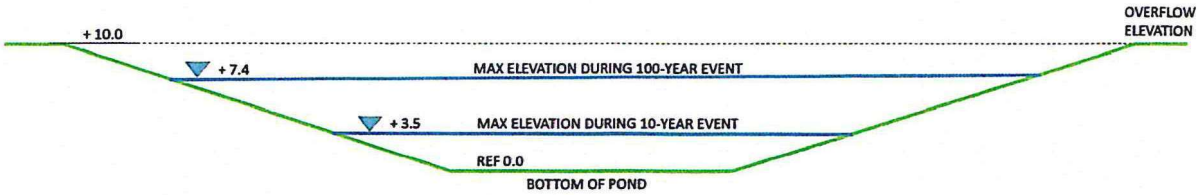
See the table below for a comparison of pre vs post-development flow rates.

Peak Runoff Rate Comparison

Peak Flow [cfs]	Pre-development	Post-development	Fraction
10 Year 24 Hour	0	0	1.0
100 Year 24 Hour	0	0	1.0

No runoff occurs during the 10 or 100-year event under pre-development conditions and no additional off-site runoff will be generated by the proposed development. Peak runoff for all events up to and including the 100-year storm will be collected onsite within a retention pond.

For this preliminary analysis, a retention pond footprint of 40,000 square feet with 4:1 side slopes and a max depth of 10 feet was used for the storage model. With these parameters, the basin reaches 28% capacity during the 10-year event and 68% capacity during the 100-year event. See below for a graphic depicting the retention basin cross section. Exact dimensions may change with the final grading design.



Calculations for the analysis are included in Appendix 7.3.

6.5 Downstream Impact Analysis

Not required for Option 2, Section 3.3.2.4.

6.6 Wetland Compliance

Not applicable, no wetlands are present on site.

6.7 Operations and Maintenance Plan

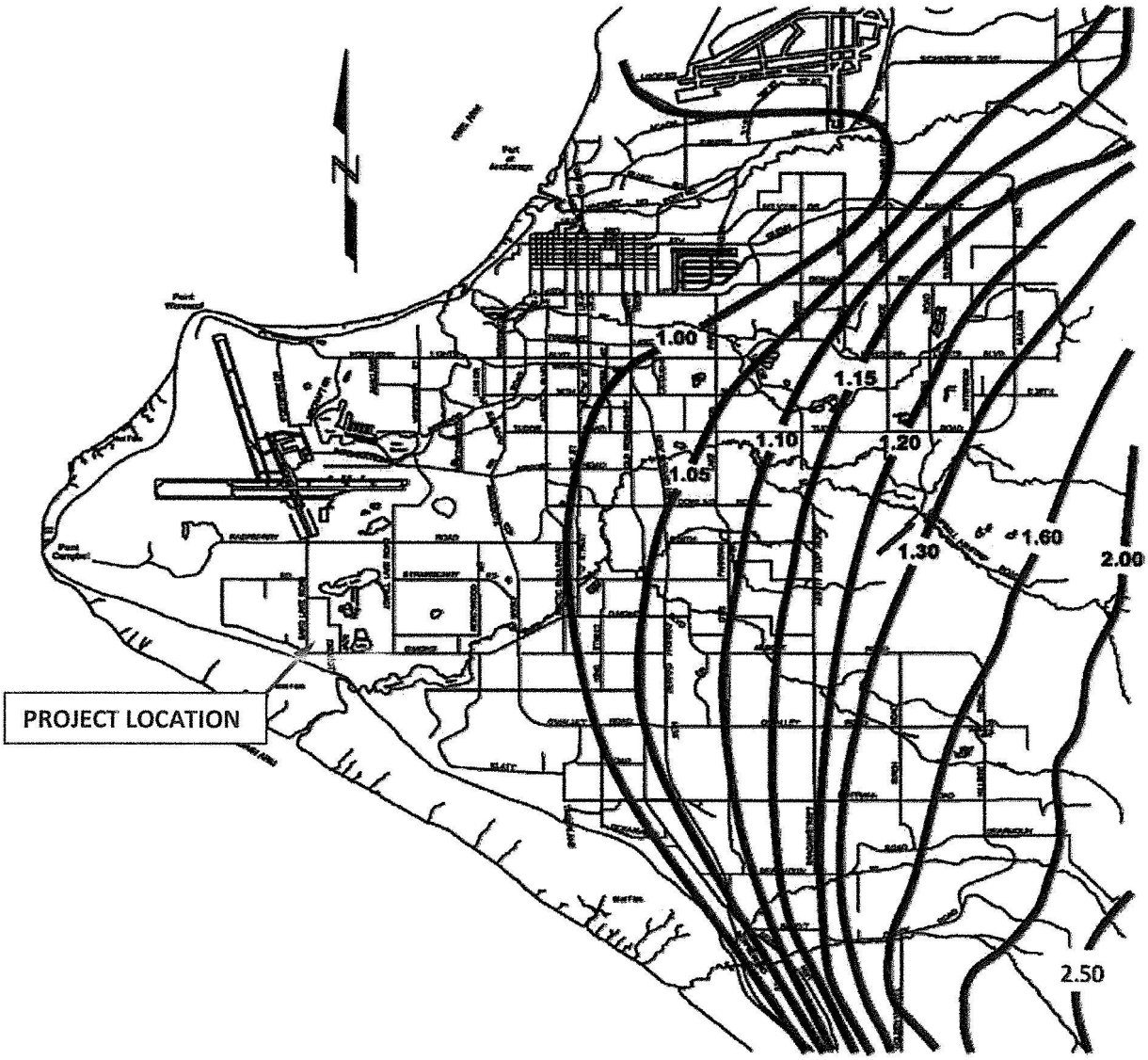
At a minimum, the vegetated swales will require periodic inspection for trash and debris and annual inspection of the soil and vegetation conditions. Revegetation and sediment removal will be required as necessary. The retention basin will also need to be periodically inspected for sediment, trash and debris, and the surrounding vegetation will require upkeep as part of the park's landscaping and maintenance plan.

6.7 Conclusion

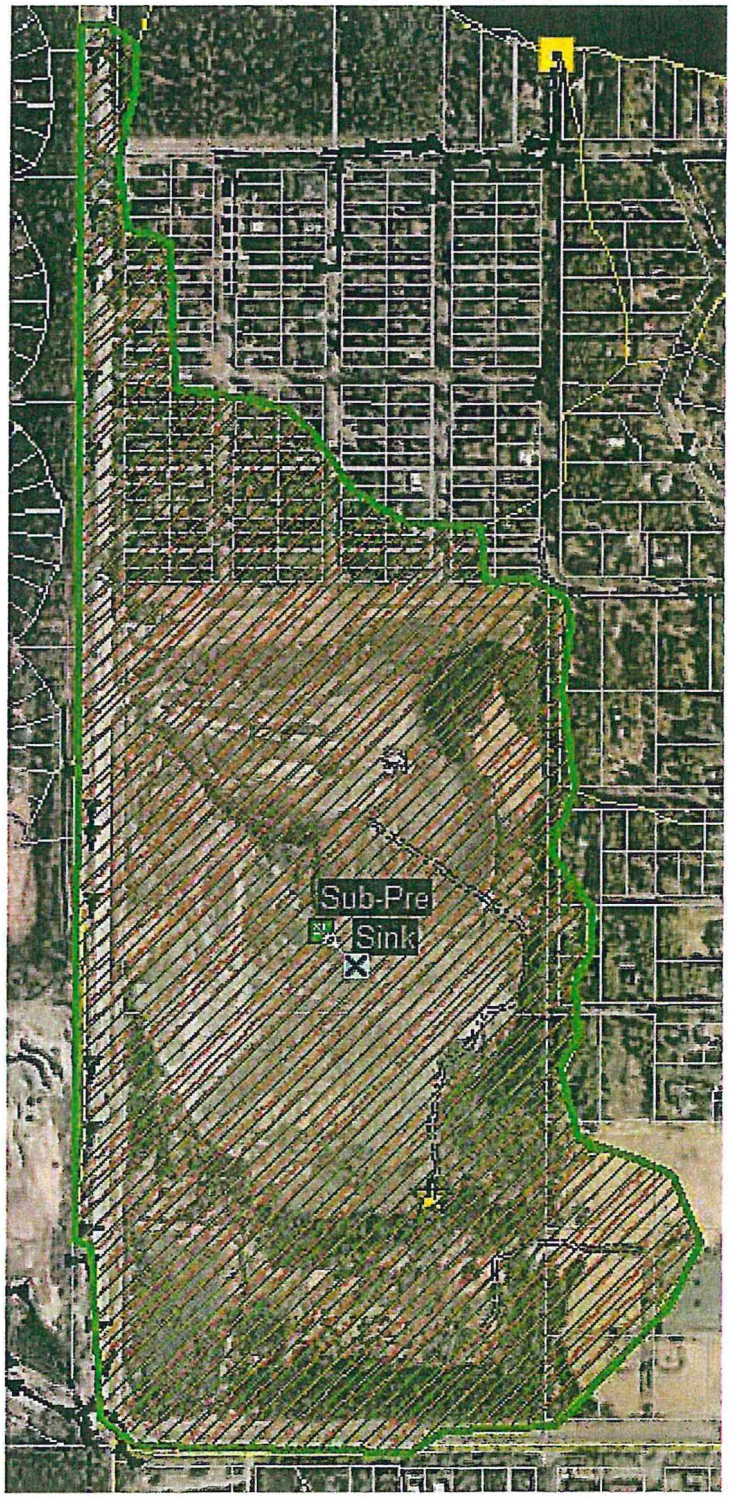
The proposed stormwater management plan complies with all Anchorage Stormwater Manual requirements. Runoff generated by the development will be treated and conveyed with vegetated swales to a constructed retention basin. The retention feature is sized to retain the 100-year storm event.

7. Appendix

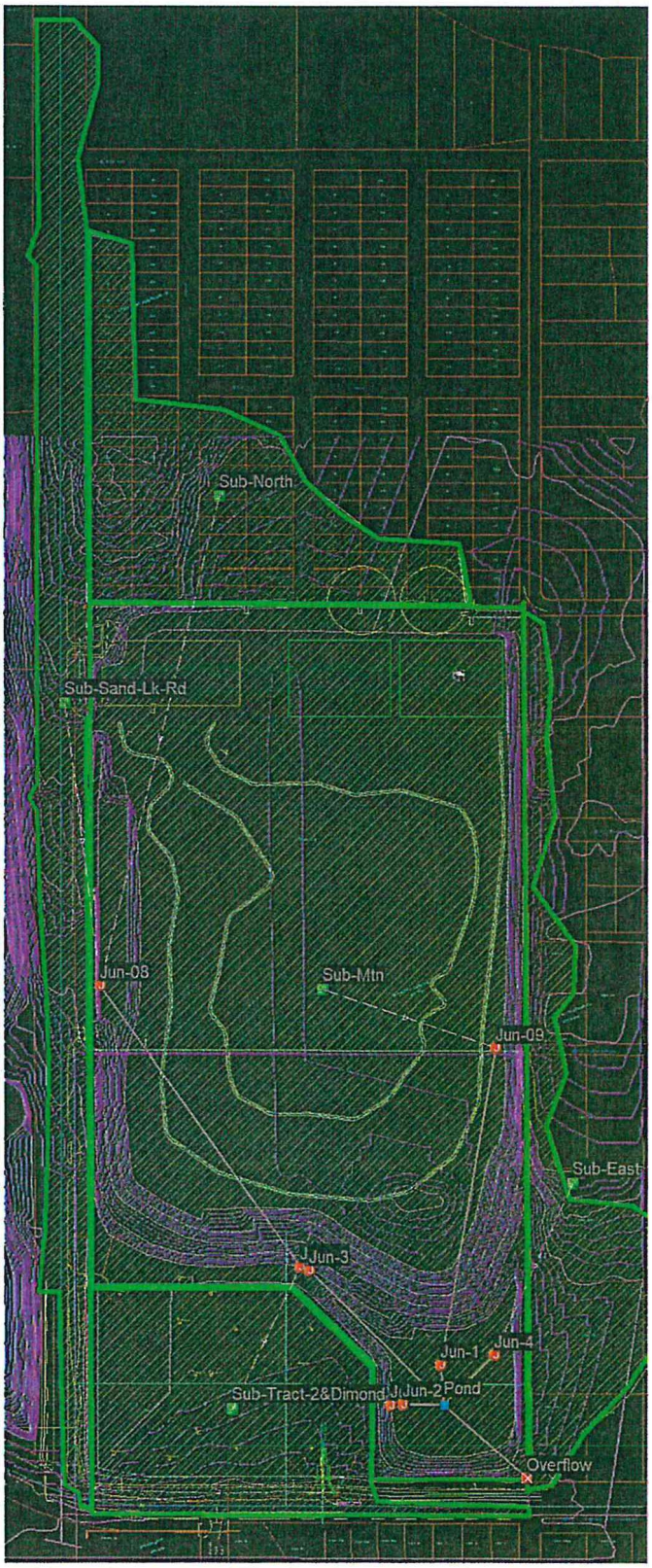
7.1 Orographic Map



7.2 Watershed Maps



Pre-development Watershed Map



Post-development Watershed Map

7.3 Hydrologic and Hydraulic Computations

Pre-development

Due to the drainage basin's characterization as a sink, all runoff from the basin is assumed to drain to the property and no runoff leaves the site.

Post-development

10-year, 24-hour

```
Autodesk® Storm and Sanitary Analysis 2016 - Version 12.0.42 (Build 0)
--------------------------------------------------------------------------------

*******************
Project Description
*******************
File Name ..................... Postdev Drainage 8-26-19 NEW DCM.SPF


****************
Analysis Options
****************
Flow Units ..................... cfs
Subbasin Hydrograph Method. SCS TR-55
Time of Concentration...... SCS TR-55
Link Routing Method ....... Hydrodynamic
Storage Node Exfiltration.. Constant rate, free surface area
Starting Date ............... FEB-10-2015 00:00:00
Ending Date ................. FEB-11-2015 12:00:00
Report Time Step ........... 00:05:00


*************
Element Count
*************
Number of rain gages ...... 1
Number of subbasins ....... 5
Number of nodes ........... 11
Number of links ........... 10


*****************
Raingage Summary
*****************
Gage                Data                Data       Recording
ID                  Source              Type        Interval
                                                                  min
----------------------------------------------------------------
Rain Gage-01        10YR - 24HR NEW DCM CUMULATIVE      6.00


****************
Subbasin Summary
****************
Subbasin                Total
                         Area
ID                      acres
------------------------------
Sub-East                 9.50
Sub-Mtn                 64.68
Sub-North               11.50
Sub-Sand-Lk-Rd          13.00
Sub-Tract-2&Dimond          12.10


************
Node Summary
************
Node                Element            Invert   Maximum    Ponded    External
ID                  Type             Elevation     Elev.      Area      Inflow
                                            ft        ft       ft²
--------------------------------------------------------------------------------
Jun-08              JUNCTION            138.00    157.50      0.00
Jun-09              JUNCTION            136.00    138.00      0.00
Jun-1               JUNCTION            126.00    128.00      0.00
Jun-10              JUNCTION            126.20    128.20      0.00
Jun-11              JUNCTION            126.00    128.00      0.00
Jun-12              JUNCTION            132.50    138.50      0.00
Jun-2               JUNCTION            126.00    128.00      0.00
Jun-3               JUNCTION            125.90    127.90      0.00
Jun-4               JUNCTION            126.00    128.00      0.00
Overflow            OUTFALL             124.00    126.00      0.00
Pond                STORAGE              84.00     94.00      0.00


************
Link Summary
************
Link            From Node       To Node         Element         Length     Slope   Manning's
ID                                              Type                ft         %   Roughness
```

Link-11	Jun-1	Pond	CHANNEL	100.0	42.0000	0.0320
Link-12	Jun-2	Pond	CHANNEL	100.0	42.0000	0.0320
Link-13	Overflow	Pond	CHANNEL	100.0	40.0000	0.0320
Link-14	Jun-3	Pond	CHANNEL	100.0	41.9000	0.0320
Link-15	Jun-4	Pond	CHANNEL	100.0	42.0000	0.0320
Link-16	Jun-08	Jun-12	CHANNEL	553.9	4.0618	0.0320
Link-17	Jun-09	Jun-1	CHANNEL	1000.0	1.0000	0.0320
Link-18	Jun-10	Jun-2	CHANNEL	10.0	2.0000	0.0320
Link-19	Jun-11	Jun-3	CHANNEL	5.0	2.0000	0.0320
Link-20	Jun-12	Jun-11	CHANNEL	646.1	1.0061	0.0320

****
Cross Section Summary
****

Link ID	Shape	Depth/ Diameter	Width	No. of Barrels	Cross Sectional Area	Full Flow Hydraulic Radius	Design Flow Capacity
		ft	ft		ft²	ft	cfs
Link-11	RECT_OPEN	2.00	10.00	1	20.00	1.43	763.47
Link-12	RECT_OPEN	2.00	10.00	1	20.00	1.43	763.47
Link-13	RECT_OPEN	2.00	10.00	1	20.00	1.43	745.07
Link-14	RECT_OPEN	2.00	10.00	1	20.00	1.43	762.56
Link-15	RECT_OPEN	2.00	10.00	1	20.00	1.43	763.47
Link-16	TRAPEZOIDAL	2.50	17.00	1	23.75	1.33	269.28
Link-17	TRAPEZOIDAL	2.00	14.00	1	16.00	1.09	78.80
Link-18	TRAPEZOIDAL	2.00	14.00	1	16.00	1.09	111.44
Link-19	TRAPEZOIDAL	2.00	14.00	1	16.00	1.09	111.44
Link-20	TRAPEZOIDAL	2.00	14.00	1	16.00	1.09	79.04

Runoff Quantity Continuity	Volume acre-ft	Depth inches
Total Precipitation	21.125	2.288
Surface Runoff	0.738	0.080
Continuity Error (%)	-0.000	

Flow Routing Continuity	Volume acre-ft	Volume Mgallons
External Inflow	0.000	0.000
External Outflow	0.000	0.000
Initial Stored Volume	0.000	0.000
Final Stored Volume	3.507	1.143
Continuity Error (%)	0.477	

****
Composite Curve Number Computations Report
****

Subbasin Sub-East

Soil/Surface Description	Area (acres)	Soil Group	CN
> 75% grass cover, Good	8.50	B	61.00
Paved parking & roofs	1.00	B	98.00
Composite Area & Weighted CN	9.50		64.89

Subbasin Sub-Mtn

Soil/Surface Description	Area (acres)	Soil Group	CN
> 75% grass cover, Good	60.38	C	74.00
Paved parking & roofs	4.30	C	98.00
Composite Area & Weighted CN	64.68		75.60

Subbasin Sub-North

Soil/Surface Description	Area (acres)	Soil Group	CN
Paved parking & roofs	8.00	B	98.00
> 75% grass cover, Good	3.50	B	61.00
Composite Area & Weighted CN	11.50		86.74

Subbasin Sub-Sand-Lk-Rd

Soil/Surface Description	Area (acres)	Soil Group	CN
Paved parking & roofs	11.70	B	98.00
> 75% grass cover, Good	1.30	B	61.00
Composite Area & Weighted CN	13.00		94.30

Subbasin Sub-Tract-2&Dimond

Soil/Surface Description	Area (acres)	Soil Group	CN
Paved parking & roofs	8.10	C	98.00
> 75% grass cover, Good	4.00	C	74.00
Composite Area & Weighted CN	12.10		90.07

****
SCS TR-55 Time of Concentration Computations Report
****

Sheet Flow Equation

Tc = (0.007 * ((n * Lf)^0.8)) / ((P^0.5) * (Sf^0.4))

Where:

Tc = Time of Concentration (hrs)
n = Manning's Roughness
Lf = Flow Length (ft)
P = 2 yr, 24 hr Rainfall (inches)
Sf = Slope (ft/ft)

Shallow Concentrated Flow Equation

V = 16.1345 * (Sf^0.5) (unpaved surface)
V = 20.3282 * (Sf^0.5) (paved surface)
V = 15.0 * (Sf^0.5) (grassed waterway surface)
V = 10.0 * (Sf^0.5) (nearly bare & untilled surface)
V = 9.0 * (Sf^0.5) (cultivated straight rows surface)
V = 7.0 * (Sf^0.5) (short grass pasture surface)
V = 5.0 * (Sf^0.5) (woodland surface)
V = 2.5 * (Sf^0.5) (forest w/heavy litter surface)
Tc = (Lf / V) / (3600 sec/hr)

Where:

Tc = Time of Concentration (hrs)
Lf = Flow Length (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)

Channel Flow Equation

V = (1.49 * (R^(2/3)) * (Sf^0.5)) / n
R = Aq / Wp
Tc = (Lf / V) / (3600 sec/hr)

Where:

Tc = Time of Concentration (hrs)
Lf = Flow Length (ft)
R = Hydraulic Radius (ft)
Aq = Flow Area (ft²)
Wp = Wetted Perimeter (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)
n = Manning's Roughness

Subbasin Sub-East

Sheet Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.40	0.00	0.00
Flow Length (ft):	150.00	0.00	0.00
Slope (%):	2.00	0.00	0.00
2 yr, 24 hr Rainfall (in):	1.40	0.00	0.00
Velocity (ft/sec):	0.06	0.00	0.00
Computed Flow Time (minutes):	44.90	0.00	0.00

Shallow Concentrated Flow Computations

	Subarea A	Subarea B	Subarea C
Flow Length (ft):	1600.00	0.00	0.00
Slope (%):	6.00	0.00	0.00
Surface Type:	Unpaved	Unpaved	Unpaved
Velocity (ft/sec):	3.95	0.00	0.00
Computed Flow Time (minutes):	6.75	0.00	0.00
Total TOC (minutes):	51.66		

Subbasin Sub-Mtn

Sheet Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.40	0.00	0.00
Flow Length (ft):	150.00	0.00	0.00
Slope (%):	1.00	0.00	0.00
2 yr, 24 hr Rainfall (in):	1.40	0.00	0.00
Velocity (ft/sec):	0.04	0.00	0.00
Computed Flow Time (minutes):	59.25	0.00	0.00

Shallow Concentrated Flow Computations

	Subarea A	Subarea B	Subarea C
Flow Length (ft):	500.00	2000.00	0.00
Slope (%):	1.00	2.00	0.00
Surface Type:	Grassed waterway	Grassed waterway	Unpaved
Velocity (ft/sec):	1.50	2.12	0.00
Computed Flow Time (minutes):	5.56	15.72	0.00

Total TOC (minutes):	80.53

Subbasin Sub-North

Sheet Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.30	0.00	0.00
Flow Length (ft):	150.00	0.00	0.00
Slope (%):	2.00	0.00	0.00
2 yr, 24 hr Rainfall (in):	1.40	0.00	0.00
Velocity (ft/sec):	0.07	0.00	0.00
Computed Flow Time (minutes):	35.67	0.00	0.00

Shallow Concentrated Flow Computations

	Subarea A	Subarea B	Subarea C
Flow Length (ft):	1500.00	0.00	0.00
Slope (%):	3.00	0.00	0.00
Surface Type:	Unpaved	Unpaved	Unpaved
Velocity (ft/sec):	2.79	0.00	0.00
Computed Flow Time (minutes):	8.96	0.00	0.00
Total TOC (minutes):	44.63		

Subbasin Sub-Sand-Lk-Rd

Sheet Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.20	0.00	0.00
Flow Length (ft):	100.00	0.00	0.00
Slope (%):	2.00	0.00	0.00
2 yr, 24 hr Rainfall (in):	1.40	0.00	0.00
Velocity (ft/sec):	0.09	0.00	0.00
Computed Flow Time (minutes):	18.65	0.00	0.00

Shallow Concentrated Flow Computations

	Subarea A	Subarea B	Subarea C
Flow Length (ft):	2500.00	0.00	0.00
Slope (%):	3.00	0.00	0.00
Surface Type:	Unpaved	Unpaved	Unpaved
Velocity (ft/sec):	2.79	0.00	0.00
Computed Flow Time (minutes):	14.93	0.00	0.00
Total TOC (minutes):	33.58		

Subbasin Sub-Tract-2&Dimond

Sheet Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.01	0.00	0.00
Flow Length (ft):	150.00	0.00	0.00
Slope (%):	2.00	0.00	0.00
2 yr, 24 hr Rainfall (in):	1.40	0.00	0.00
Velocity (ft/sec):	0.99	0.00	0.00
Computed Flow Time (minutes):	2.53	0.00	0.00

Shallow Concentrated Flow Computations

	Subarea A	Subarea B	Subarea C
Flow Length (ft):	700.00	0.00	0.00
Slope (%):	2.00	0.00	0.00
Surface Type:	Paved	Unpaved	Unpaved
Velocity (ft/sec):	2.87	0.00	0.00
Computed Flow Time (minutes):	4.07	0.00	0.00
Total TOC (minutes):	6.60		

****
Subbasin Runoff Summary
****

Subbasin ID	Total Precip in	Total Runoff in	Peak Runoff cfs	Weighted Curve Number	Time of Concentration days hh:mm:ss
Sub-East	2.28	0.22	0.21	64.890	0 00:51:39
Sub-Mtn	2.28	0.55	6.91	75.600	0 01:20:31
Sub-North	2.28	1.11	4.10	86.740	0 00:44:37
Sub-Sand-Lk-Rd	2.28	1.69	8.07	94.300	0 00:33:34
Sub-Tract-2&Dimond	2.28	1.34	12.11	90.070	0 00:06:36

****
Node Depth Summary
****

Node ID	Average Depth Attained ft	Maximum Depth Attained ft	Maximum HGL Attained ft	Time of Max Occurrence days	Time of Max Occurrence hh:mm	Total Flooded Volume acre-in	Total Time Flooded minutes	Retention Time hh:mm:ss
Jun-08	15.42	17.61	155.61	0	12:30	0	0	0:00:00
Jun-09	0.19	0.80	136.80	0	13:05	0	0	0:00:00
Jun-1	0.02	0.10	126.10	0	13:07	0	0	0:00:00
Jun-10	0.00	0.00	126.20	0	00:00	0	0	0:00:00
Jun-11	0.21	1.04	127.04	0	12:15	0	0	0:00:00
Jun-12	0.17	0.85	133.35	0	12:32	0	0	0:00:00
Jun-2	0.00	0.00	126.00	0	00:00	0	0	0:00:00
Jun-3	0.03	0.17	126.07	0	12:16	0	0	0:00:00
Jun-4	0.00	0.01	126.01	0	13:02	0	0	0:00:00
Overflow	0.00	0.00	124.00	0	00:00	0	0	0:00:00
Pond	1.93	3.49	87.49	1	01:27	0	0	0:00:00

****
Node Flow Summary
****

Node ID	Element Type	Maximum Lateral Inflow cfs	Peak Inflow cfs	Time of Peak Inflow Occurrence days	Time of Peak Inflow Occurrence hh:mm	Maximum Flooding Overflow cfs	Time of Peak Flooding Occurrence days	Time of Peak Flooding Occurrence hh:mm
Jun-08	JUNCTION	11.89	11.89	0	12:30	0.00		
Jun-09	JUNCTION	6.91	6.91	0	13:05	0.00		
Jun-1	JUNCTION	0.00	6.89	0	13:06	0.00		
Jun-10	JUNCTION	0.00	0.00	0	00:00	0.00		
Jun-11	JUNCTION	10.48	15.73	0	12:15	0.00		
Jun-12	JUNCTION	0.00	11.86	0	12:30	0.00		
Jun-2	JUNCTION	0.00	0.00	0	00:00	0.00		
Jun-3	JUNCTION	0.00	15.48	0	12:16	0.00		
Jun-4	JUNCTION	0.21	0.21	0	12:55	0.00		
Overflow	OUTFALL	0.00	0.00	0	00:00	0.00		
Pond	STORAGE	0.00	18.12	0	12:39	0.00		

****
Storage Node Summary
****

Storage Node ID	Maximum Ponded Volume 1000 ft³	Maximum Ponded Volume (%)	Time of Max Ponded Volume days	Time of Max Ponded Volume hh:mm	Average Ponded Volume 1000 ft³	Average Ponded Volume (%)	Maximum Storage Node Outflow cfs	Maximum Exfiltration Rate cfm	Time of Max. Exfiltration Rate hh:mm:ss	Total Exfiltrated Volume 1000 ft³
Pond	160.640	28	1	01:27	87.203	15	0.00	36.21	25:25:00	61.781

****
Outfall Loading Summary
****

Outfall Node ID	Flow Frequency (%)	Average Flow cfs	Peak Inflow cfs
Overflow	0.00	0.00	0.00
System	0.00	0.00	0.00

****
Link Flow Summary
****

Link ID	Element Type	Time of Peak Flow Occurrence days	Time of Peak Flow Occurrence hh:mm	Maximum Velocity Attained ft/sec	Length Factor	Peak Flow during Analysis cfs	Design Flow Capacity cfs	Ratio of Maximum /Design Flow	Ratio of Maximum Flow Depth	Total Time Surcharged minutes	Reported Condition
Link-11	CHANNEL	0	13:07	1.18	13.86	6.89	763.47	0.01	0.52	0	Calculated
Link-12	CHANNEL	0	00:00	0.00	13.86	0.00	763.47	0.00	0.50	0	Calculated
Link-13	CHANNEL	0	00:00	0.00	13.58	0.00	745.07	0.00	0.50	0	Calculated
Link-14	CHANNEL	0	12:17	4.69	13.85	15.45	762.56	0.02	0.52	0	Calculated
Link-15	CHANNEL	0	13:03	0.04	13.86	0.21	763.47	0.00	0.50	0	Calculated
Link-16	CHANNEL	0	12:30	3.92	1.00	11.86	269.28	0.04	0.29	0	Calculated
Link-17	CHANNEL	0	13:06	4.51	1.00	6.89	78.80	0.09	0.23	0	Calculated
Link-18	CHANNEL	0	00:00	0.00	39.09	0.00	111.44	0.00	0.00	0	Calculated
Link-19	CHANNEL	0	12:16	6.74	78.19	15.48	111.44	0.14	0.30	0	Calculated
Link-20	CHANNEL	0	12:32	2.68	1.00	11.72	79.04	0.15	0.46	0	Calculated

****
Highest Flow Instability Indexes
****
All links are stable.

WARNING 117 : Conduit outlet invert elevation defined for Conduit Link-16 is below downstream node invert elevation.
Assumed conduit outlet invert elevation equal to downstream node invert elevation.
WARNING 002 : Max/rim elevation (depth) increased to account for connecting conduit height dimensions for Node Jun-08.

Analysis began on: Tue Jan 07 15:28:18 2020
Analysis ended on: Tue Jan 07 15:28:20 2020
Total elapsed time: 00:00:02

100-year, 24-hour

Autodesk® Storm and Sanitary Analysis 2016 - Version 12.0.42 (Build 0)

****
Project Description
****
File Name ..... Postdev Drainage 8-26-19 NEW DCM.SPF

****
Analysis Options
****
Flow Units ..... cfs
Subbasin Hydrograph Method. SCS TR-55
Time of Concentration..... SCS TR-55
Link Routing Method ..... Hydrodynamic
Storage Node Exfiltration.. Constant rate, free surface area
Starting Date FEB-10-2015 00:00:00
Ending Date FEB-11-2015 12:00:00
Report Time Step 00:05:00

****
Element Count
****
Number of rain gages 1
Number of subbasins 5
Number of nodes 11
Number of links 10

****
Raingage Summary
****

Gage ID	Data Source	Data Type	Recording Interval min
Rain Gage-01	100-YR NEW DCM	CUMULATIVE	6.00

****
Subbasin Summary
****

Subbasin ID	Total Area acres
Sub-East	9.50
Sub-Mtn	64.68
Sub-North	11.50
Sub-Sand-Lk-Rd	13.00
Sub-Tract-2&Dimond	12.10

****
Node Summary
****

Node ID	Element Type	Invert Elevation ft	Maximum Elev. ft	Ponded Area ft²	External Inflow
Jun-08	JUNCTION	138.00	157.50	0.00	
Jun-09	JUNCTION	136.00	138.00	0.00	
Jun-1	JUNCTION	126.00	128.00	0.00	
Jun-10	JUNCTION	126.20	128.20	0.00	
Jun-11	JUNCTION	126.00	128.00	0.00	
Jun-12	JUNCTION	132.50	138.50	0.00	
Jun-2	JUNCTION	126.00	128.00	0.00	
Jun-3	JUNCTION	125.90	127.90	0.00	
Jun-4	JUNCTION	126.00	128.00	0.00	
Overflow	OUTFALL	124.00	126.00	0.00	
Pond	STORAGE	84.00	94.00	0.00	

****
Link Summary
****

Link ID	From Node	To Node	Element Type	Length ft	Slope %	Manning's Roughness
Link-11	Jun-1	Pond	CHANNEL	100.0	42.0000	0.0320
Link-12	Jun-2	Pond	CHANNEL	100.0	42.0000	0.0320
Link-13	Overflow	Pond	CHANNEL	100.0	40.0000	0.0320
Link-14	Jun-3	Pond	CHANNEL	100.0	41.9000	0.0320
Link-15	Jun-4	Pond	CHANNEL	100.0	42.0000	0.0320
Link-16	Jun-08	Jun-12	CHANNEL	553.9	4.0618	0.0320
Link-17	Jun-09	Jun-1	CHANNEL	1000.0	1.0000	0.0320
Link-18	Jun-10	Jun-2	CHANNEL	10.0	2.0000	0.0320
Link-19	Jun-11	Jun-3	CHANNEL	5.0	2.0000	0.0320
Link-20	Jun-12	Jun-11	CHANNEL	646.1	1.0061	0.0320

****
Cross Section Summary
****

Link ID	Shape	Depth/ Diameter ft	Width ft	No. of Barrels	Cross Sectional Area ft²	Full Flow Hydraulic Radius ft	Design Flow Capacity cfs
Link-11	RECT_OPEN	2.00	10.00	1	20.00	1.43	763.47

Link-12	RECT_OPEN	2.00	10.00	1	20.00	1.43	763.47
Link-13	RECT_OPEN	2.00	10.00	1	20.00	1.43	745.07
Link-14	RECT_OPEN	2.00	10.00	1	20.00	1.43	762.56
Link-15	RECT_OPEN	2.00	10.00	1	20.00	1.43	763.47
Link-16	TRAPEZOIDAL	2.50	17.00	1	23.75	1.33	269.28
Link-17	TRAPEZOIDAL	2.00	14.00	1	16.00	1.09	78.80
Link-18	TRAPEZOIDAL	2.00	14.00	1	16.00	1.09	111.44
Link-19	TRAPEZOIDAL	2.00	14.00	1	16.00	1.09	111.44
Link-20	TRAPEZOIDAL	2.00	14.00	1	16.00	1.09	79.04

Runoff Quantity Continuity	Volume acre-ft	Depth inches
Total Precipitation	33.261	3.603
Surface Runoff	1.611	0.174
Continuity Error (%)	-0.000	

Flow Routing Continuity	Volume acre-ft	Volume Mgallons
External Inflow	0.000	0.000
External Outflow	0.000	0.000
Initial Stored Volume	0.000	0.000
Final Stored Volume	8.769	2.858
Continuity Error (%)	0.414	

Composite Curve Number Computations Report

Subbasin Sub-East

Soil/Surface Description	Area (acres)	Soil Group	CN
> 75% grass cover, Good	8.50	B	61.00
Paved parking & roofs	1.00	B	98.00
Composite Area & Weighted CN	9.50		64.89

Subbasin Sub-Mtn

Soil/Surface Description	Area (acres)	Soil Group	CN
> 75% grass cover, Good	60.38	C	74.00
Paved parking & roofs	4.30	C	98.00
Composite Area & Weighted CN	64.68		75.60

Subbasin Sub-North

Soil/Surface Description	Area (acres)	Soil Group	CN
Paved parking & roofs	8.00	B	98.00
> 75% grass cover, Good	3.50	B	61.00
Composite Area & Weighted CN	11.50		86.74

Subbasin Sub-Sand-Lk-Rd

Soil/Surface Description	Area (acres)	Soil Group	CN
Paved parking & roofs	11.70	B	98.00
> 75% grass cover, Good	1.30	B	61.00
Composite Area & Weighted CN	13.00		94.30

Subbasin Sub-Tract-2&Dimond

Soil/Surface Description	Area (acres)	Soil Group	CN
Paved parking & roofs	8.10	C	98.00
> 75% grass cover, Good	4.00	C	74.00
Composite Area & Weighted CN	12.10		90.07

SCS TR-55 Time of Concentration Computations Report

Sheet Flow Equation

Tc = (0.007 * ((n * Lf)^0.8)) / ((P^0.5) * (Sf^0.4))

Where:

Tc = Time of Concentration (hrs)
n = Manning's Roughness
Lf = Flow Length (ft)
P = 2 yr, 24 hr Rainfall (inches)
Sf = Slope (ft/ft)

Shallow Concentrated Flow Equation

V = 16.1345 * (Sf^0.5) (unpaved surface)
V = 20.3282 * (Sf^0.5) (paved surface)
V = 15.0 * (Sf^0.5) (grassed waterway surface)

V = 10.0 * (Sf^0.5) (nearly bare & untilled surface)
V = 9.0 * (Sf^0.5) (cultivated straight rows surface)
V = 7.0 * (Sf^0.5) (short grass pasture surface)
V = 5.0 * (Sf^0.5) (woodland surface)
V = 2.5 * (Sf^0.5) (forest w/heavy litter surface)
Tc = (Lf / V) / (3600 sec/hr)

Where:

Tc = Time of Concentration (hrs)
Lf = Flow Length (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)

Channel Flow Equation

V = (1.49 * (R^(2/3)) * (Sf^0.5)) / n
R = Aq / Wp
Tc = (Lf / V) / (3600 sec/hr)

Where:

Tc = Time of Concentration (hrs)
Lf = Flow Length (ft)
R = Hydraulic Radius (ft)
Aq = Flow Area (ft²)
Wp = Wetted Perimeter (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)
n = Manning's Roughness

Subbasin Sub-East

Sheet Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.40	0.00	0.00
Flow Length (ft):	150.00	0.00	0.00
Slope (%):	2.00	0.00	0.00
2 yr, 24 hr Rainfall (in):	1.40	0.00	0.00
Velocity (ft/sec):	0.06	0.00	0.00
Computed Flow Time (minutes):	44.90	0.00	0.00

Shallow Concentrated Flow Computations

	Subarea A	Subarea B	Subarea C
Flow Length (ft):	1600.00	0.00	0.00
Slope (%):	6.00	0.00	0.00
Surface Type:	Unpaved	Unpaved	Unpaved
Velocity (ft/sec):	3.95	0.00	0.00
Computed Flow Time (minutes):	6.75	0.00	0.00
Total TOC (minutes):	51.66		

Subbasin Sub-Mtn

Sheet Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.40	0.00	0.00
Flow Length (ft):	150.00	0.00	0.00
Slope (%):	1.00	0.00	0.00
2 yr, 24 hr Rainfall (in):	1.40	0.00	0.00
Velocity (ft/sec):	0.04	0.00	0.00
Computed Flow Time (minutes):	59.25	0.00	0.00

Shallow Concentrated Flow Computations

	Subarea A	Subarea B	Subarea C
Flow Length (ft):	500.00	2000.00	0.00
Slope (%):	1.00	2.00	0.00
Surface Type:	Grassed waterway	Grassed waterway	Unpaved
Velocity (ft/sec):	1.50	2.12	0.00
Computed Flow Time (minutes):	5.56	15.72	0.00
Total TOC (minutes):	80.53		

Subbasin Sub-North

Sheet Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.30	0.00	0.00
Flow Length (ft):	150.00	0.00	0.00
Slope (%):	2.00	0.00	0.00
2 yr, 24 hr Rainfall (in):	1.40	0.00	0.00
Velocity (ft/sec):	0.07	0.00	0.00
Computed Flow Time (minutes):	35.67	0.00	0.00

Shallow Concentrated Flow Computations

	Subarea A	Subarea B	Subarea C
Flow Length (ft):	1500.00	0.00	0.00
Slope (%):	3.00	0.00	0.00
Surface Type:	Unpaved	Unpaved	Unpaved

Velocity (ft/sec):	2.79	0.00	0.00
Computed Flow Time (minutes):	8.96	0.00	0.00
Total TOC (minutes):	44.63		

Subbasin Sub-Sand-Lk-Rd

Sheet Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.20	0.00	0.00
Flow Length (ft):	100.00	0.00	0.00
Slope (%):	2.00	0.00	0.00
2 yr, 24 hr Rainfall (in):	1.40	0.00	0.00
Velocity (ft/sec):	0.09	0.00	0.00
Computed Flow Time (minutes):	18.65	0.00	0.00

Shallow Concentrated Flow Computations

	Subarea A	Subarea B	Subarea C
Flow Length (ft):	2500.00	0.00	0.00
Slope (%):	3.00	0.00	0.00
Surface Type:	Unpaved	Unpaved	Unpaved
Velocity (ft/sec):	2.79	0.00	0.00
Computed Flow Time (minutes):	14.93	0.00	0.00
Total TOC (minutes):	33.58		

Subbasin Sub-Tract-2&Dimond

Sheet Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.01	0.00	0.00
Flow Length (ft):	150.00	0.00	0.00
Slope (%):	2.00	0.00	0.00
2 yr, 24 hr Rainfall (in):	1.40	0.00	0.00
Velocity (ft/sec):	0.99	0.00	0.00
Computed Flow Time (minutes):	2.53	0.00	0.00

Shallow Concentrated Flow Computations

	Subarea A	Subarea B	Subarea C
Flow Length (ft):	700.00	0.00	0.00
Slope (%):	2.00	0.00	0.00
Surface Type:	Paved	Unpaved	Unpaved
Velocity (ft/sec):	2.87	0.00	0.00
Computed Flow Time (minutes):	4.07	0.00	0.00
Total TOC (minutes):	6.60		

Subbasin Runoff Summary

Subbasin ID	Total Precip in	Total Runoff in	Peak Runoff cfs	Weighted Curve Number	Time of Concentration days	hh:mm:ss
Sub-East	3.59	0.79	1.84	64.890	0	00:51:39
Sub-Mtn	3.59	1.41	20.13	75.600	0	01:20:31
Sub-North	3.59	2.24	8.28	86.740	0	00:44:37
Sub-Sand-Lk-Rd	3.59	2.95	13.69	94.300	0	00:33:34
Sub-Tract-2&Dimond	3.59	2.54	22.40	90.070	0	00:06:36

Node Depth Summary

Node ID	Average Depth Attained ft	Maximum Depth Attained ft	Maximum HGL Attained ft	Time of Max Occurrence days	hh:mm	Total Flooded Volume acre-in	Total Time Flooded minutes	Retention Time hh:mm:ss
Jun-08	15.96	17.81	155.81	0	12:30	0	0	0:00:00
Jun-09	0.32	1.33	137.33	0	13:01	0	0	0:00:00
Jun-1	0.04	0.20	126.20	0	13:02	0	0	0:00:00
Jun-10	0.00	0.00	126.20	0	00:00	0	0	0:00:00
Jun-11	0.30	1.40	127.40	0	12:15	0	0	0:00:00
Jun-12	0.24	1.12	133.62	0	12:32	0	0	0:00:00
Jun-2	0.00	0.00	126.00	0	00:00	0	0	0:00:00
Jun-3	0.05	0.25	126.15	0	12:16	0	0	0:00:00
Jun-4	0.01	0.05	126.05	0	12:44	0	0	0:00:00
Overflow	0.00	0.00	124.00	0	00:00	0	0	0:00:00
Pond	4.28	7.42	91.42	1	01:38	0	0	0:00:00

Node Flow Summary

Node ID	Element Type	Maximum Lateral Inflow cfs	Peak Inflow cfs	Time of Peak Inflow Occurrence days	hh:mm	Maximum Flooding Overflow cfs	Time of Peak Flooding Occurrence days	hh:mm
Jun-08	JUNCTION	21.51	21.51	0	12:30	0.00		
Jun-09	JUNCTION	20.10	20.10	0	13:00	0.00		
Jun-1	JUNCTION	0.00	20.05	0	13:01	0.00		
Jun-10	JUNCTION	0.00	0.00	0	00:00	0.00		
Jun-11	JUNCTION	19.56	29.25	0	12:15	0.00		
Jun-12	JUNCTION	0.00	21.47	0	12:30	0.00		
Jun-2	JUNCTION	0.00	0.00	0	00:00	0.00		
Jun-3	JUNCTION	0.00	28.87	0	12:16	0.00		
Jun-4	JUNCTION	1.83	1.83	0	12:40	0.00		
Overflow	OUTFALL	0.00	0.00	0	00:00	0.00		
Pond	STORAGE	0.00	41.30	0	12:40	0.00		

****
Storage Node Summary
****

Storage Node ID	Maximum Ponded Volume 1000 ft³	Maximum Ponded Volume (%)	Time of Max Ponded Volume days	hh:mm	Average Ponded Volume 1000 ft³	Average Ponded Volume (%)	Maximum Storage Node Outflow cfs	Maximum Exfiltration Rate cfm	Time of Max. Exfiltration Rate hh:mm:ss	Total Exfiltrated Volume 1000 ft³
Pond	394.981	68	1	01:38	220.765	38	0.00	46.84	25:35:00	77.817

****
Outfall Loading Summary
****

Outfall Node ID	Flow Frequency (%)	Average Flow cfs	Peak Inflow cfs
Overflow	0.00	0.00	0.00
System	0.00	0.00	0.00

****
Link Flow Summary
****

Link ID	Element Type	Time of Peak Flow Occurrence days	hh:mm	Maximum Velocity Attained ft/sec	Length Factor	Peak Flow during Analysis cfs	Design Flow Capacity cfs	Ratio of Maximum /Design Flow	Ratio of Maximum Flow Depth	Total Time Surcharged minutes	Reported Condition
Link-11	CHANNEL	0	13:02	1.82	13.86	20.05	763.47	0.03	0.55	0	Calculated
Link-12	CHANNEL	0	00:00	0.00	13.86	0.00	763.47	0.00	0.50	0	Calculated
Link-13	CHANNEL	0	00:00	0.00	13.58	0.00	745.07	0.00	0.50	0	Calculated
Link-14	CHANNEL	0	12:16	4.02	13.85	28.87	762.56	0.04	0.56	0	Calculated
Link-15	CHANNEL	0	12:44	0.18	13.86	1.82	763.47	0.00	0.51	0	Calculated
Link-16	CHANNEL	0	12:30	4.56	1.00	21.47	269.28	0.08	0.39	0	Calculated
Link-17	CHANNEL	0	13:01	6.13	1.00	20.05	78.80	0.25	0.38	0	Calculated
Link-18	CHANNEL	0	00:00	0.00	39.09	0.00	111.44	0.00	0.00	0	Calculated
Link-19	CHANNEL	0	12:16	7.84	78.19	28.87	111.44	0.26	0.41	0	Calculated
Link-20	CHANNEL	0	12:32	3.08	1.00	21.27	79.04	0.27	0.61	0	Calculated

****
Highest Flow Instability Indexes
****
All links are stable.

WARNING 117 : Conduit outlet invert elevation defined for Conduit Link-16 is below downstream node invert elevation.
Assumed conduit outlet invert elevation equal to downstream node invert elevation.
WARNING 002 : Max/rim elevation (depth) increased to account for connecting conduit height dimensions for Node Jun-08.

Analysis began on: Tue Jan 07 15:32:41 2020
Analysis ended on: Tue Jan 07 15:32:42 2020
Total elapsed time: 00:00:01

7.4 Stormwater Management Design Drawings

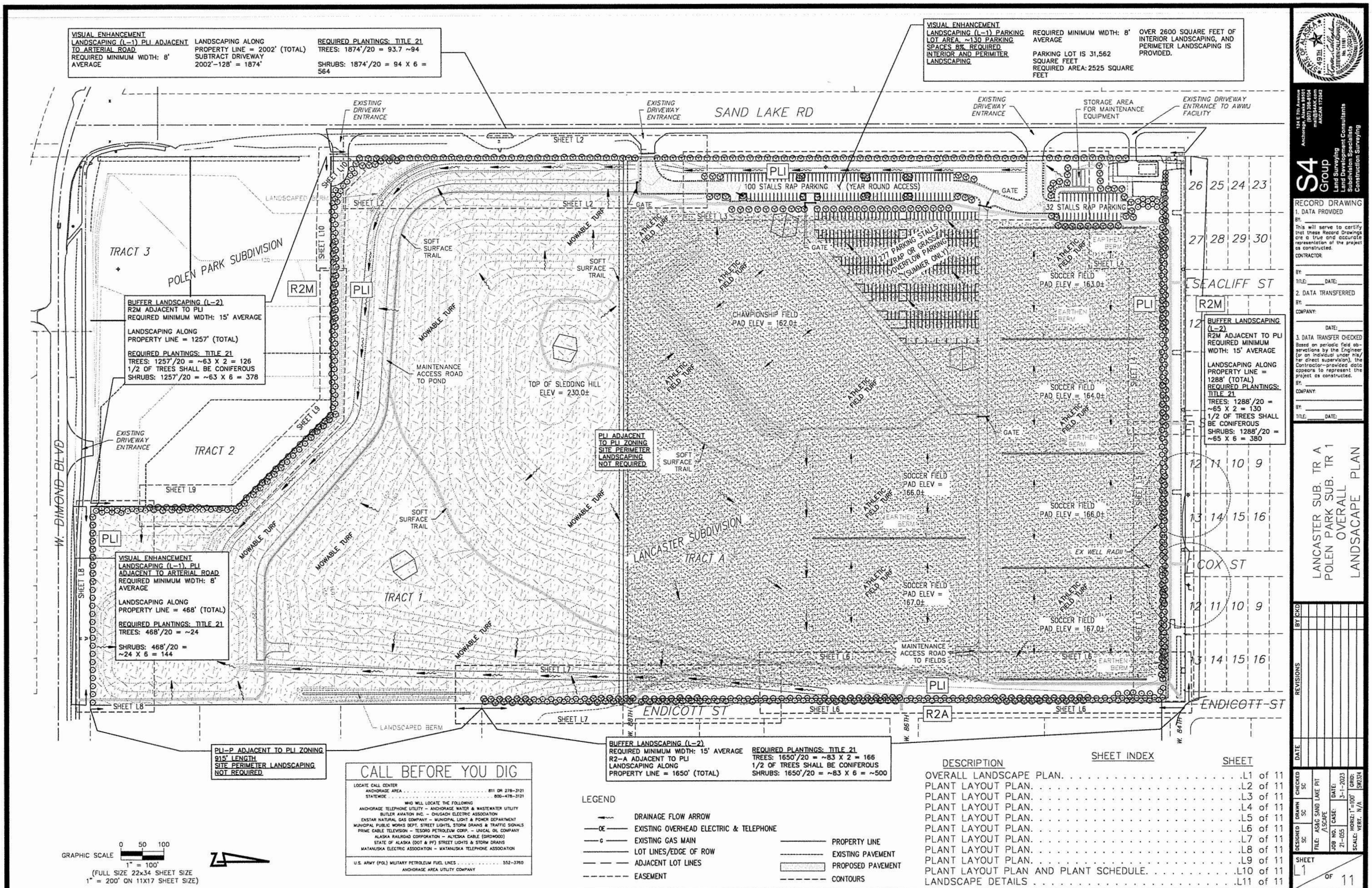
Design drawings are attached with this report.

7.5 Operation and Maintenance Plan

An O&M Plan will be addressed within the Conditional Use narrative.

AS&G Recreational Sports Park Site Plan Layout

Scale 1" = 100'


VISUAL ENHANCEMENT LANDSCAPING (L-1) PLI ADJACENT TO ARTERIAL ROAD
REQUIRED MINIMUM WIDTH: 8' AVERAGE
LANDSCAPING ALONG PROPERTY LINE = 2002' (TOTAL) SUBTRACT DRIVEWAY 2002'-128' = 1874'
REQUIRED PLANTINGS: TITLE 21
TREES: 1874'/20 = 93.7 ~94
SHRUBS: 1874'/20 = 94 X 6 = 564
VISUAL ENHANCEMENT LANDSCAPING (L-1) PARKING LOT AREA. ~130 PARKING SPACES 8% REQUIRED INTERIOR AND PERIMETER LANDSCAPING
REQUIRED MINIMUM WIDTH: 8' AVERAGE
PARKING LOT IS 31,562 SQUARE FEET
REQUIRED AREA: 2525 SQUARE FEET
OVER 2600 SQUARE FEET OF INTERIOR LANDSCAPING, AND PERIMETER LANDSCAPING IS PROVIDED.
EXISTING DRIVEWAY ENTRANCE
SAND LAKE RD
STORAGE AREA FOR MAINTENANCE EQUIPMENT
EXISTING DRIVEWAY ENTRANCE TO AWWU FACILITY
100 STALLS RAP PARKING (YEAR ROUND ACCESS)
32 STALLS RAP PARKING
GATE
277 PARKING STALLS (RAP OR GRASS) OVERFLOW PARKING (SUMMER ONLY)
TRACT 3
POLEN PARK SUBDIVISION
TRACT 2
TRACT 1
R2M
PLI
BUFFER LANDSCAPING (L-2)
R2M ADJACENT TO PLI
REQUIRED MINIMUM WIDTH: 15' AVERAGE
LANDSCAPING ALONG PROPERTY LINE = 1257' (TOTAL)
REQUIRED PLANTINGS: TITLE 21
TREES: 1257'/20 = ~63 X 2 = 126
1/2 OF TREES SHALL BE CONIFEROUS
SHRUBS: 1257'/20 = ~63 X 6 = 378
SOFT SURFACE TRAIL
MOWABLE TURF
MAINTENANCE ACCESS ROAD TO POND
TOP OF SLEDDING HILL ELEV = 230.0±
PLI ADJACENT TO PLI ZONING SITE PERIMETER LANDSCAPING NOT REQUIRED
ATHLETIC FIELD TURF
CHAMPIONSHIP FIELD PAD ELEV = 162.0±
SOCCER FIELD PAD ELEV = 163.0±
SOCCER FIELD PAD ELEV = 164.0±
SOCCER FIELD PAD ELEV = 166.0±
SOCCER FIELD PAD ELEV = 166.0±
SOCCER FIELD PAD ELEV = 167.0±
EARTHEN BERM
EX WELL RADII
LANCASTER SUBDIVISION TRACT A
MAINTENANCE ACCESS ROAD TO FIELDS
BUFFER LANDSCAPING (L-2)
R2M ADJACENT TO PLI
REQUIRED MINIMUM WIDTH: 15' AVERAGE
LANDSCAPING ALONG PROPERTY LINE = 1288' (TOTAL)
REQUIRED PLANTINGS: TITLE 21
TREES: 1288'/20 = ~65 X 2 = 130
1/2 OF TREES SHALL BE CONIFEROUS
SHRUBS: 1288'/20 = ~65 X 6 = 380
SEACLIFF ST
COX ST
ENDICOTT ST
W. DIMOND BLVD
W. 88TH
W. 84TH
R2A
VISUAL ENHANCEMENT LANDSCAPING (L-1) PLI ADJACENT TO ARTERIAL ROAD
REQUIRED MINIMUM WIDTH: 8' AVERAGE
LANDSCAPING ALONG PROPERTY LINE = 468' (TOTAL)
REQUIRED PLANTINGS: TITLE 21
TREES: 468'/20 = ~24
SHRUBS: 468'/20 = ~24 X 6 = 144
LANDSCAPED BERM
PLI-P ADJACENT TO PLI ZONING 915' LENGTH SITE PERIMETER LANDSCAPING NOT REQUIRED
BUFFER LANDSCAPING (L-2)
REQUIRED MINIMUM WIDTH: 15' AVERAGE
R2-A ADJACENT TO PLI
LANDSCAPING ALONG PROPERTY LINE = 1650' (TOTAL)
REQUIRED PLANTINGS: TITLE 21
TREES: 1650'/20 = ~83 X 2 = 166
1/2 OF TREES SHALL BE CONIFEROUS
SHRUBS: 1650'/20 = ~83 X 6 = ~500
CALL BEFORE YOU DIG
GRAPHIC SCALE 0 50 100
1" = 100'
(FULL SIZE 22x34 SHEET SIZE
1" = 200' ON 11X17 SHEET SIZE)
LEGEND
DRAINAGE FLOW ARROW
EXISTING OVERHEAD ELECTRIC & TELEPHONE
EXISTING GAS MAIN
LOT LINES/EDGE OF ROW
ADJACENT LOT LINES
EASEMENT
PROPERTY LINE
EXISTING PAVEMENT
PROPOSED PAVEMENT
CONTOURS
SHEET INDEX
DESCRIPTION SHEET
OVERALL LANDSCAPE PLAN .L1 of 11
PLANT LAYOUT PLAN .L2 of 11
PLANT LAYOUT PLAN .L3 of 11
PLANT LAYOUT PLAN .L4 of 11
PLANT LAYOUT PLAN .L5 of 11
PLANT LAYOUT PLAN .L6 of 11
PLANT LAYOUT PLAN .L7 of 11
PLANT LAYOUT PLAN .L8 of 11
PLANT LAYOUT PLAN .L9 of 11
PLANT LAYOUT PLAN AND PLANT SCHEDULE .L10 of 11
LANDSCAPE DETAILS .L11 of 11
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Subdivision Specialists
Construction Surveying
RECORD DRAWING
1. DATA PROVIDED
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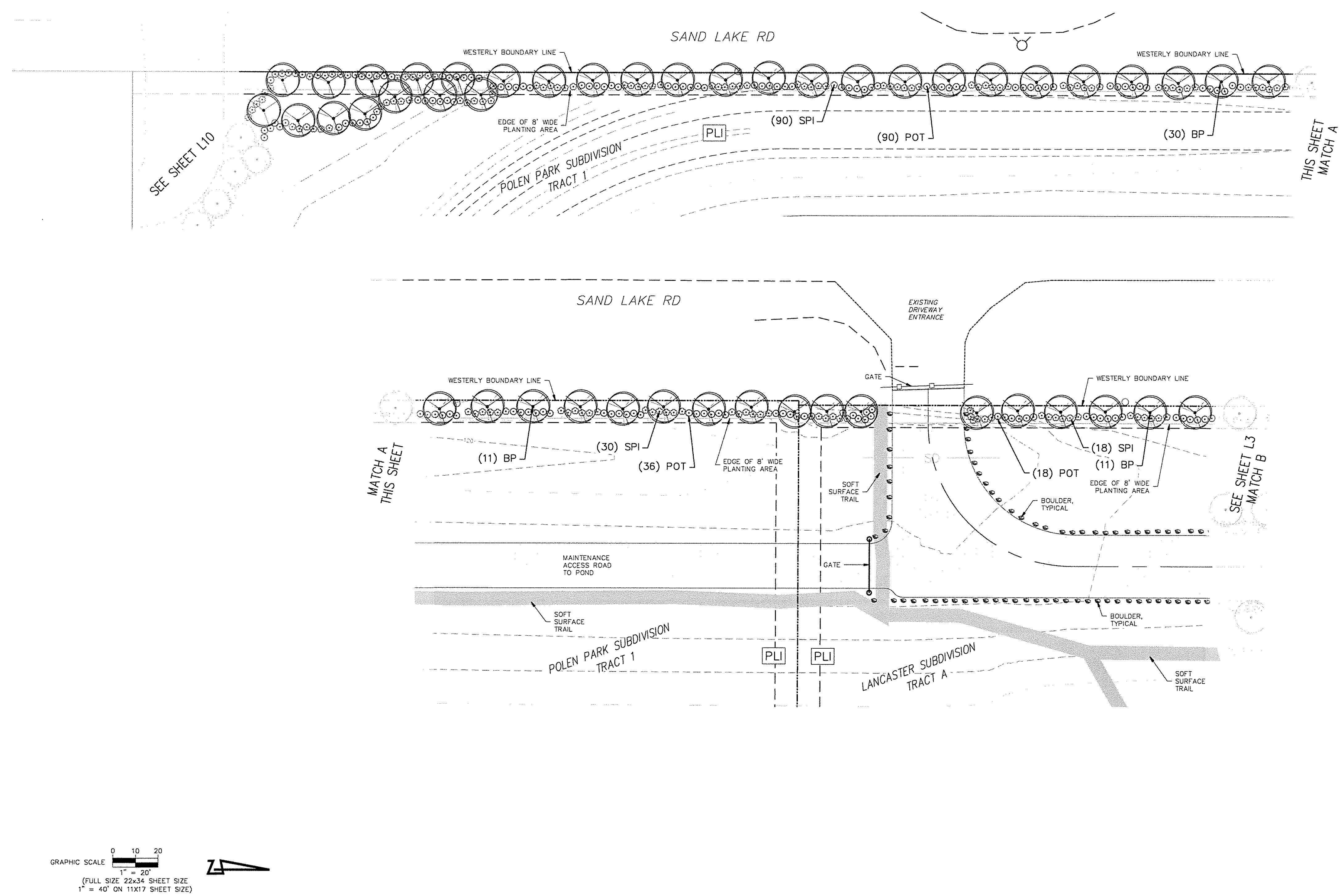
2. DATA TRANSFERRED
3. DATA TRANSFER CHECKED
LANCASTER SUB. TR A
POLEN PARK SUB. TR 1
OVERALL
LANDSACAPE PLAN
REVISIONS
DESIGNED SC DRAWN SC CHECKED SC
FILE: ASAC SAND LAKE PIT /LSCAPE
JOB NO. 21-055 DATE: 3-1-2023
SCALE: HORIZ: 1"=100' VERT: N/A
SHEET L1 OF 11



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TITLE: ______ DATE: ______

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COMPANY:

DATE: ______

3. DATA TRANSFER CHECKED

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BY: ______

COMPANY:

BY: ______

TITLE: ______ DATE: ______

LANCASTER SUB. TR A
POLEN PARK SUB. TR 1-3
PLANT LAYOUT
LANDSCAPE PLAN

DATE	REVISIONS	BY	CKD

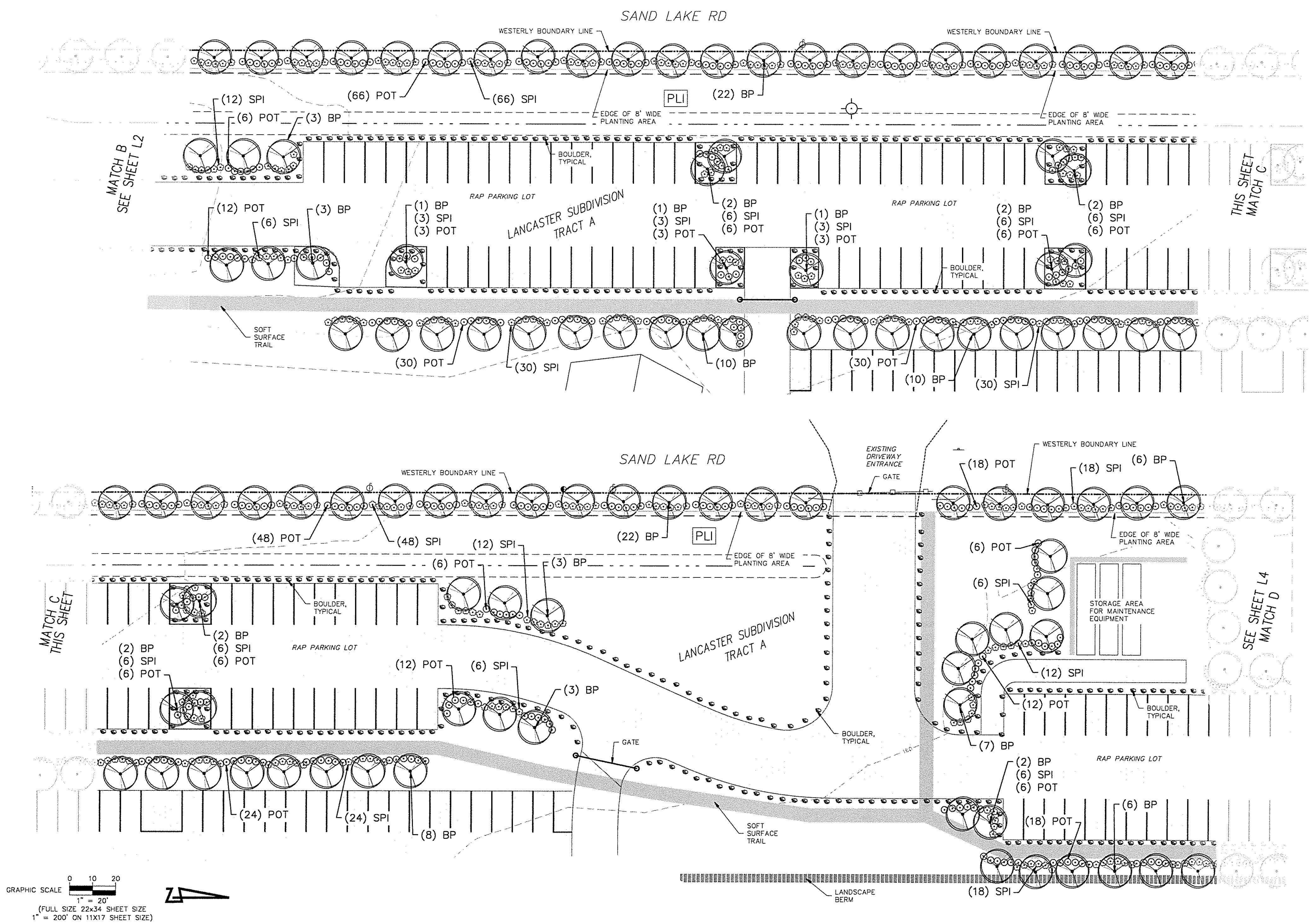
DESIGNED	DRAWN	CHECKED
SC	SC	SC

FILE: LSCAPE

JOB NO.	CASE:	DATE:
21-055		3-1-2023

SCALE: HORIZ: 1"=20' VERT. N/A GRID: SW2324

SHEET L2 OF 11



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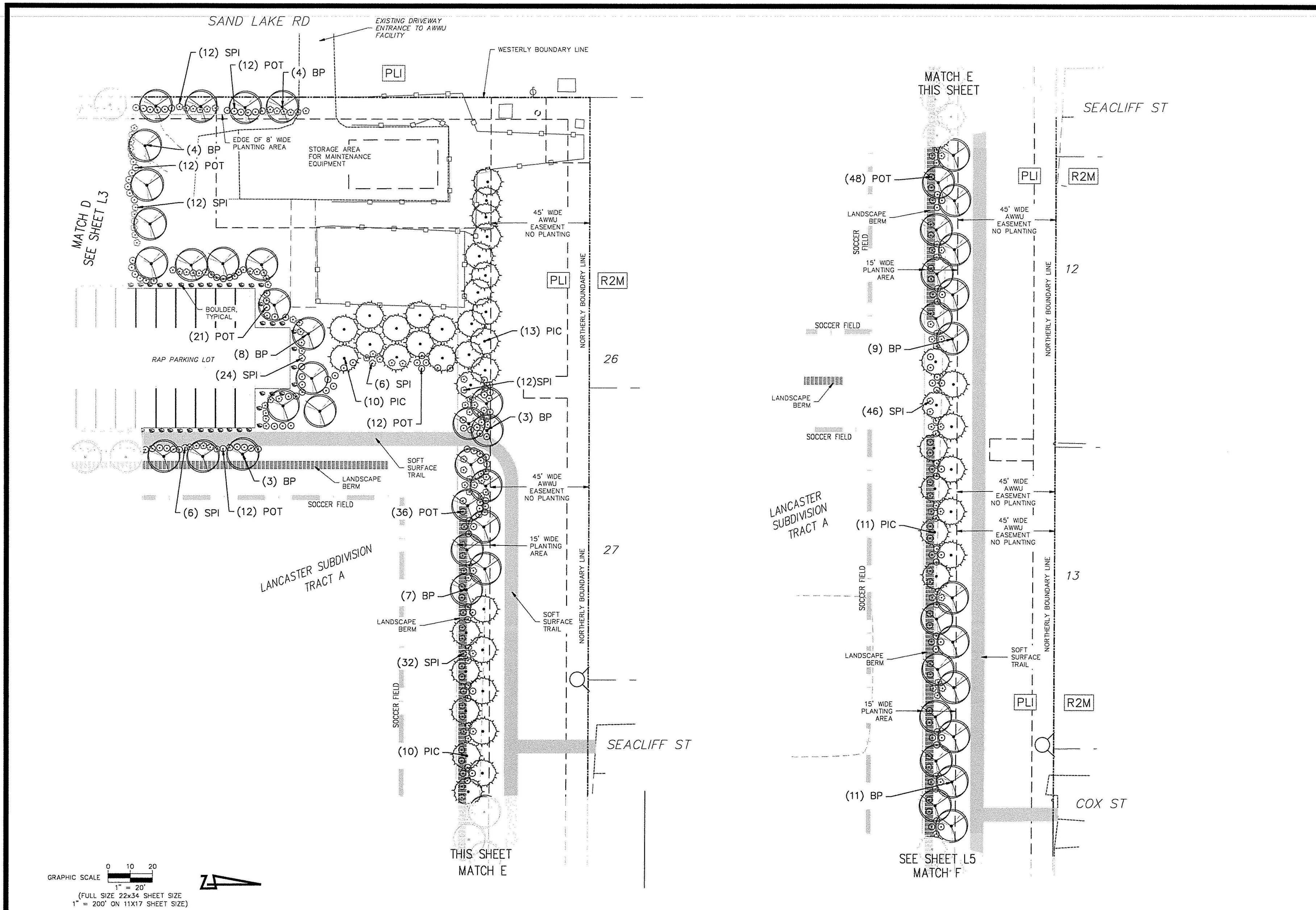
BY: ______
COMPANY: ______
BY: ______
TITLE: ______ DATE: ______

LANCASTER SUB. TR A
POLEN PARK SUB. TR 1-3
PLANT LAYOUT
LANDSCAPE PLAN

DATE	REVISIONS	BY	CKD

DESIGNED SC	DRAWN SC	CHECKED SC
FILE: LSCAPE		
JOB NO. 21-055	CASE:	DATE: 3-1-2023
SCALE: HORIZ.: 1"=20' VERT.: N/A		GRID: SW2324

SHEET L3 OF 11



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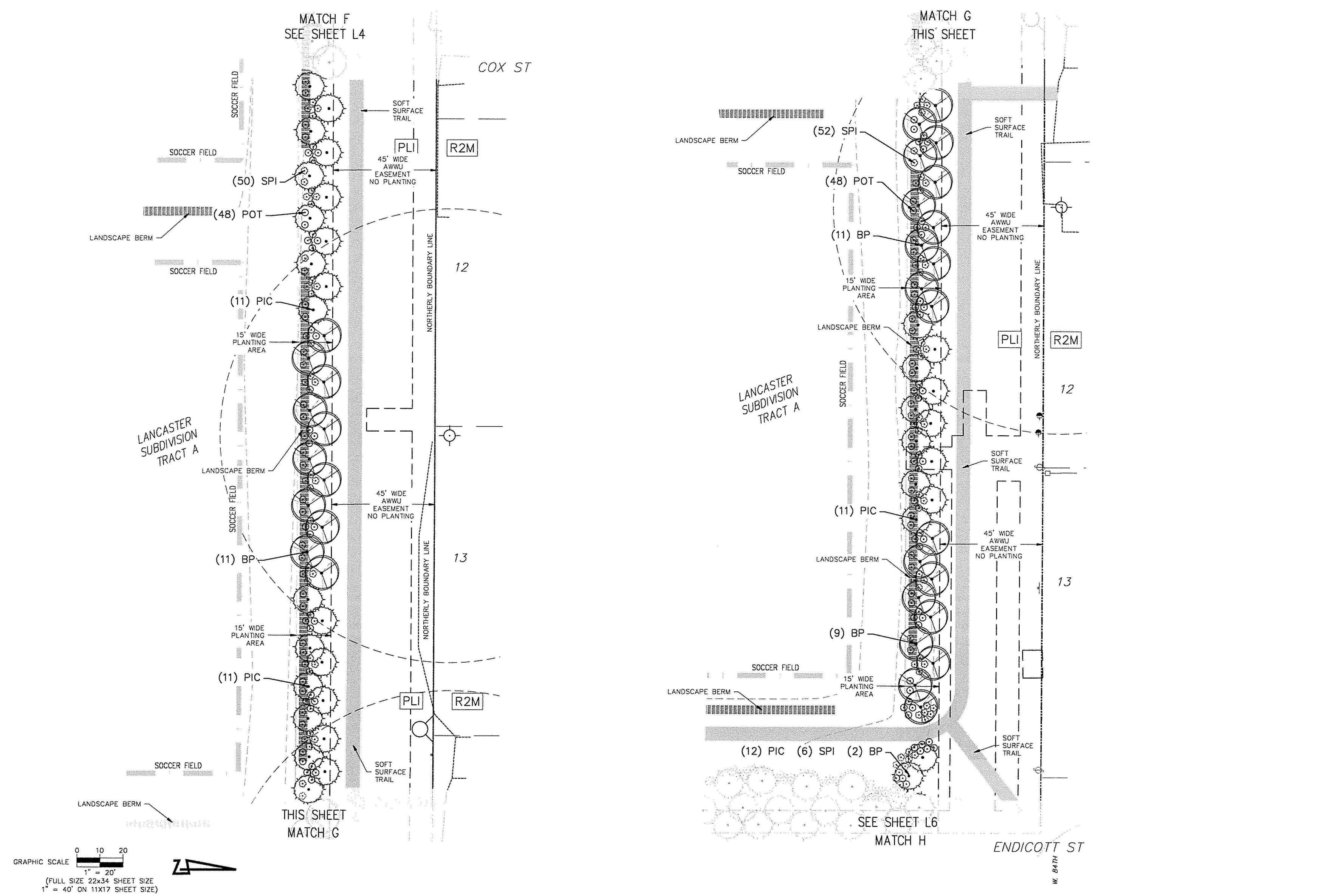
BY:
COMPANY:
BY:
TITLE: ____ DATE: ____

LANCASTER SUB. TR A POLEN PARK SUB. TR 1-3
PLANT LAYOUT
LANDSCAPE PLAN

DATE	REVISIONS	BY	CKD

DESIGNED	DRAWN	CHECKED
SC	SC	SC

FILE: AS&G SAND LAKE PIT /GRADING
JOB NO. 21-055 | CASE: | DATE: 3-1-2023
SCALE: HORIZ: 1"=100' VERT: N/A | GRID: SW2324
SHEET L4 OF 11



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COMPANY:
BY:
TITLE: DATE:

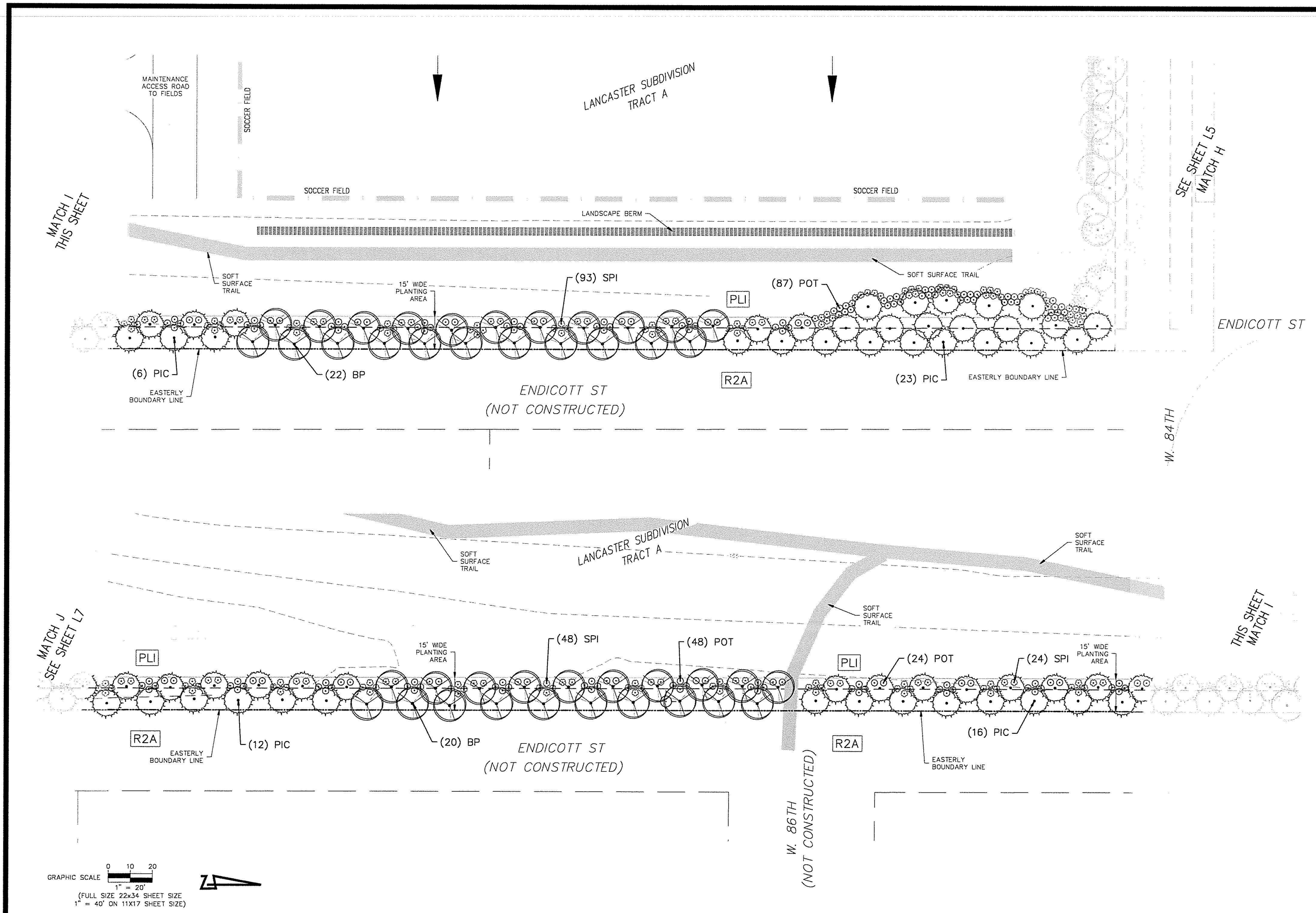
LANCASTER SUB. TR A
POLEN PARK SUB. TR 1-3
PLANT LAYOUT
LANDSCAPE PLAN

DATE	REVISIONS	BY	CKD

DESIGNED	DRAWN	CHECKED
SC	SC	SC

FILE: LSCAPE
JOB NO.: 21-055 | CASE: | DATE: 3-1-2023
SCALE: HORIZ: 1"=20' VERT.: N/A | GRID: SW2324

SHEET L5 OF 11



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COMPANY:
BY:
TITLE: DATE:

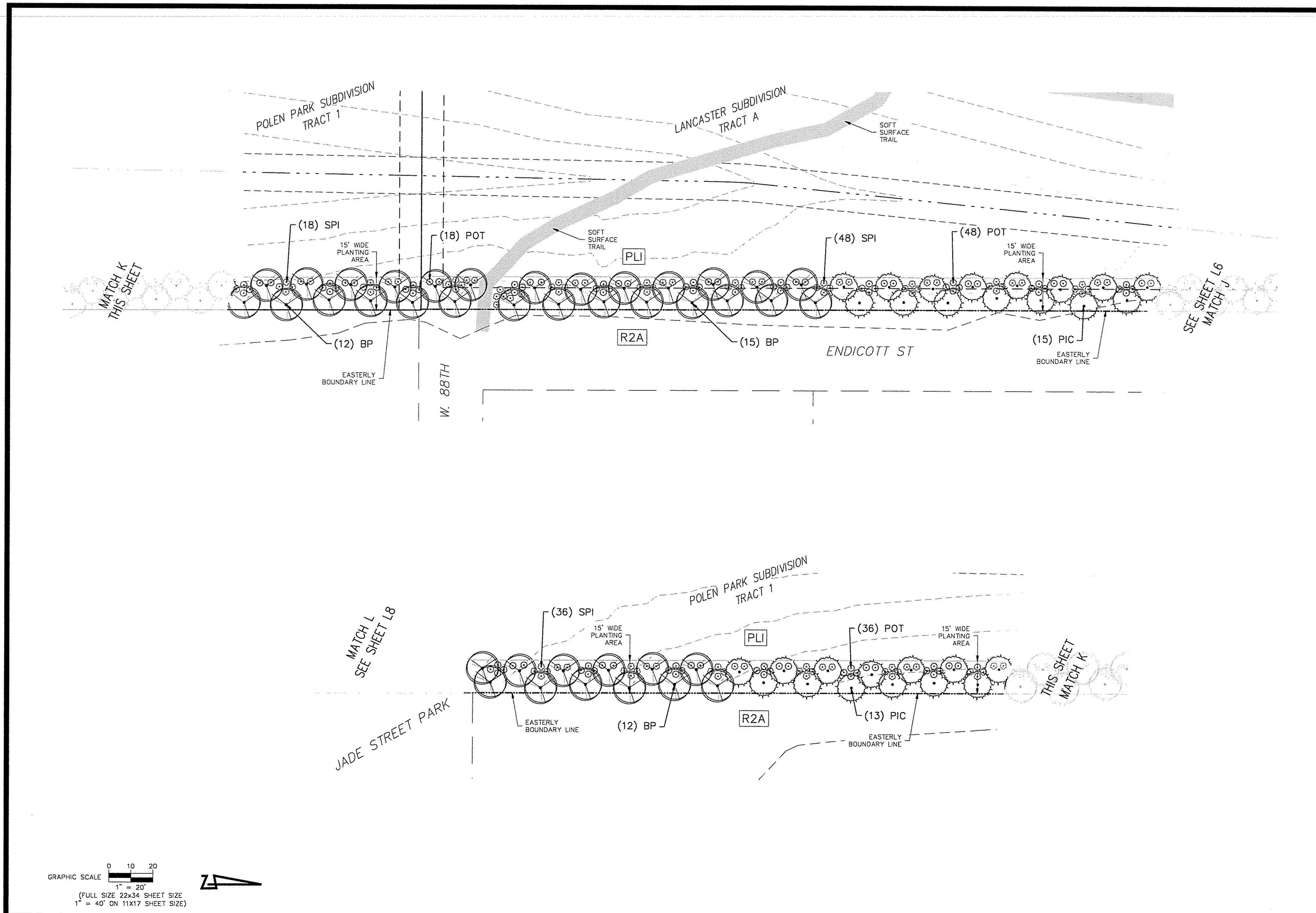
LANCASTER SUB. TR A
POLEN PARK SUB. TR 1-3
PLANT LAYOUT
LANDSCAPE PLAN

REVISIONS	DATE	BY	CKD

DESIGNED	DRAWN	CHECKED
SC	SC	SC

FILE: LSCAPE
JOB NO. 21-055 | CASE: | DATE: 3-1-2023
SCALE: HORIZ: 1"=20' VERT: N/A | GRID: SW2324

SHEET L6 OF 11



STATE OF ALASKA 49TH
STEVEN CALLAGHAN
No. 11181

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COMPANY: ______
BY: ______
TITLE: ______ DATE: ______

LANCASTER SUB. TR A
POLEN PARK SUB. TR 1-3
PLANT LAYOUT
LANDSCAPE PLAN

DATE	REVISIONS	BY	CKD

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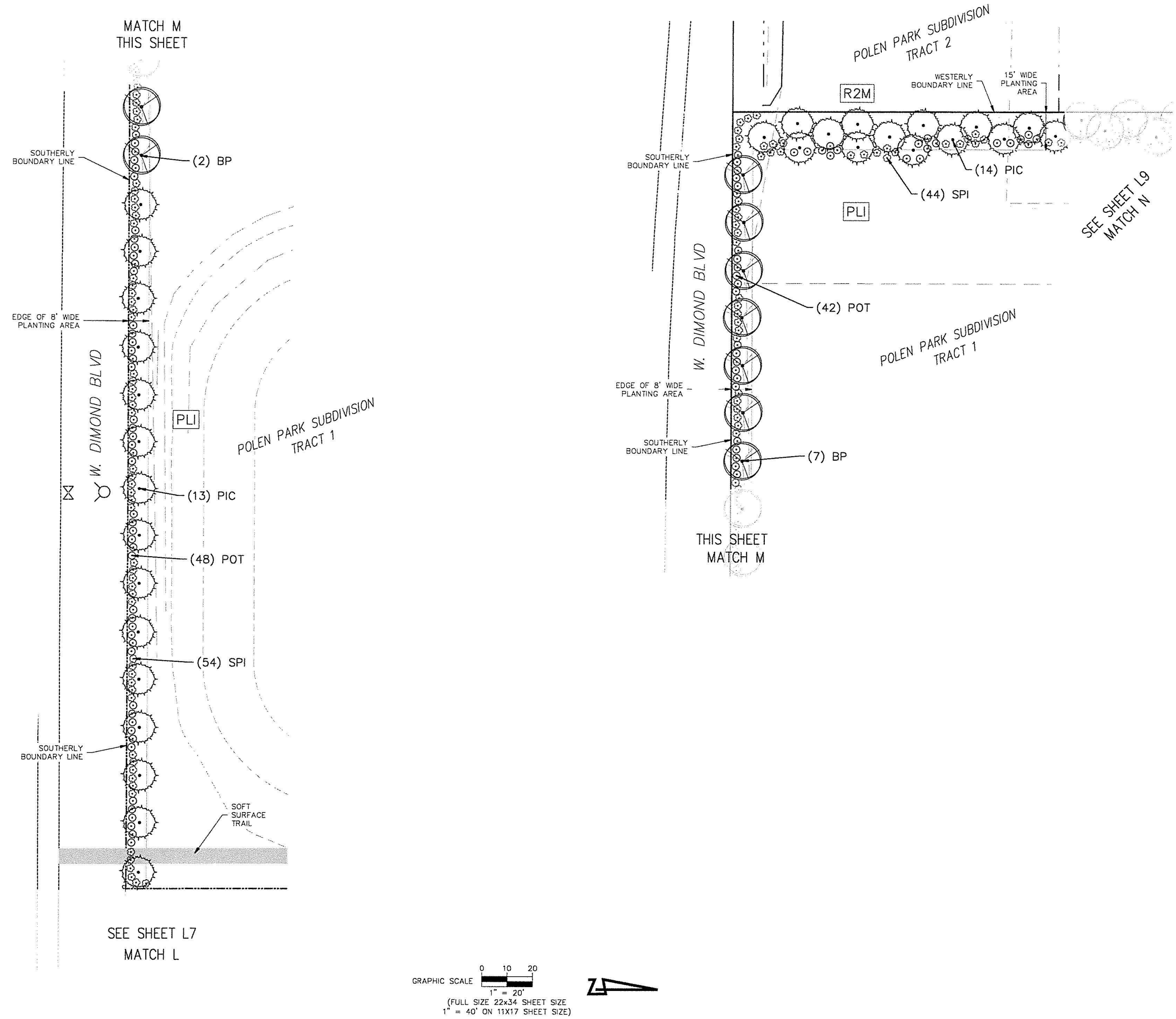
SC	SC	SC

FILE: LSCAPE
JOB NO. 21-055 CASE: DATE: 3-1-2023
SCALE: HORIZ: 1"=20' VERT: N/A GRID: SW2324

SHEET L7 OF 11



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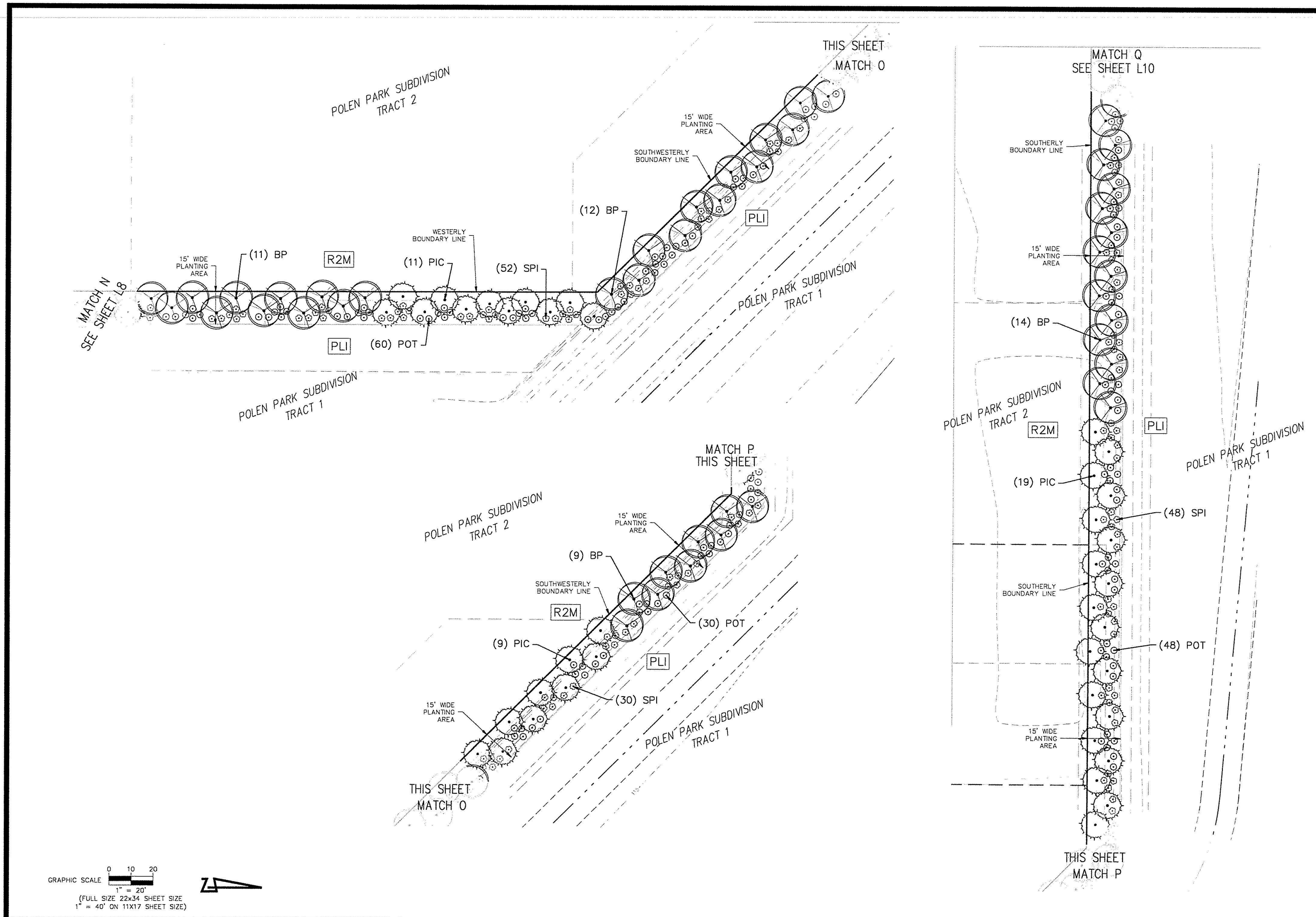
LANCASTER SUB. TR A
POLEN PARK SUB. TR 1-3
PLANT LAYOUT
LANDSCAPE PLAN

DATE	REVISIONS	BY	CKD

DESIGNED	DRAWN	CHECKED
SC	SC	SC
FILE: LSCAPE		
JOB NO. 21-055	CASE:	DATE: 3-1-2023
SCALE: HORIZ: 1"=20' VERT. N/A		GRID: SW2324

SHEET L8 OF 11



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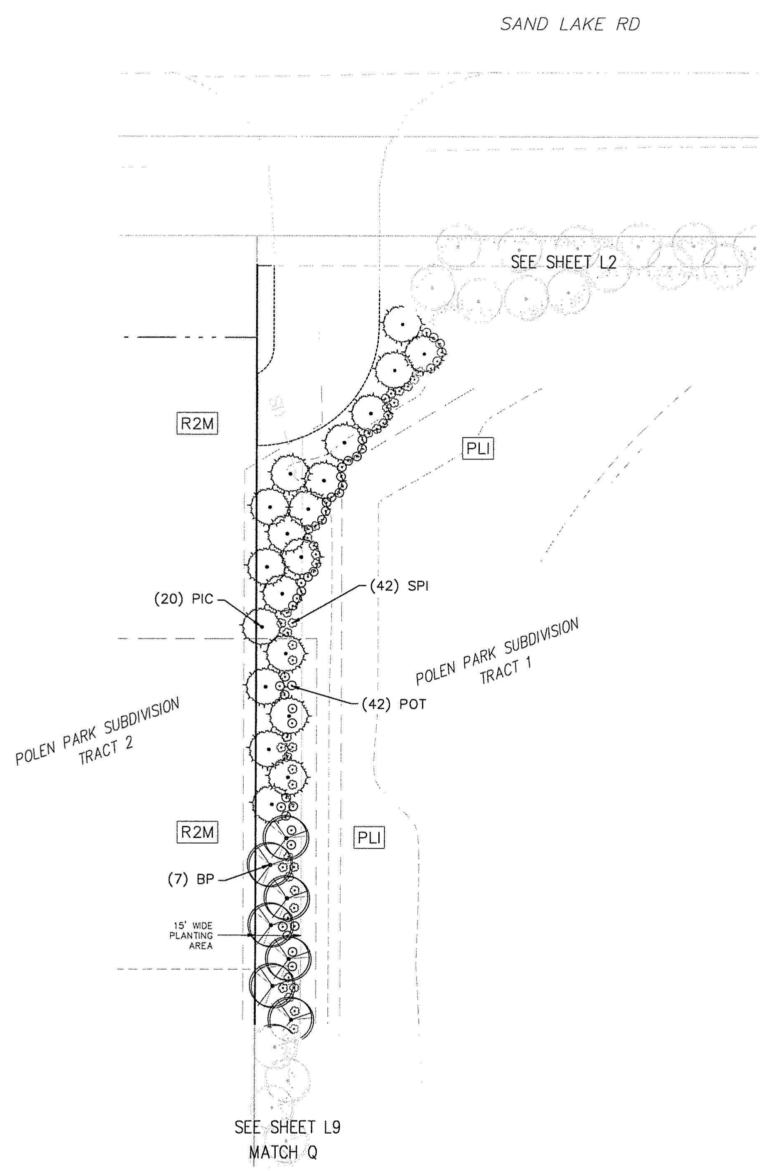
POLEN PARK SUB. TR 1-3
PLANT LAYOUT
LANDSCAPE PLAN

DATE	REVISIONS	BY	CKD

DESIGNED	DRAWN	CHECKED
SC	SC	SC

FILE: LSCAPE
JOB NO. 21-055 | CASE: | DATE: 3-1-2023
SCALE: HORIZ: 1"=20' VERT: N/A | GRID: SW2324
SHEET L9 OF 11



PLANTING SCHEDULE						
SYMBOL	LABEL	COMMON NAME	BOTANICAL NAME	SIZE	QUANTITY	NOTES
	PIC	WHITE SPRUCE	PICEA GLAUCA	MIN. 2" CALIPER/ MIN 8' HEIGHT	252	CONTAINER GROWN OR BALL AND BURLAP.
	BP	PAPER BIRCH	BETULA PAPYRIFERA	MIN. 2" CALIPER/ MIN 8' HEIGHT	382	CONTAINER GROWN OR BALL AND BURLAP.
	SJB	FROBEL SPIREA	SPIREA JAPONICA x BUMALDA 'FROEBELII'	MIN. 18" HEIGHT	1275	PLANT COLOR MAY VARY. OWNER TO APPROVE PRIOR TO PLANTING.
	PF	GOLDFINGER POTENTILLA	POTENTILLA FRUITICOSA 'GOLDFINGER'	MIN. 18" HEIGHT	1272	PLANT COLOR MAY VARY. OWNER TO APPROVE PRIOR TO PLANTING.
		BOULDER			573	SIZE VARIES, 2'x2'x2' – 3'X3'x3' 6' CLEAR BETWEEN BOULDERS

PLANTING SCHEDULE NOTES:
OTHER TREES AND SHRUBS, AND NATURAL VEGETATION MAY BE SUBSTITUTED FOR THE PLANTS SHOWN IN THE PLANT SCHEDULE. ANY SUBSTITUTION OF PLANTS MUST BE APPROVED BY THE OWNER AND THE MUNICIPALITY OF ANCHORAGE.

SURFACE TREATMENT SCHEDULE			
SYMBOL	COMMON NAME	SURFACE TYPE AND NOTES	QUANTITY
	MOWABLE LAWN GRASS	SEE SEEDING NOTES.	1,150,000 S.F.
	REVEGETATION GRASS	SEE SEEDING NOTES.	1,650,000 S.F.

SEEDING NOTES:
ALL AREAS NOT COVERED WITH TREES, SHRUBS, MULCH, AND AUTHORIZED INSTALLATIONS, SHALL HAVE 4" TOPSOIL AND GRASS SEED INSTALLED.
MOWABLE SEED MIX————————————————
SEED PROPORTIONS ARE BY WEIGHT:
5% ANNUAL RYE (LOLIUM MULTIFLORUM)
35% BOREAL RED FESCUE (FESTUCA RUBRA 'BOREAL')
KENTUCKY BLUEGRASS
35% KENAI (POA PRATENSIS 'KENAI')
25% BARON (POA PRATENSIS 'BARON')
APPLY AT 4 LBS PER 1000 SQUARE FEET USING HYDROSEED METHOD.
DOUBLE APPLICATION RATE FOR HAND OR MANUAL BROADCAST METHODS.
ATHLETIC FIELD SEED MIX————————————————
SEED PROPORTIONS ARE BY WEIGHT:
5% PIONSTRIPE PERENNIAL RYEGRASS (LOLIUM PERENNE)
20% BOREAL RED FESCUE (FESTUCA RUBRA 'BOREAL')
KENTUCKY BLUEGRASS
25% KENAI (POA PRATENSIS 'KENAI')
25% BARON (POA PRATENSIS 'BARON')
25% PARK (POA PRATENSIS 'PARK')
APPLY AT 4 LBS PER 1000 SQUARE FEET USING HYDROSEED METHOD.
DOUBLE APPLICATION RATE FOR HAND OR MANUAL BROADCAST METHODS.

REFERENCE M.A.S.S. FOR SEED MIXES. SEED MIXES ABOVE ARE PER MOA PME MEMORANDUM REGARDING SEEDING PROVISIONS, DATED 1/3/2023. SEED MIXES MAY CHANGE OVER TIME. CHECK WITH MOA PME REGARDING MOST CURRENT SEED MIXES.

SEEDING AREAS ARE SHOWN ON SHEET L1.

GRAPHIC SCALE 0 10 20
1" = 20'
(FULL SIZE 22x34 SHEET SIZE
1" = 40' ON 11X17 SHEET SIZE)

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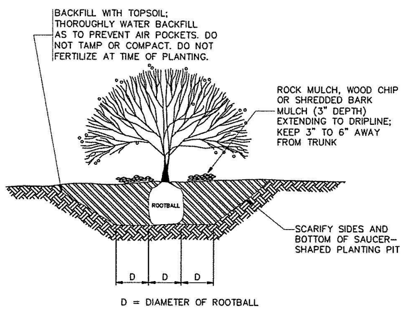
BY:
COMPANY:
BY:
TITLE: DATE:

LANCASTER SUB. TR A
POLEN PARK SUB. TR 1-3
PLANT LAYOUT
LANDSCAPE PLAN

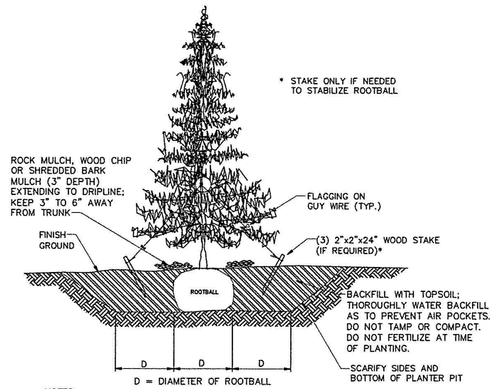
DATE	REVISIONS	BY	CKD

DESIGNED SC | DRAWN SC | CHECKED SC
FILE: LSCAPE
JOB NO. 21-055 | CASE: | DATE: 3-1-2023
SCALE: HORIZ: 1"=20' VERT. N/A | GRID: SW2324
SHEET L10 OF 11



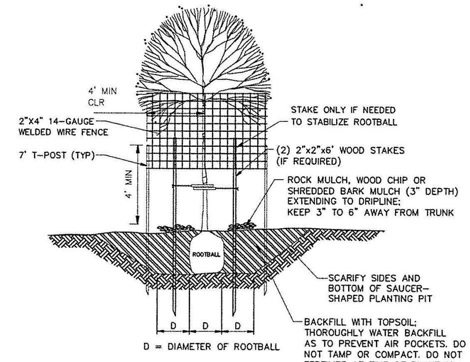
NOTES:
1. DEPTH VARIES DEPENDING ON ROOTBALL THICKNESS.
2. SOIL SHALL BE LOOSENED AND SUITABLE FOR ROOT GROWTH. TOP WIDTH OF PLANT PIT SHALL BE 4–5 TIMES ROOTBALL DIAMETER.
3. CONTRACTOR SHALL COMPLETELY REMOVE BURLAP, WIRE, WIRE BASKETS, AND CONTAINERS.
4. REGARDING PLACEMENT OF MULCH, SEE NOTE 3, LANDSCAPE NOTES, THIS SHEET.
5. REFER TO MUNICIPALITY OF ANCHORAGE STANDARD SPECIFICATIONS (MASS) SECTION 75.02. THIS DETAIL HAS BEEN MODIFIED FROM M.A.S.S. 75–01 DETAIL.

SHRUB PLANTING DETAIL



NOTES:
1. CONTRACTOR SHALL COMPLETELY REMOVE BURLAP, WIRE, AND WIRE BASKETS.
2. DEPTH OF PLANT PIT VARIES DEPENDING ON ROOTBALL THICKNESS. SOIL SHALL BE LOOSENED AND SUITABLE FOR ROOT GROWTH. TOP WIDTH OF PLANT PIT SHALL BE 4–5 TIMES ROOTBALL DIAMETER. SET ROOTBALL ON SOLID GROUND TO PREVENT SETTLING. PLANT TREE TRUNK WITH TRUNK FLARE AT OR UP TO 1" ABOVE FINISHED GROUND.
3. USE THREE 2"x2"x24" WOOD STAKES WHEN SPECIFIED ON DRAWINGS OR REQUIRED BY THE ENGINEER. EMBED AT ANGLE. DO NOT PENETRATE ROOTBALL. USE SOFT, FLEXIBLE MATERIAL FOR TIES. GUY AT APPROXIMATELY 1/3 TREE HEIGHT. REMOVE GUY AFTER ONE YEAR. DO NOT STAKE TREE RIGID, IT MUST MOVE IN THE WIND.
4. REGARDING PLACEMENT OF MULCH, SEE NOTE 3, THIS SHEET.
5. REFER TO MUNICIPALITY OF ANCHORAGE STANDARD SPECIFICATIONS (MASS) SECTION 75.02. THIS DETAIL HAS BEEN MODIFIED FROM M.A.S.S. 75–02 DETAIL.

CONIFER PLANTING DETAIL

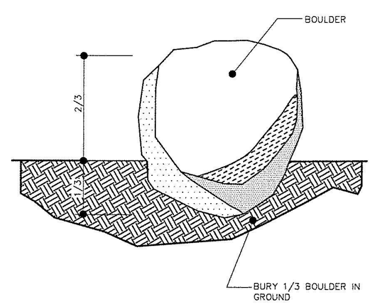


NOTES:
1. CONTRACTOR SHALL COMPLETELY REMOVE BURLAP, WIRE, WIRE BASKETS, AND CONTAINERS.
2. DEPTH OF PLANT PIT VARIES DEPENDING ON ROOTBALL THICKNESS. SOIL SHALL BE LOOSENED AND SUITABLE FOR ROOT GROWTH. TOP WIDTH OF PLANT PIT SHALL BE 4–5 TIMES ROOTBALL DIAMETER. SET ROOTBALL ON SOLID GROUND TO PREVENT SETTLING. PLANT TREE TRUNK WITH TRUNK FLARE AT OR UP TO 1" ABOVE FINISHED GROUND.
3. USE TWO 2"x2"x6' WOOD STAKES WHEN SPECIFIED ON DRAWINGS OR REQUIRED BY THE ENGINEER. EMBED 24" DO NOT PENETRATE ROOTBALL. USE SOFT, FLEXIBLE MATERIAL FOR TIES. GUY AT APPROXIMATELY 1/3 TREE HEIGHT. REMOVE GUY AFTER ONE YEAR. DO NOT STAKE TREE RIGID, IT MUST MOVE IN THE WIND.
4. REGARDING PLACEMENT OF MULCH, SEE NOTE 3, THIS SHEET.
5. REFER TO MUNICIPALITY OF ANCHORAGE STANDARD SPECIFICATIONS (MASS) SECTION 75.02. THIS DETAIL HAS BEEN MODIFIED FROM M.A.S.S. 75–03 DETAIL.

DECIDUOUS TREE PLANTING DETAIL

LANDSCAPE NOTES

1. MOA TITLE 21, WITH AN EFFECTIVE DATE OF JANUARY 1, 2014, SPECIFICALLY THE MAY 24, 2022 EDITION, WAS USED AS A REFERENCE FOR THESE PLANS.
2. ALL WORK SHALL CONFORM TO THE CURRENT MUNICIPALITY OF ANCHORAGE STANDARD SPECIFICATIONS (M.A.S.S.) 2015 EDITION.
3. ALL PLANTS SHALL MEET AMERICAN STANDARD FOR NURSERY STOCK (ANSI Z60.1–2004), AMERICAN NURSERY AND LANDSCAPE ASSOCIATION (ANLA), WWW.ANLA.ORG
4. ALL MULCH AREAS SHALL HAVE AN A DEPTH OF 3 INCHES. SEE M.A.S.S. SPECIFICATION 75.02, ARTICLE 2.2, SECTION B. AREAS AROUND TREES AND SHRUBS SHOULD HAVE MULCH PLACED TO EDGE OF DRIPLINE. THIS WORK ITEM SHALL BE COORDINATED WITH THE OWNER, OWNER'S REP AND ENGINEER, AND MAY BE OPTIONAL. OWNER AND CONTRACTOR TO DETERMINE IF MULCH IS NEEDED, AND WHAT TYPE OF MULCH TO INSTALL.
5. PLANT WARRANTY AND MAINTENANCE PERIOD SHALL BE ONE YEAR FROM THE DATE OF ACCEPTANCE
6. REPLACE ALL DEAD OR DYING PLANTS WITHIN 7 DAYS OF NOTIFICATION
7. ALL TREE AND SHRUB LOCATIONS SHALL BE APPROVED BY OWNER'S REPRESENTATIVE PRIOR TO PLANTING.
8. COMPLETELY PRE-FILL ALL PLANTING BEDS WITH WATER. CONTACT OWNER IF BEDS FAIL TO DRAIN WITHIN 3 HOURS. DO NOT PLANT IN POORLY DRAINED BEDS.
9. ALL PLANT SPECIES TO BE HARDY AND KNOWN TO THRIVE IN ANCHORAGE. SUBSTITUTIONS SHALL BE APPROVED BY THE OWNER IN WRITING.
10. PLANTS SHALL BE WEED-FREE AT TIME OF PLANTING. ALL PLANTING BEDS TO BE WEED-FREE DURING THE ONE-YEAR PLANT WARRANTY AND MAINTENANCE PERIOD.
11. TREE AND SHRUB LOCATIONS MAY NEED TO BE FIELD ADJUSTED TO ACCOMMODATE LIGHT POLES, DRAINAGE, UTILITIES, OVERHEAD POWER LINES, AND OTHER IMPROVEMENTS. ANY CHANGES IN LOCATIONS OF PLANT MATERIALS SHALL BE APPROVED BY THE OWNER AND PERFORMED AT NO ADDITIONAL COST.
12. ALL TREES AND SHRUBS TO BE PLACED 2' CLEAR FROM EDGES OF CURBS AND NOT PLANTED IN DRAINAGE WAYS.
13. ALL SHRUBS TO BE A MINIMUM OF 18" HEIGHT WHEN PLANTED.
14. ALL EDGES AROUND LANDSCAPE BEDS ADJACENT TO A TURF AREA SHALL BE SHOVEL CUT WITH A FLAT SHOVEL UNLESS OTHERWISE SPECIFIED.
15. SEE CIVIL PLANS FOR ADDITIONAL INFORMATION.



NOTES:
1. ORIENTATION OF BOULDERS DETERMINED ON-SITE BY THE ENGINEER OR OWNER'S REPRESENTATIVE.
2. SOIL TO BE COMPACTED AROUND BOULDER TO PREVENT MOVEMENT.
3. REFER TO MUNICIPALITY OF ANCHORAGE STANDARD SPECIFICATIONS (MASS) SECTION 75.11. THIS DETAIL HAS BEEN MODIFIED FROM M.A.S.S. 75–04 DETAIL.

BOULDER INSTALLATION DETAIL

PLANTING NOTES

1. CUT BURLAP AND WIRE BASKET, PEEL DOWN, REMOVE OR LAY FLAT IN BOTTOM OF PLANT PIT. REMOVE CONTAINERS.
2. DEPTH OF PLANT PIT VARIES DEPENDING ON ROOTBALL THICKNESS. SOIL LOOSENED AND SUITABLE FOR ROOT GROWTH, 4–5 TIMES ROOTBALL DIAMETER. SET ROOTBALL ON SOLID GROUND TO PREVENT SETTLING. PLANT TREE TRUNK WITH TRUNK FLARE AT OR UP TO 1" ABOVE FINISHED GROUND.
3. USE THREE 2 X 2 X 24" WOOD STAKES FOR EVERGREEN TREES; EMBED AT ANGLE. DO NOT PENETRATE ROOTBALL. USE SOFT, FLEXIBLE MATERIAL FOR TIES. GUY AT APPROXIMATELY 1/3 TREE HEIGHT. REMOVE GUY AFTER ONE YEAR. DO NOT STAKE TREE RIGID: IT MUST MOVE IN THE WIND.
4. BACKFILL WITH TOPSOIL & THOROUGHLY WATER BACKFILL TO PREVENT AIR POCKETS. DO NOT TAMP, COMPACT, OR FERTILIZE AT THE TIME OF PLANTING.

S4 Group
Land Surveying
Land Development Consultants
Subdivision Specialists
Construction Surveying
124 E 7th Avenue
Anchorage, Alaska 99501
(907) 306-8104
mail@S4AK.com
AKCAN 172042

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TITLE: DATE:

LANCASTER SUB. TR A
POLEN PARK SUB. TR 1–3
LANDSACAPE DETAILS

DATE	REVISIONS	BY	CKD

DESIGNED	DRAWN	CHECKED
SC	SC	SC
FILE: LSCAPE		
JOB NO.: 21-055	CASE:	DATE: 3-1-2023
SCALE: HORIZ: NTS VERT.: N/A		GRID: SW2324

SHEET L11 OF 11

SAND LAKE RECLAMATION SITE
CONDITIONAL USE AMENDMENT

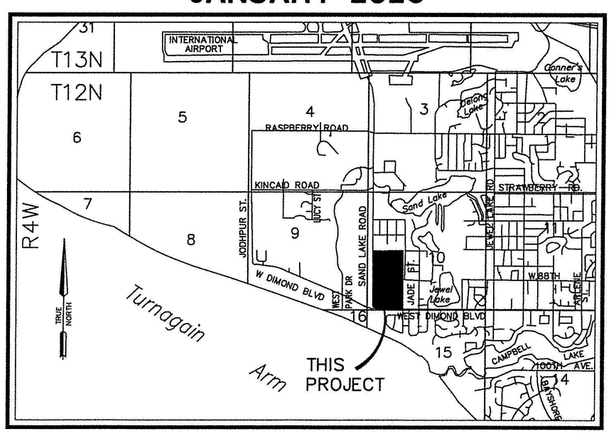
LANCASTER SUBDIVISION TRACT A
POLEN PARK SUBDIVISION TRACTS 1-3

JANUARY 2023

ENGINEERED BY: TRIAD ENGINEERING, LLC
P.O. BOX 111989
ANCHORAGE, AK 99511
(907) 561-6537

SURVEYED BY: S4 GROUP, LLC
124 E. 7TH AVENUE
ANCHORAGE, AK 99501
(907) 306-8104

OWNER: ANCHORAGE SAND
& GRAVEL CO. INC.
1040 O'MALLEY ROAD
ANCHORAGE, AK 99515-3032
(907) 348-6433
CONTACT: RYAN MORMAN



LOCATION MAP
SCALE : 1 Inch = 1/2 Mile

INDEX

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P.O. Box 111989
Anchorage, Alaska 99511
(907) 561-6537
www.triadak.com

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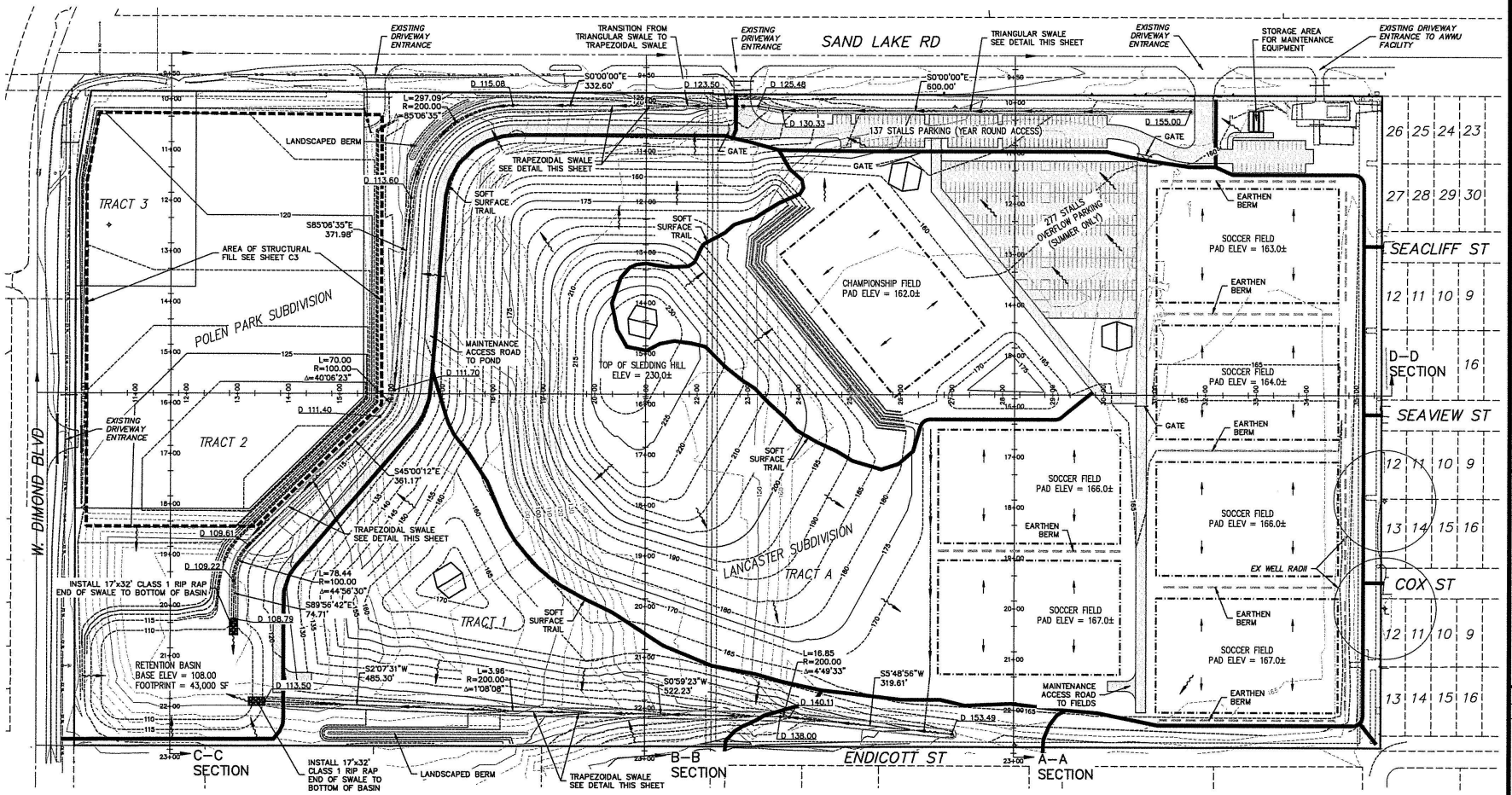
COMPANY:
BY:
TITLE: DATE:

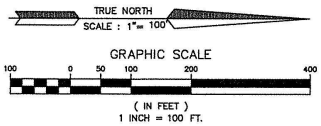
LANCASTER SUB. TR A
POLEN PARK SUB. TR 1-3
TITLE SHEET

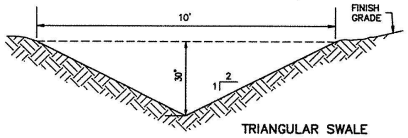
DATE	REVISIONS	BY	CKD

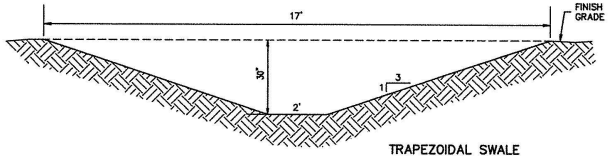
DESIGNED: BJM | DRAWN: CWM | CHECKED: BJM
FILE: AS&G SAND LAKE PIT /TITLE
JOB NO.: 22-155 | CASE: | DATE: JAN 2023
SCALE: HORIZ: AS SHOWN VERT: N/A | GRID: SW2324

SHEET C1 OF 6









SWALE DETAILS
SCALE: 1/2" = 1'

GRADING NOTES

1. ALL DISTURBED AREAS TO BE STABILIZED WITH VEGETATION.
2. PER AMCR 23.105.111.3, THE TOE OF FILL SLOPES SHALL BE MADE NOT NEARER TO THE SITE BOUNDARY LINE THAN ONE-HALF THE HEIGHT OF THE SLOPE WITH A MINIMUM OF TWO (2) FEET AND A MAXIMUM OF TWENTY (20) FEET.
3. FILL SLOPES CONSTRUCTED WITH NON-STRUCTURAL MATERIAL SHALL BE 3:1 MAX.
4. RETENTION BASIN SLOPES SHALL BE 4:1 MAX.
5. AREA OF DISTURBANCE = 70.0 ACRES.
6. HOURS OF OPERATION WILL BE BETWEEN 7:00 A.M. TO 6:00 P.M., MON.-SAT. NO OPERATIONS WILL BE PERMITTED ON SUNDAYS OR FEDERAL HOLIDAYS.
7. MATERIAL HAULED TO THE PROJECT SITE WILL BE VIA SAND LAKE ROAD. NO MATERIAL WILL BE HAULED OFFSITE.
8. PARKING AREAS SHALL BE SURFACED WITH RAP.
9. TRIAD ENGINEERING, LLC WILL PERFORM THE REQUIRED CIVIL ENGINEER INSPECTIONS PER SECTION AMCR 21.90.003.E2-4 WHICH INCLUDES OBSERVATION AND REVIEW OF LINE, GRADE AND SURFACE DRAINAGE.

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BY: TITLE: DATE:

LANCASTER SUB. TR A
POLEN PARK SUB. TR 1-3
GRADING PLAN

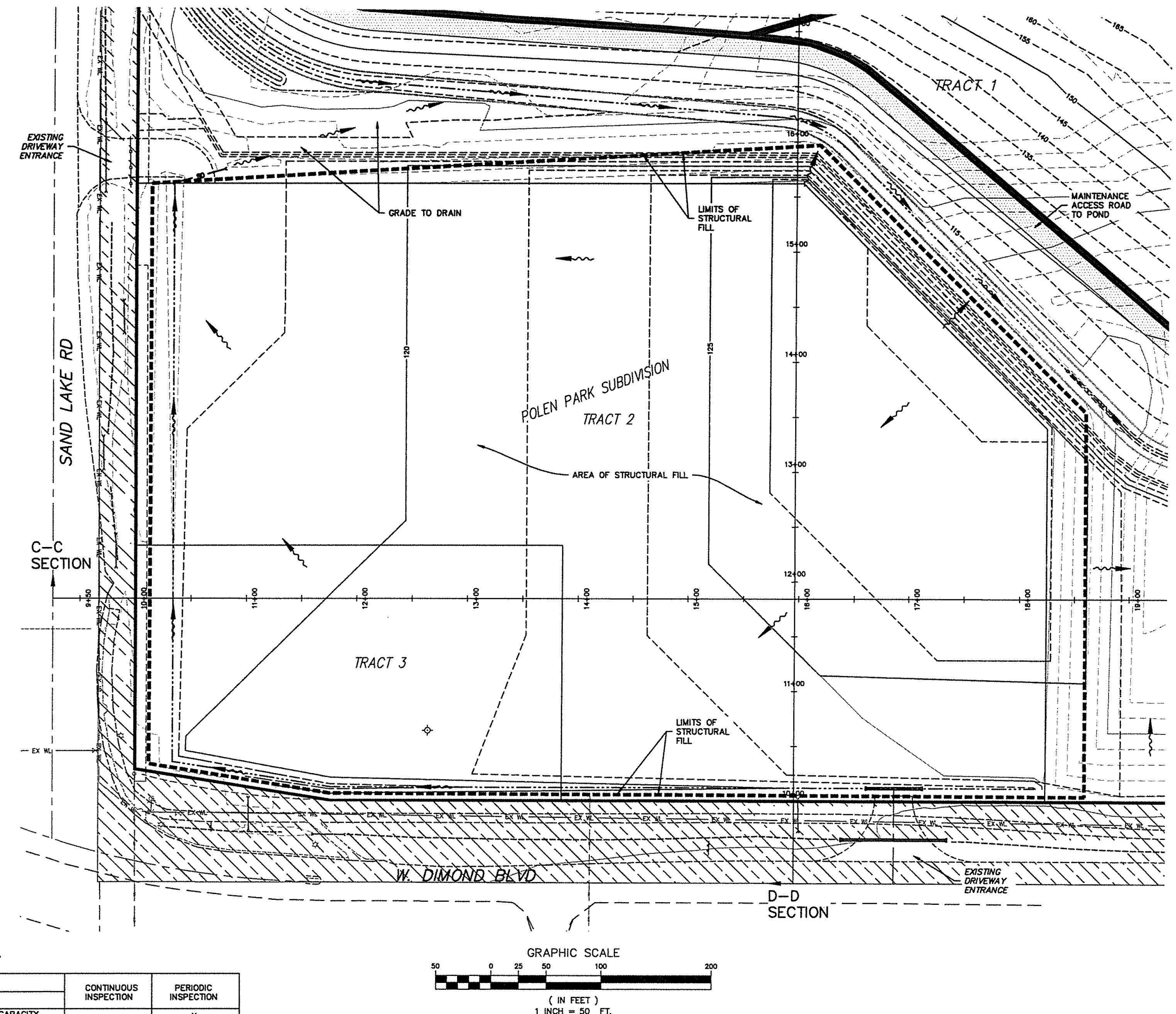
REVISIONS	BY	CKD	DATE

DESIGNED: BJM | DRAWN: CHM | CHECKED: BJM
FILE: ASAG SAND LAKE PIT /GRADING
JOB NO.: 22-155 | CASE: | DATE: JAN 2023 | DRDG: 38234
SCALE: HORIZ. 1"=100' VERT. N/A

SHEET C2 OF 6

STRUCTURAL FILL NOTES

1. SLOPES TO BE STABILIZED.
2. ALL FILL SHALL BE PLACED IN ONE FOOT LIFTS, MAXIMUM, AND COMPACTED TO 95% MINIMUM AND IN COMPLIANCE WITH THE SOILS ENGINEER'S RECOMMENDATIONS. NO ROCK OR SIMILAR IRREDUCIBLE MATERIAL WITH A MAXIMUM DIMENSION GREATER THAT 12 INCHES SHALL BE BURIED OR PLACED IN FILLS.
3. PRIOR TO PLACING FILL MATERIAL, THE GROUND SURFACE SHALL BE PREPARED TO RECEIVE FILL BY REMOVING VEGETATION. SCARIFY THE EXISTING GROUND SURFACE TO PROVIDE A BOND WITH THE PROPOSED FILL. ORGANIC SOILS MAY BE SPREAD OVER FINISHED SLOPES AND PROPOSED LOTS AT A MAXIMUM THICKNESS OF 6 INCHES.
4. TERRACES AT LEAST 12 FEET WIDE SHALL BE ESTABLISHED AT THE MID POINT OF FILLS 60 FEET OR GREATER. SLOPE OF TERRACES SHALL BE 2.0% MINIMUM TOWARDS BACK OF BENCH.
5. PER AMCR 23.105.111.3, THE TOE OF FILL SLOPES SHALL BE MADE NOT NEARER TO THE SITE BOUNDARY LINE THAN ONE-HALF THE HEIGHT OF THE SLOPE WITH A MINIMUM OF TWO (2) FEET AND A MAXIMUM OF TWENTY (20) FEET.
6. PER AMCR 23.105.111.2, THE TOP OF CUT SLOPES SHALL NOT BE MADE NEARER TO A SITE BOUNDARY LINE THAN ONE-FIFTH OF THE VERTICAL HEIGHT OF CUT WITH A MINIMUM OF TWO (2) FEET AND A MAXIMUM OF TEN (10) FEET. THE SETBACK MAY NEED TO BE INCREASED FOR ANY REQUIRED INTERCEPTOR DRAINS.
7. BOTTOM-OF-HOLE INSPECTION AND EXTENT-OF-EXCAVATION INSPECTION SHALL BE PERFORMED BY A BUILDING SAFETY INSPECTOR PRIOR TO ANY FILL PLACEMENT. ADDITIONAL MOA INSPECTIONS SHALL OCCUR FOR EVERY 25,000 C.Y. OR PORTION THEREOF, OF GRADING BEYOND 50,000 C.Y.
8. FILL SLOPES SHALL NOT BE CONSTRUCTED ON NATURAL SLOPES STEEPER THAN 1 UNIT VERTICAL IN 2 UNITS HORIZONTAL (50% SLOPE). WHERE SLOPES ARE STEEPER THAN 1 UNIT VERTICAL IN 5 UNITS HORIZONTAL (20% SLOPE) AND THE FILL HEIGHT IS GREATER THAN 5 FEET, A BENCH UNDER THE TOE OF THE FILL SHALL BE INSTALLED AT LEAST 10 FEET WIDE.
9. NORTHERN GEOTECHNICAL ENGINEERING AND TERRA FIRMA WILL PERFORM THE REQUIRED TESTING FOR COMPACTION AS WELL AS OBSERVATIONS DURING PREPARATION OF THE NATURAL GROUND PRIOR TO FILL OPERATIONS PER SECTION 23.105.114 AND PER IBC TABLE 1704.7 WHICH REQUIRES CONTINUOUS INSPECTION DURING FILL PLACEMENT.
10. MATERIAL HAULED TO THE PROJECT SITE WILL BE VIA SAND LAKE ROAD. NO MATERIAL WILL BE HAULED OFFSITE.
11. PERMANENT CUT/FILL SLOPES TO BE 2:1 MAX.
12. QUANTITY: CUT = 0 C.Y., FILL = 340,000 C.Y.
13. THE CONTRACTOR SHALL MAINTAIN OPEN AND UNOBSTRUCTED ROUTES DAILY UNTIL CONSTRUCTION IS COMPLETE.
14. NO FILL MATERIAL WILL BE PLACED IF FROZEN AND NO FILL SHALL BE PLACED ON FROZEN MATERIAL.
15. ANCHORAGE SAND & GRAVEL CO., RYAN MORMAN, HAS HIRED TERRA FIRMA TESTING, TO PERFORM THE SPECIAL INSPECTIONS. SPECIAL INSPECTIONS WILL FOLLOW THE REQUIREMENTS OF THE IBC TABLE 1704.7 (SEE TABLE THIS SHEET).
16. A RIGHT OF WAY PERMIT IS REQUIRED FOR ANY WORK WITHIN THE ADOT RIGHTS OF WAY.
17. TRIAD ENGINEERING, LLC WILL PERFORM THE REQUIRED CIVIL ENGINEER INSPECTIONS PER SECTION AMCR 21.90.003.E2-4 WHICH INCLUDES OBSERVATION AND REVIEW OF LINE, GRADE AND SURFACE DRAINAGE.
18. FILL DEFINITIONS:
    - STRUCTURAL FILL: SUITABLE SOILS INCLUDE ANY INORGANIC, NON-DELETERIOUS, MINERAL SOIL THAT CAN BE COMPACTED TO THE REQUIRED DENSITY. IN GENERAL, THE SOILS WILL CONTAIN LESS THAN ABOUT 10 TO 15% PASSING THE #200 SIEVE. SILTIER SOILS CAN BE USED, HOWEVER IT MAY BE DIFFICULT TO ACHIEVE THE REQUIRED DENSITY, ESPECIALLY UNDER WET WEATHER CONDITIONS. STRUCTURAL FILL MUST BE COMPACTED TO A MINIMUM OF 95% OF THE MODIFIED PROCTOR DENSITY.
    - NON-STRUCTURAL FILL: INCLUDES PEAT, CLAY, SILTY SOIL, HYDRO-AXED MATERIALS, TREE FRAGMENTS, STUMPS, TURF, AND OTHER ORGANICS ASSOCIATED WITH PERMITTED CLEARING AND GRUBBING OPERATIONS, INCLUDING WOOD CHIPS FROM GRINDING OPERATIONS, AND CONCRETE REMNANTS RELATED TO DEMOLITION, CONCRETE TESTING, OR CONSTRUCTION SITE CLEAN-UP.



SPECIAL INSPECTION NOTES

1. ITEMS MARKED WITH AN "X" REQUIRE INSPECTION BY A SPECIAL INSPECTOR.
2. TESTING AND INSPECTION REPORTS SHALL BE SUBMITTED TO THE ARCHITECT-ENGINEER, BUILDING OFFICIAL, OWNER AND CONTRACTOR.

SPECIAL SOIL INSPECTION & TESTING SCHEDULE (IBC 1704.7 & TABLE 1704.7)	CONTINUOUS INSPECTION	PERIODIC INSPECTION
VERIFICATION AND INSPECTION TASK		
1. VERIFY MATERIALS BELOW FOOTINGS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY.		X
2. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL.		X
3. PERFORM CLASSIFICATION AND TESTING OF CONTROLLED FILL MATERIALS.		X
4. VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF CONTROLLED FILL.	X	
5. PRIOR TO PLACEMENT OF CONTROLLED FILL, OBSERVE SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY.		X

STATE OF ALASKA 49TH BRANDON J. MARCOTT CE 12601 1.25.23 REGISTERED PROFESSIONAL ENGINEER

TRIAD ENGINEERING, LLC
P.O. Box 111989
Anchorage, Alaska 99511
(907) 561-6537
www.triadak.com

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BY: ______
TITLE: ______ DATE: ______

LANCASTER SUB. TR A
POLEN PARK SUB. TR 1-3
TRACTS 2 & 3
STRUCTURAL FILL

DATE	REVISIONS	BY	CKD

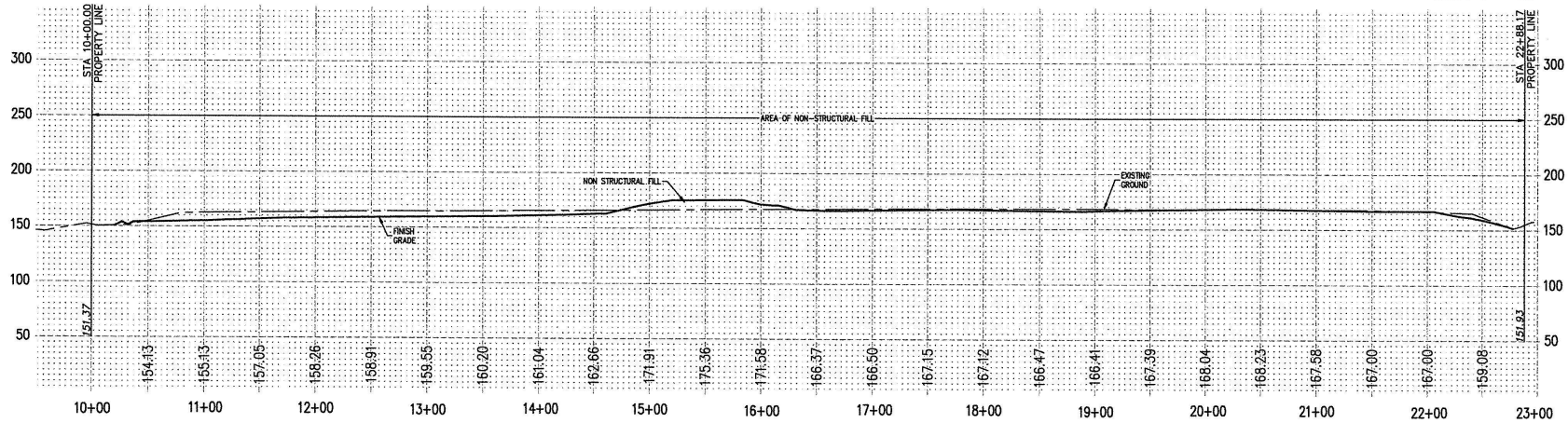
DESIGNED	DRAWN	CHECKED
BJM	GWM	BJM

FILE: AS&G SAND LAKE PIT /GRADING
JOB NO.: 22-155 CASE: DATE: JAN 2023
SCALE: HORIZ: 1" = 80' VERT.: N/A GRID: SW2324

SHEET C3 OF 6

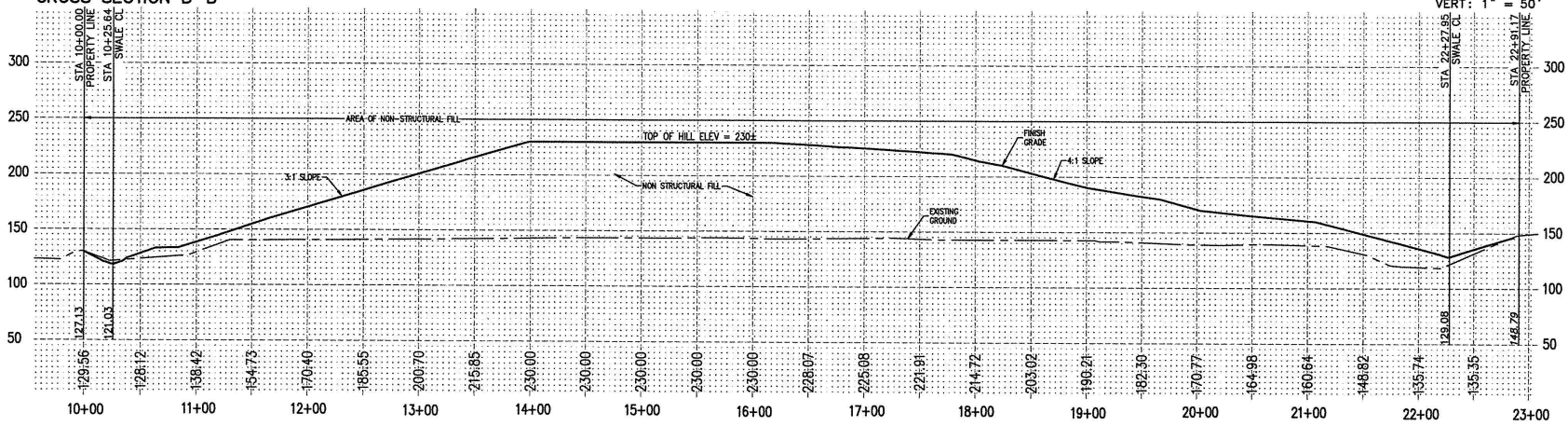
CROSS SECTION A–A

PROFILE SCALE: HORZ: 1" = 50'
VERT: 1" = 50'



CROSS SECTION B–B

PROFILE SCALE: HORZ: 1" = 50'
VERT: 1" = 50'



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COMPANY:
BY:
TITLE: DATE:

LANCASTER SUB. TR A
POLEN PARK SUB. TR 1–3
CROSS SECTIONS
A–A & B–B

BY	CKD

REVISIONS

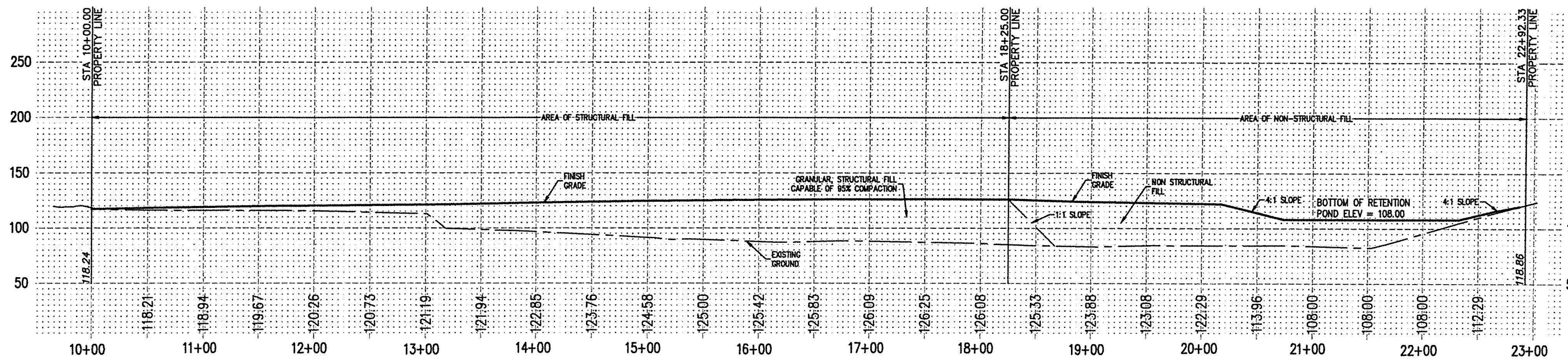
DATE:

DESIGNED: BJM | DRAWN: CMM | CHECKED: BJM
FILE: ASSC SAND LAKE PIT /SECTION A-A
JOB NO. CASE: 22-155
DATE: JAN 2023
SCALE: HORZ. 1"=50' VERT. 1"=50'
GRID: SW2304

SHEET C4 OF 6

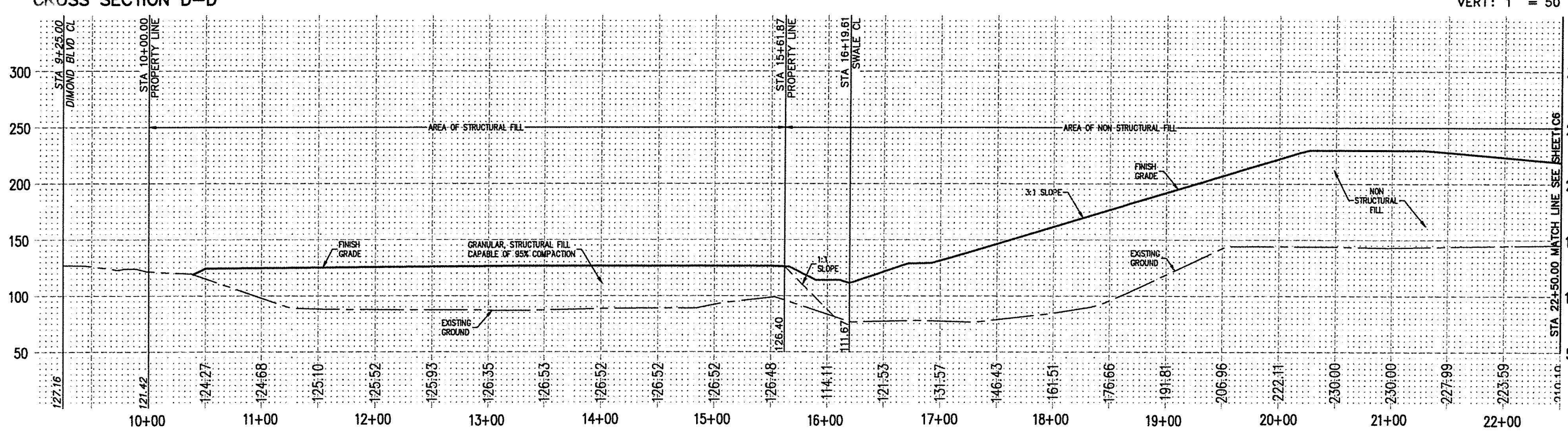
CROSS SECTION C–C

PROFILE SCALE: HORZ: 1" = 50'
VERT: 1" = 50'



CROSS SECTION D–D

PROFILE SCALE: HORZ: 1" = 50'
VERT: 1" = 50'



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P.O. Box 111809
Anchorage, Alaska 99511
(907) 561-6537
www.triadak.com

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BY:

TITLE: ______ DATE: ______

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BY:

COMPANY:

DATE:

3. DATA TRANSFER CHECKED

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BY:

COMPANY:

BY:

TITLE: ______ DATE: ______

LANCASTER SUB. TR A
POLEN PARK SUB. TR 1-3
CROSS SECTIONS
C–C & D–D

DATE	REVISIONS	BY	CKD

DESIGNED	DRAWN	CHECKED
BJM	CMM	BJM

FILE: ASRC SAND LAKE PIT /XSECTION B-B

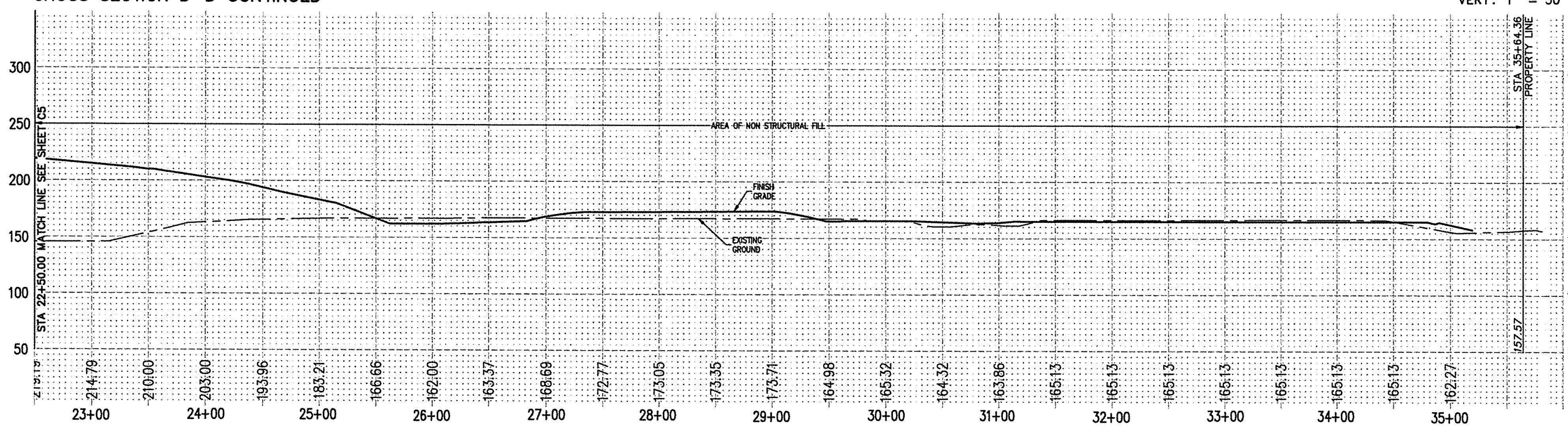
JOB NO.	CASE:	DATE:
22-155		JAN 2023

SCALE: HORIZ: 1"=50' VERT: 1"=50' GRID: SW2324

SHEET C5 OF 6

CROSS SECTION D–D CONTINUED

PROFILE SCALE: HORZ: 1" = 50'
VERT: 1" = 50'



TRIAD ENGINEERING, LLC
P.O. Box 111989
Anchorage, Alaska 99511
(907) 561-6537
www.triadak.com

RECORD DRAWING
1. DATA PROVIDED
BY:
This will serve to certify that these Record Drawings are a true and accurate representation of the project as constructed.
CONTRACTOR:
BY:
TITLE: DATE:
2. DATA TRANSFERRED
BY:
COMPANY:
DATE:
3. DATA TRANSFER CHECKED
Based on periodic field observations by the Engineer (or an individual under his/her direct supervision), the Contractor-provided data appears to represent the project as constructed.
BY:
COMPANY:
BY:
TITLE: DATE:

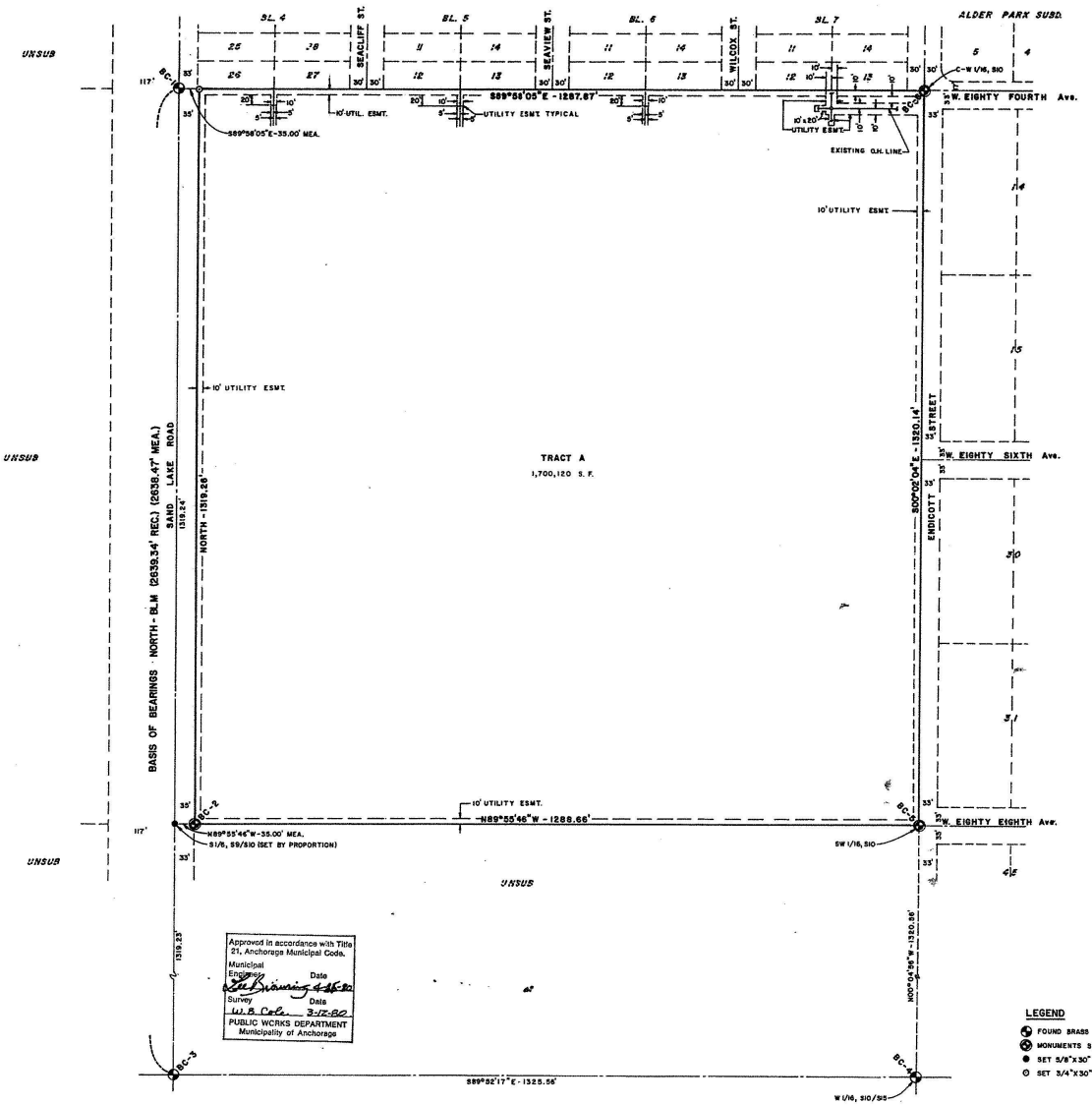
LANCASTER SUB. TR A
POLEN PARK SUB. TR 1–3
CROSS SECTION D–D
CONTINUED

DATE	REVISIONS	BY	CKD

DESIGNED	DRAWN	CHECKED
BJM	GWM	BJM

FILE: AS&G SAND LAKE PIT /XSECTION C–C
JOB NO. 22-155 | CASE: | DATE: JAN 2023
SCALE: HORZ: 1"=50' VERT: 1"=50' | GRID: SW2324

SHEET C6 OF 6



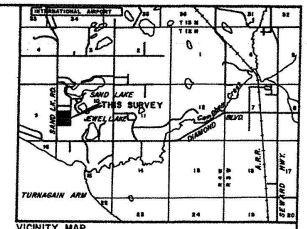
NOTARY'S ACKNOWLEDGEMENT

SUBSCRIBED AND SWORN TO BEFORE ME THIS 7th DAY OF December 1979
WAS VELLEMONTIE H. MORRIS.

Notary
5/16/83
MY COMMISSION EXPIRES

Vellemontie H. Morris
VELLEMONTIE H. MORRIS
ROUTE 3 BOX 143
ELKTON, OREGON 97436

ALL MUNICIPAL REAL PROPERTY TAXES LEVIED AGAINST THIS PROPERTY ARE PAID
Authorized Official 6-5-80
TREASURY DEPARTMENT
MUNICIPALITY OF ANCHORAGE



VICINITY MAP

SCALE: 1"=1 MILE

CERTIFICATE OF OWNERSHIP & DEDICATION

I(WE), HEREBY CERTIFY THAT I AM (WE ARE) THE OWNER(S) OF THE PROPERTY DESCRIBED HEREON. I(WE) HEREBY DEDICATE TO THE PUBLIC ALL EASEMENTS FOR PUBLIC UTILITIES, STREETS, ALLEYS, THOROUGHFARES, PARKS AND OTHER PUBLIC AREAS SHOWN HEREON. THERE SHALL BE RESERVED ADJACENT TO THE DEDICATED RIGHTS-OF-WAY SHOWN HEREON, A SLOPE RESERVATION SUFFICIENT TO CONTAIN CUT AND FILL SLOPES OF 1/2 FEET HORIZONTALLY FOR EACH FOOT VERTICALLY (1-1/2 TO 1) OF CUT OR FILL, FOR THE PURPOSE OF PROVIDING AND MAINTAINING LATERAL SUPPORT OF THE CONSTRUCTED STREET AND THERE IS RESERVED TO THE GRANTORS, THEIR HEIRS, SUCCESSORS AND ASSIGNS, THE RIGHT TO REMOVE SAID SLOPES AT ANY TIME UPON PROVIDING AND MAINTAINING OTHER ADEQUATE LATERAL SUPPORT, AS APPROVED BY THE MUNICIPALITY OF ANCHORAGE, ALASKA.

Herb Lang
HERB LANG - PRESIDENT
ANCHORAGE SAND AND GRAVEL
1813 EAST FIRST
ANCHORAGE, ALASKA 99501

80-59
RECORDED - FILED 10:00
Anchorage REC. DI:
DATE 6-26 1980
TIME 8:36 P
Requested by Anchorage
Address Municipality

NOTARY'S ACKNOWLEDGEMENT

SUBSCRIBED AND SWORN TO BEFORE ME THIS 7TH DAY OF December, 1979 WAS HERBERT C. LANG.

Notary for Alaska
5/16/83
MY COMMISSION EXPIRES

ACCEPTANCE OF DEDICATION

THE MUNICIPALITY OF ANCHORAGE HEREBY ACCEPTS FOR PUBLIC USES AND FOR PUBLIC PURPOSES THE REAL PROPERTY DEDICATED ON THIS PLAT, INCLUDING BUT NOT LIMITED TO THE EASEMENTS, RIGHTS-OF-WAYS, ALLEYS, ROADWAYS, THOROUGHFARES AND PARKS SHOWN HEREON.

DATED AT ANCHORAGE, ALASKA, THIS 6th DAY OF June 1980

Phyllis Ellen Brooks
CLERK

George M. Sullivan
MAYOR

PLAT APPROVAL

PLAT APPROVED BY THE ANCHORAGE PLATTING AUTHORITY THIS 26th DAY OF June, 1980.

Esmond R. Lee
AUTHORIZED OFFICIAL

Approved in accordance with Title 21, Anchorage Municipal Code.
Municipal Engineer — Date
Ed Browning 7-25-80
Survey — Date
W. R. Cole 7-22-80
PUBLIC WORKS DEPARTMENT
Municipality of Anchorage

BC-1
FOUND 2 1/2" BRASS CAP MON. 1.3' BELOW GROUND IN MON. CASE

BC-2
SET 3 1/4" BRASS CAP MON. ON 2 1/2"x30" IRON PIPE 0.4' ABOVE GROUND

BC-3
FOUND 3" BRASS CAP MON. 0.4' BELOW GROUND

BC-4
FOUND 2 1/2" BRASS CAP MON. IN MON. CASE 0.4' BACP

BC-5
SET 3 1/4" BRASS CAP MON. ON 2 1/2"x30" IRON PIPE FLUSH WITH GROUND REPLACES FOUND 5/8" REBAR

BC-6
SET 2 1/2" ALUM. CAP MON. ON 2 1/2"x30" ALUM. PIPE 0.3' BELOW GROUND REPLACES FOUND 1" IRON PIPE

LEGEND

- FOUND BRASS CAP MONUMENT
- MONUMENTS SET THIS SURVEY
- SET 5/8"X30" REBAR
- SET 3/4"X30" REBAR

SURVEYOR'S CERTIFICATE

I, E. K. MCMILLAN, PROFESSIONAL LAND SURVEYOR, DO HEREBY CERTIFY THAT THE PLAT OF TRACT A LANCASTER SUBDIVISION IS A TRUE AND CORRECT REPRESENTATION OF LANDS ACTUALLY SURVEYED AND THAT ALL THE DISTANCES AND BEARINGS ARE SHOWN CORRECTLY AND THAT ALL PERMANENT EXTERIOR CONTROL MONUMENTS, ALL OTHER MONUMENTS AND LOT CORNERS HAVE BEEN SET AND STAKED, OR IF FINAL COMPLETION IS ASSURED BY SUBDIVISION AGREEMENT, THEY WILL BE SET AS SPECIFIED IN SAID SUBDIVISION AGREEMENT.

E. K. McMillan
SIGNATURE OF LAND SURVEYOR

CONTAINING 39.029 ACRES

PLAT OF
TRACT A, LANCASTER SUBDIVISION
A RESUBDIVISION OF
THE ENTIRE LANCASTER SUBDIVISION PLAT P-281

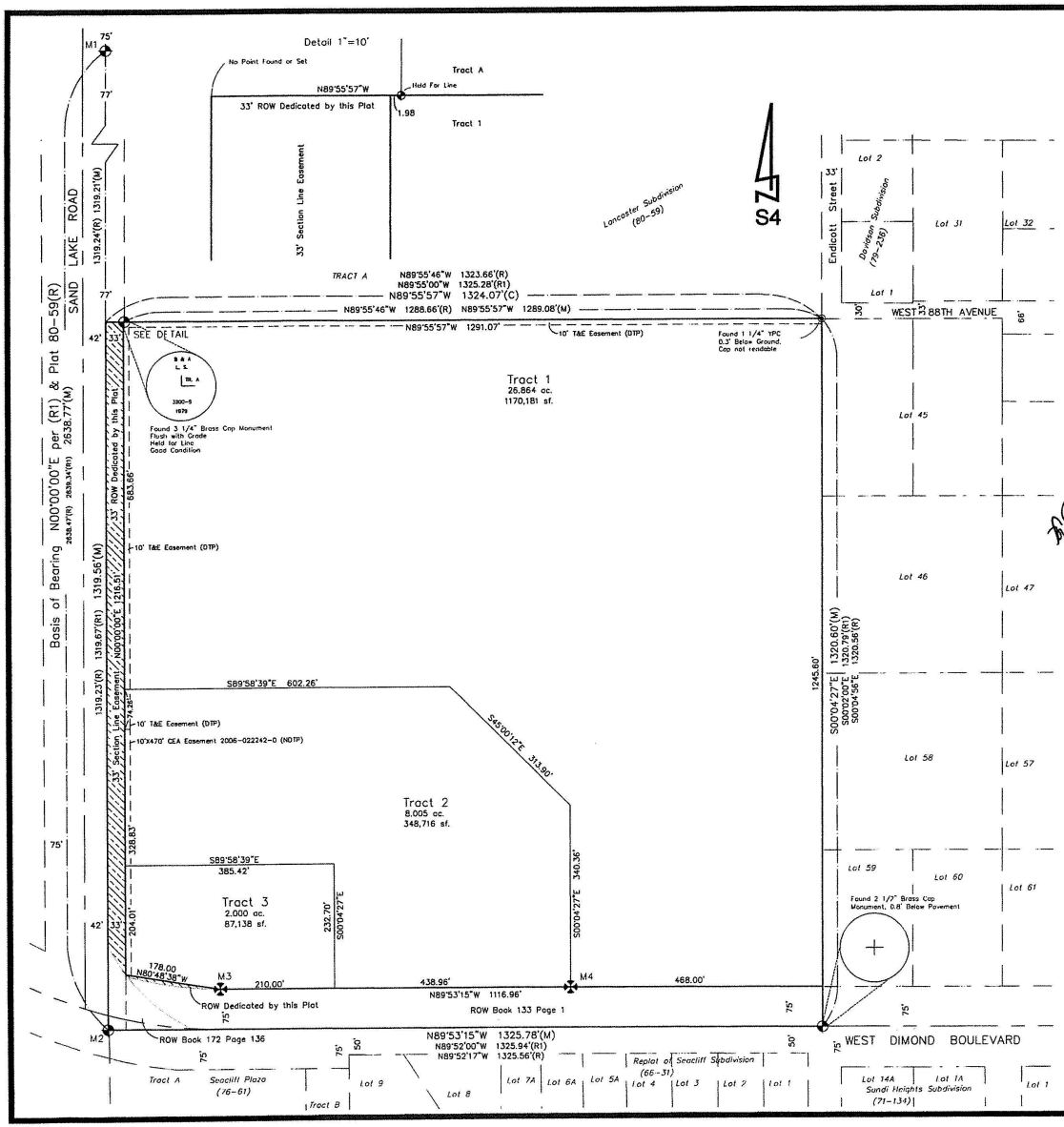
LOCATED IN
NW 1/4, SW 1/4, SEC. 10, T.12 N., R.4 W, SEWARD MERIDIAN, ALASKA

BOMHOFF & ASSOCIATES, INC.
Engineering · Planning · Surveying
1020 WEST INTERNATIONAL AIRPORT ROAD
ANCHORAGE ALASKA

STATE OF ALASKA — 49TH — E. K. McMillan — NO. 5004 — REGISTERED LAND SURVEYOR

DESIGNED BY	E.M.
DRAWN BY	E.T.
CHECKED BY	C.L.E.
SCALE	1"=100'
FIELD BOOK NO.	1996
DATE	NOV., 1979
JOB NO.	1596
SHEET 1 OF 1	GRID 2324

80-59) FO



TAX CERTIFICATION

All real property taxes levied by the Municipality of Anchorage on the area shown on this plat have been paid in full, and if approval is sought between January 1 and the tax due date, there is on deposit with the chief fiscal officer an amount sufficient to pay estimated real property tax for the current year.

Authorized Official: _____ Date: 5-8-19

PLAT APPROVAL

Platting Officer: _____ Date: 5/7/19

Municipal Surveyor: _____ Date: 5/3/2019

SURVEYOR'S CERTIFICATE

I, Benjamin C. Holmstrom, professional land surveyor, do hereby certify that the plat of Polen Park Subdivision is a true and correct representation of lands actually surveyed and that the distances and bearings are shown correctly and that all permanent exterior control monuments, all other monuments, and lot corners have been set and staked, or if final completion is assured by subdivision agreement, they will be set as specified in said subdivision agreement. Lot corners to be set by N/A. Monuments to be set by N/A

PLAT APPROVAL

Plat approved by the Municipal Platting Authority this 7th day of May 2019

Authorized Official: _____

STATE OF ALASKA 49TH
Benjamin C. Holmstrom
LS-11970
Professional Land Surveyor

ACCEPTANCE AND DEDICATION BY MUNICIPALITY OF ANCHORAGE

The Municipality of Anchorage hereby accepts for public uses and for public purposes the real property dedicated on this plat including, but not limited to easements, rights-of-way, alleys, roadways, thoroughfares and parks shown hereon.

Dated at Anchorage, Alaska this 7th day of May 2019.

Municipal Clerk: _____

Mayor of Anchorage: _____

MUNICIPALITY OF ANCHORAGE

CERTIFICATE OF OWNERSHIP AND DEDICATION

I (we), hereby certify that I (we) hold the herein specified property interest in the property described hereon. I (we) hereby dedicate to the municipality all areas depicted for use as public utility easements, streets, alleys, thoroughfares, parks, and other public areas shown hereon. There shall be reserved adjacent to the dedicated streets shown hereon a slope reservation easement sufficient to contain cut and fill slopes of 1.5 feet horizontal for each one foot vertical (1.5 to 1) of cut or fill for the purpose of providing and maintaining the lateral support of the constructed streets. There is reserved to the grantors, their heirs, successors and assigns, the right to use such areas at any time upon providing and maintaining other adequate lateral support, as approved by the municipality. I (we) hereby agree to this plat, and to any restriction or covenant appearing hereon and any such restriction or covenant shall be binding and enforceable against present and successive owners of this subdivided property.

Name: Chris Taylor Title: President

Signature: _____

Owner: Anchorage Sand and Gravel Co., Inc., an Alaskan corporation
1040 O'Malley Road
Anchorage AK 99515

STATE OF ALASKA
NOTARY PUBLIC
Jill A. Jaeckel
My Commission Expires: April 22, 2020

Notary Acknowledgement

Subscribed and sworn before me this 3rd day of May 2019.

For: Chris Taylor

04/22/2020 _____
My commission expires Notary Public

NOTES:

1. All lot corners set with 5/8" x 30" rebar with 1 1/4" yellow plastic cap unless otherwise noted.
2. All distances are in U.S. Survey Feet.
3. Easements by document shown where platted and dimensioned for reference purposes only. The recorded easement documents should be used to verify and establish location, rights and permitted used. These document easements are not dedicated by this plat.
4. Reservation of section line easement 33 feet in width along each side of the section line as provided by 43 U.S.C. 932.
5. Right-of-Way Easement, including terms and provisions thereof, granted to CHUGACH ELECTRIC ASSOCIATION, INC., and its assigns and/or successors in interest, to construct, operate and maintain an electric transmission and/or telephone distribution line or system by Instrument recorded July 23, 1952, Book 75 Page 351. (Blanket Easement) Not shown on this plat.
6. Tract 1 is a fill site of unclassified fill.
7. Prior to the development of Tracts 2 and 3, confirm that the building conforms to the slope stability analysis on file with the Building Safety Department or provide an updated slope stability analysis.
8. Any low lying or closed basin (land surrounded by higher elevations) is not permitted for any structures unless a storm drain system is constructed which is capable of conveying a 100 year storm event or a flood map is provided to the Municipality of Anchorage Flood Hazard Administrator showing areas of inundation which will be regulated as FEMA mapped flood plain.
9. Tracts 2 & 3 shall share access to Sand Lake Road.
10. Tracts 2 & 3 shall share access to West Dimond Boulevard through Tract 2 unless alternate access approved by ADOT.
11. The property owner and utilities shall not raise, lower, or re-grade the property in a manner that will alter the drainage patterns without prior approval from the Municipality of Anchorage Building Safety Office.
12. Property owners and utilities shall not obstruct, impede or alter drainage facilities (e.g. swales, ditches) in any way that will adversely impact adjacent properties or rights-of-way.

S4 GROUP LS-7625 — Typical 1 1/4" yellow plastic cap set on 5/8" X 30" rebar

M1 — Found 3 1/4" Alum. Cap Monument Flush with Grade Good Condition

M2 — Found 3 1/4" Brass Cap Monument Flush with Grade Good Condition

M3 — Set 2 1/2" x 30" Alum. Monument, 30" in the ground, with 3" Alum Cap mkd. as shown

M4 — Set 2 1/2" x 30" Alum. Monument, 30" in the ground, with 3" Alum. Cap mkd. as shown

LEGEND

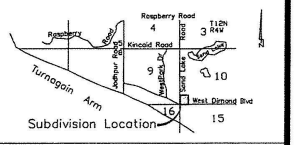
- Set Monument
- Found Monument
- Found Rebar with Cap
- (R) Record as per Plat 80-59
- (R1) Record as per Dependent Resurvey and Subdivision of Sections 2 and 10, May 12, 1952
- (M) Measured as per this plat.
- (C) Computed
- YPC Yellow Plastic Cap
- (DTP) Dedicated by this plat to the Municipality of Anchorage
- (NDTP) Not Dedicated by This Plat

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

Vicinity Map Scale: 1" = 1 mile



2019-41
Plat # Anchorage
Rec Dist
Date 5/10/19
Time 2:35 P.M.

A Plat of:

Polen Park Subdivision Tracts 1-3

A Subdivision of:
SW1/4, of the SW1/4 of Section 10, Township 12 North, Range 4 West, Seward Meridian, Alaska, according to the official Bureau of Land Management Survey thereof, being located in the Anchorage Recording District, Third Judicial District, State of Alaska.
EXCEPTING THEREFROM all that portion conveyed to the Territory of Alaska by Right-of-Way Deed recorded October 6, 1958 in Book 168 at Page 226 and Corrected Right-of-Way Deed recorded December 5, 1958 in Book 172 at Page 136. ALSO EXCEPTING THEREFROM all that portion conveyed to the State of Alaska, Third Judicial District, and recorded September 13, 1966 in Misc. Book 133 at Page 1, Containing 36.870 Acres.

S4 Group — Land Surveying, Land Development Consultants, Subdivision Specialists, Construction Surveying
Tom H Dreyer, P.L.S.
124 E 7th Avenue
Anchorage, Alaska 99501
(907) 306-8104
mail@S4AK.com

Drawn by: CB	Scale 1" = 100'	Grid	SW2324
Field Book: 144	MOA Case S12430	Date:	4/17/2019

Sheet 1 of 1

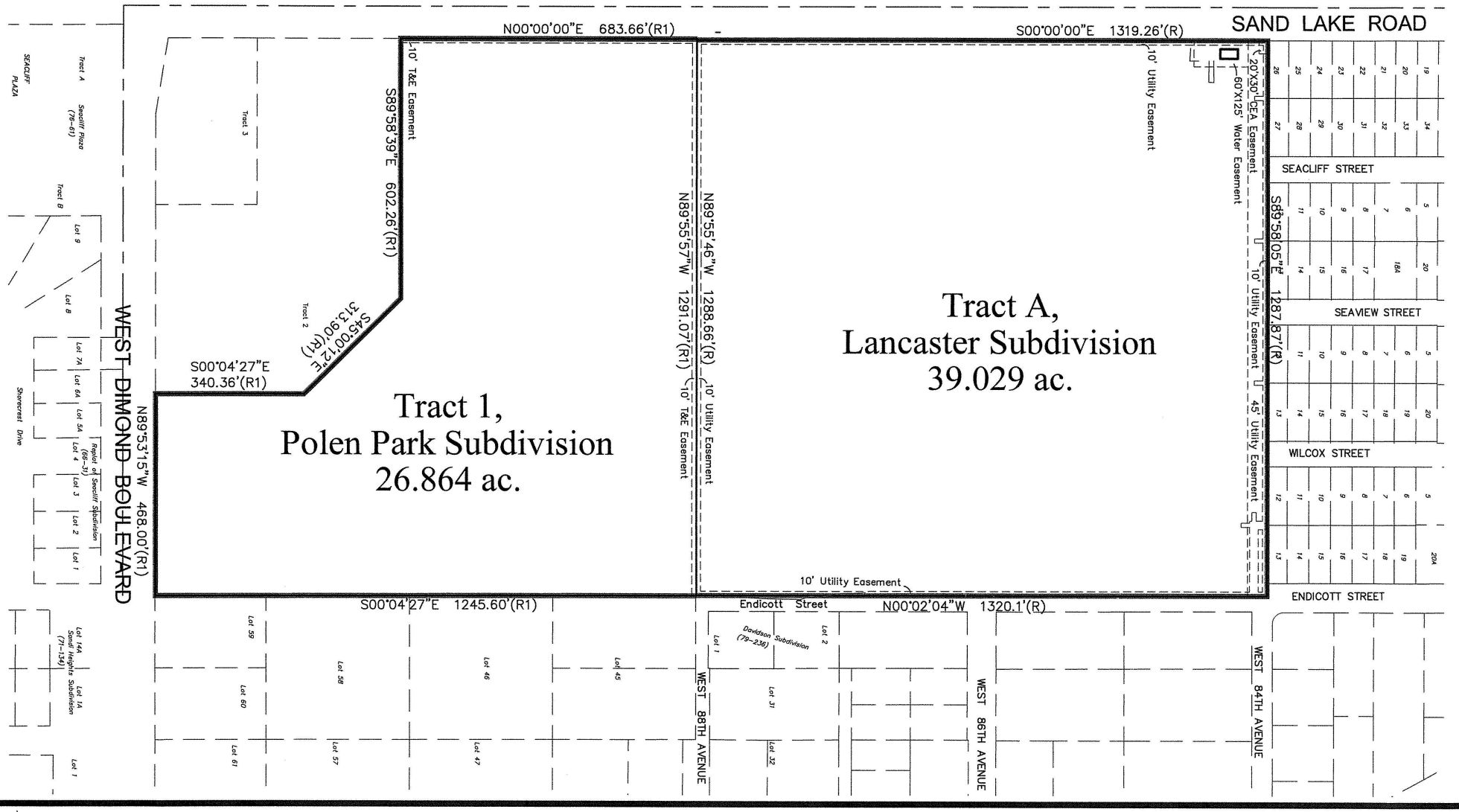
AS&G Recreational Sports Park
Site Plan Layout

Notes:
1. Water table elevations are 55' to 62'
2. The 7 Proposed Sports Fields are 360' X 225' in size and can be use as 21 youth fields.

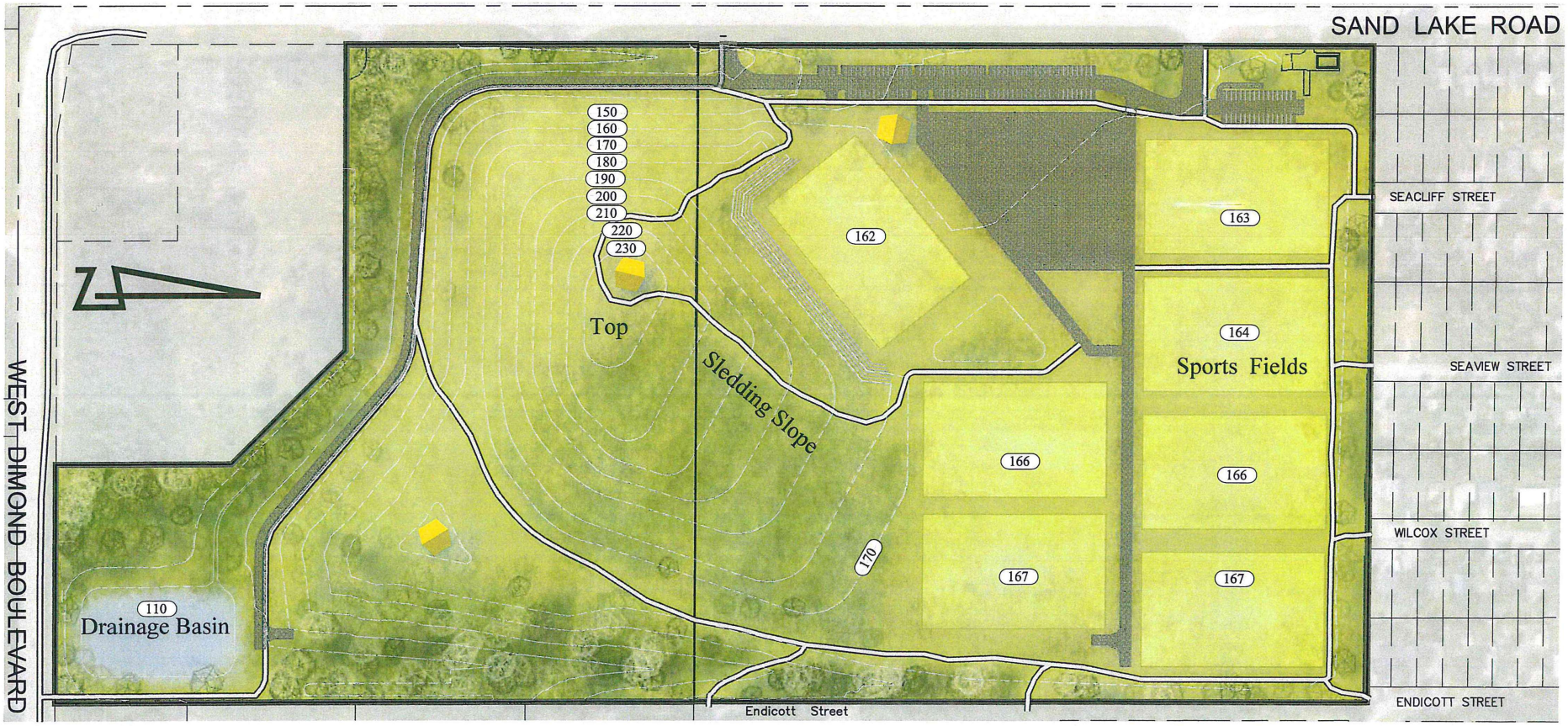
AS&G
Recreational Sports Park

(R) Per Plat 80-59
(R1) Per Plat 2019-41

Notes:
1. Easement granted to Chugach Electric Association, Inc., recorded July 23, 1952 in Book 75 at Page 351, Blanket Easement for Tract 1.

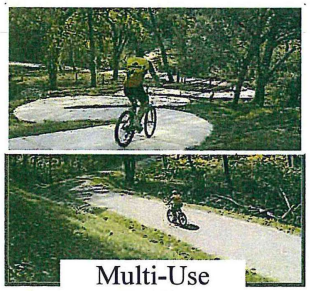


Elevation Detail

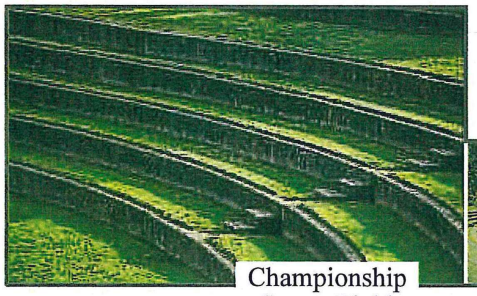


AS&G Recreational Sports Park

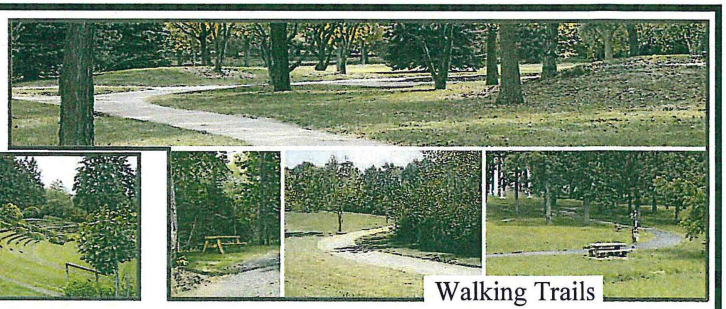
Uses & Activities



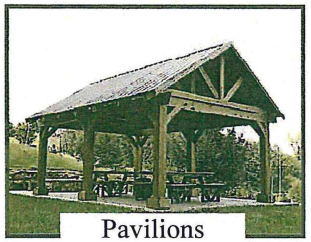
Multi-Use Trails



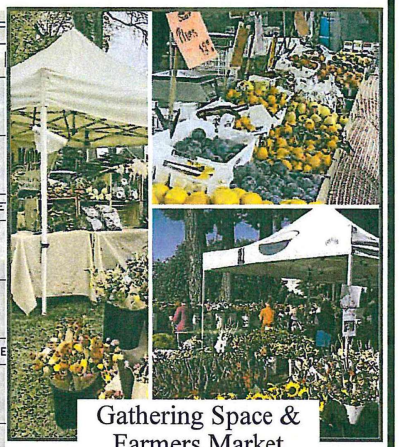
Championship Sports Field



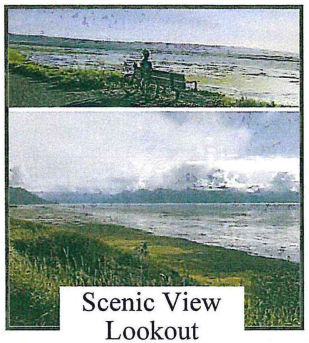
Walking Trails



Pavilions



Gathering Space & Farmers Market

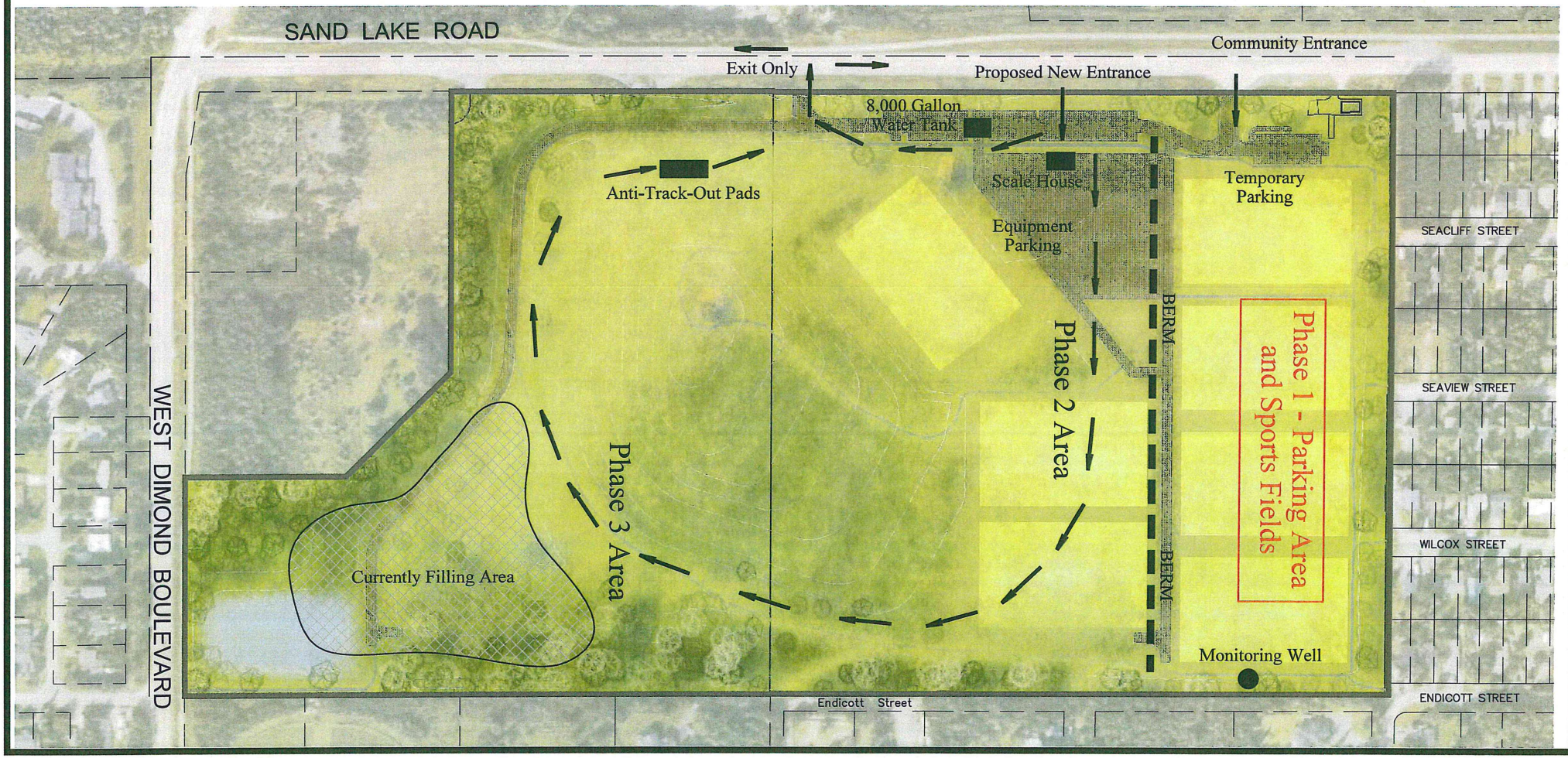


Scenic View Lookout

Sledding Hill

Sports Fields

AS&G
Recreational Sports Park
Phasing & Access Plan



Combined Parks Benefits

Parking areas to provide overflow parking

Multiple access locations for parking

Provide connectivity for pedestrians and bicyclists to the adjacent parks and neighborhoods.

Establish trail connections within the Proposed Sports Park, Edna M Fisk Memorial Park, and Jade Park without having to use roads.

The proposed Sports Park creates a destination, identity, and economic opportunities for the community.

Provides uninhibited corridors for wildlife, eliminates urban island effects.

Creates usable green space year round.

Promotes community wellness, inclusiveness, and community recreational value.

Develops children's cognitive, physical, social, and sensory skills.

Park amenities tend to increase adjacent property values when selling a house and contributes to social capital.

The green space eliminates impervious pavement, recharges the water table, and does not contribute to stormwater runoff.

Contributes to the grassroots movement of the Live Work Play vision for Anchorage.

Expansion of existing green spaces.

Wind Break Detail

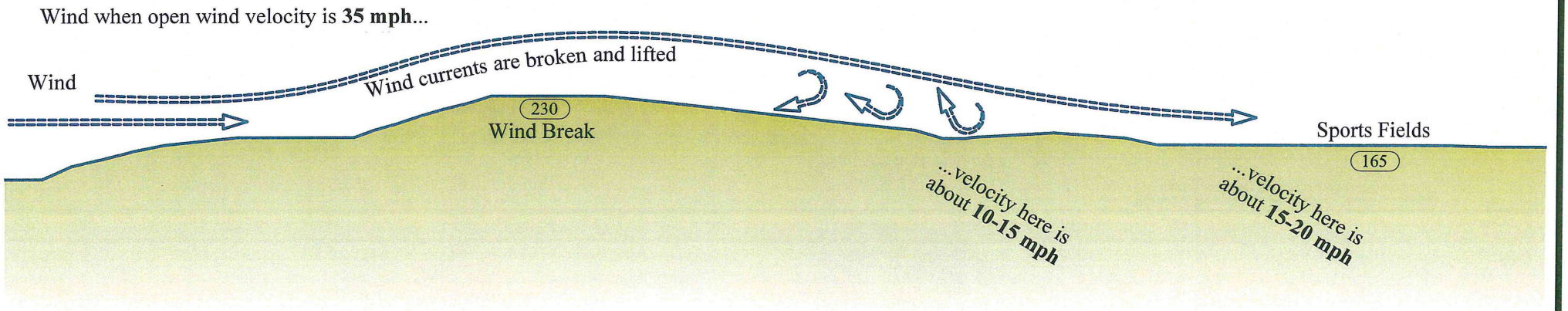
A windbreak lowers the wind chill. The wind chill is the temperature it "feels like" outside and is based on the rate of heat loss from exposed skin caused by wind and cold. As the wind increases, the body is cooled faster, and the skin temperature drops. For example, if the outside temperature is 10°F (-12°C) and the wind speed is 20 miles per hour (32 kilometers per hour), the wind chill is -24°F (-31°C). A windbreak will reduce wind speed for a distance of as much as 30 times the windbreak's height. But for maximum protection, a distance of two to five times the height is the best. Windbreaks block wind close to the ground, and deflect or lift the wind over the area that is being protected.

Height — Windbreaks reduce wind speeds up to 30 times their height downwind.

Orientation —Windbreaks should be oriented at right angles to the prevailing wind direction to protect the greatest land area. Remember that prevailing wind directions may vary between summer and winter. Use multiple-leg windbreaks in areas with variable-direction winds to give the most protection.

The general rule is that a windbreak will reduce wind speed 70 to 80 percent immediately inside the barrier

Windbreaks provide:
- A barrier from sounds, sights, and smells
- An aesthetically pleasing landscape element



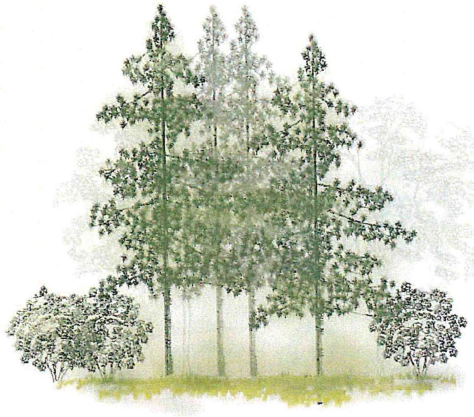
As trees grow, the effectiveness of the windbreak will increase.

21.07.080 - Landscaping, screening, and fences.

A. Purpose. This section is intended to ensure that new landscaping and the retention of existing vegetation is an integral part of all development. It is also the intent of this section to provide flexible requirements that encourage and allow for creativity in landscape design. More specifically, these provisions are intended to:

1. Visually enhance ... through retention of existing native or ornamental vegetation or through new landscaping improvements.
2. Integrate new or renovated development into the surrounding context of the community including its neighborhoods and street corridors.
3. Separate, screen, and buffer adjacent incompatible land uses through the use of landscape plantings, fencing, and other appropriate landscape architectural features.
4. Reduce and treat runoff of storm water to preserve the quality of local streams and water bodies.
5. Promote the use of existing vegetation and retention of trees, woodlands, habitat, and urban forest.
6. Reduce runoff and erosion, control dust, and preserve air and water quality.
7. Encourage use of native plants or provide landscaping that is compatible with the climate and natural setting of the municipality and can provide desired effects even during harsh urban and winter conditions.

Conceptual Landscaping Examples



Natural Buffer

with opaque screen of vegetation

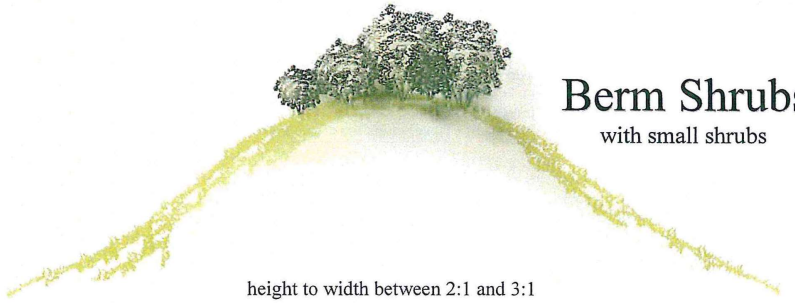
Portions of the property's boundary will retain natural landscaping. The typical width of the landscaping will be 15' and not less than 10'.

Flowers, Grass & Plants Berm

with low berm and flowers and plants

Berms

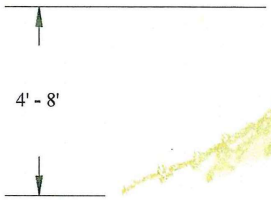
Proposing to design and construct berms inside and along portions of the property's boundary. There are numerous reasons to build berms. Serving as a privacy screen in conjunction with the plant material used is a common one. Providing a windbreak and/or noise barrier is also a primary reason. Flat expanses can be uninteresting, and injecting a vertical element makes such a space more compelling.

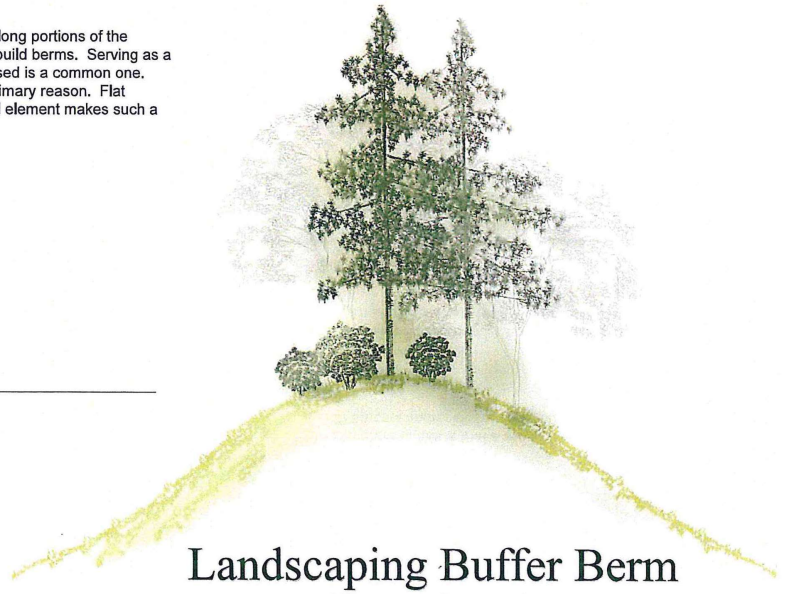


Berm Shrubs

with small shrubs

height to width between 2:1 and 3:1

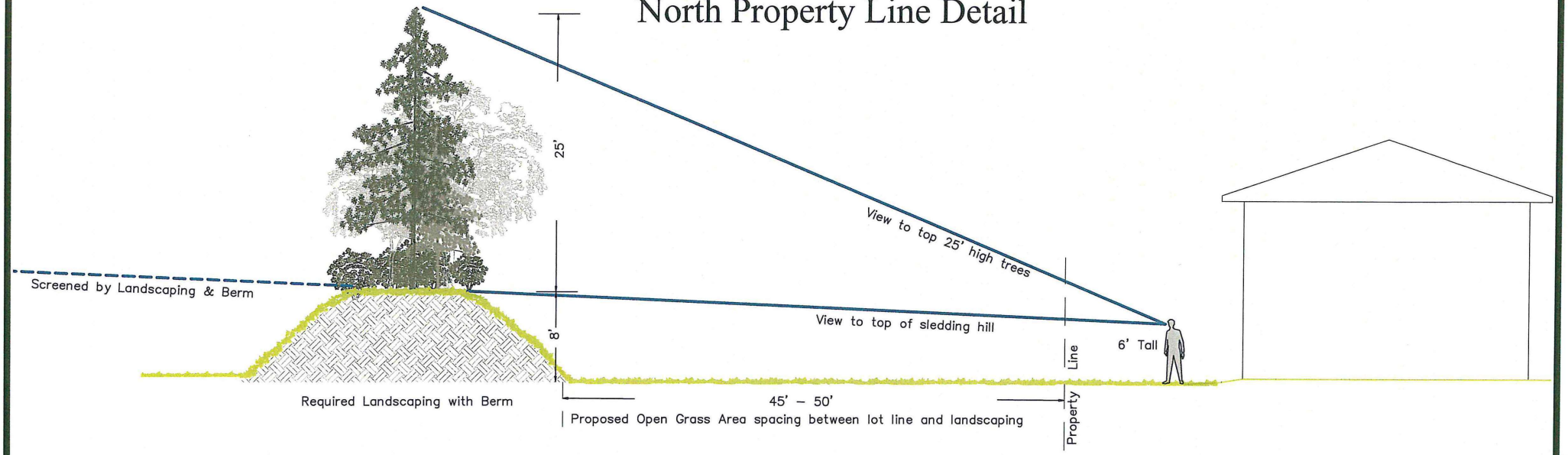




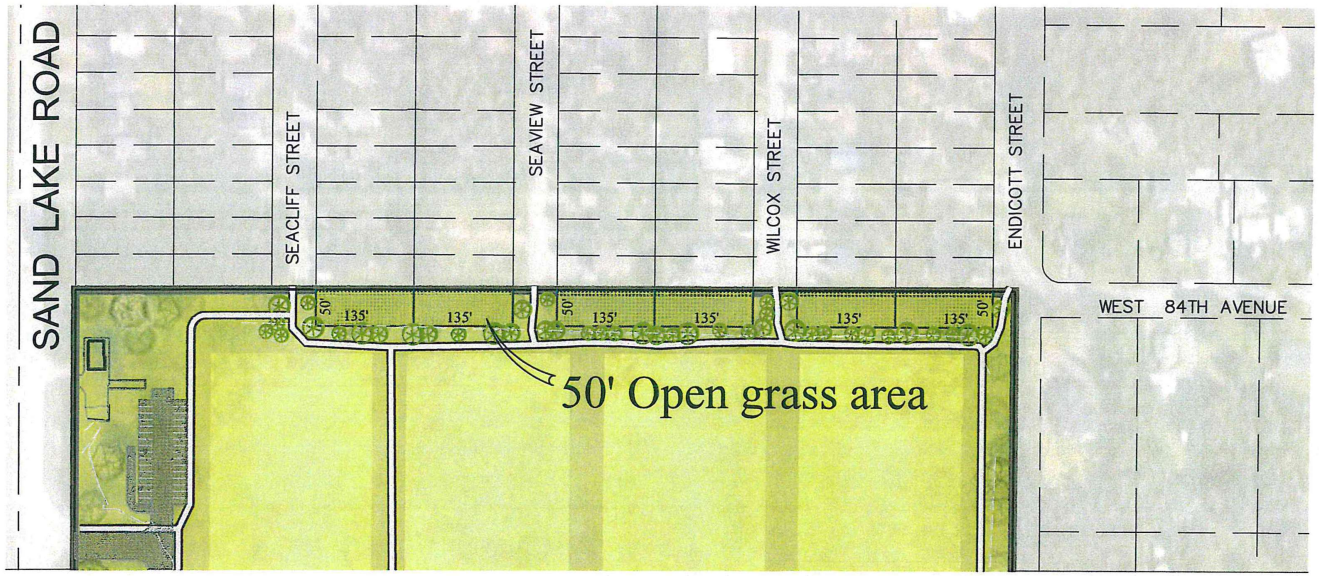
Landscaping Buffer Berm

with screen of vegetation

North Property Line Detail

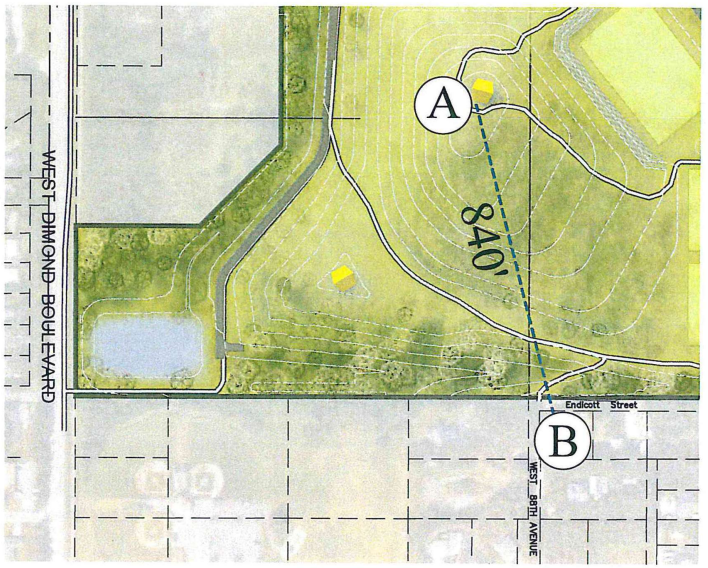


Top View

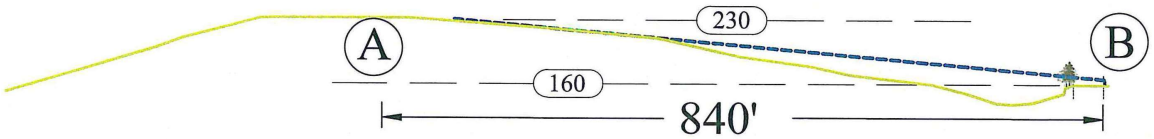


View Detail From East Property Line

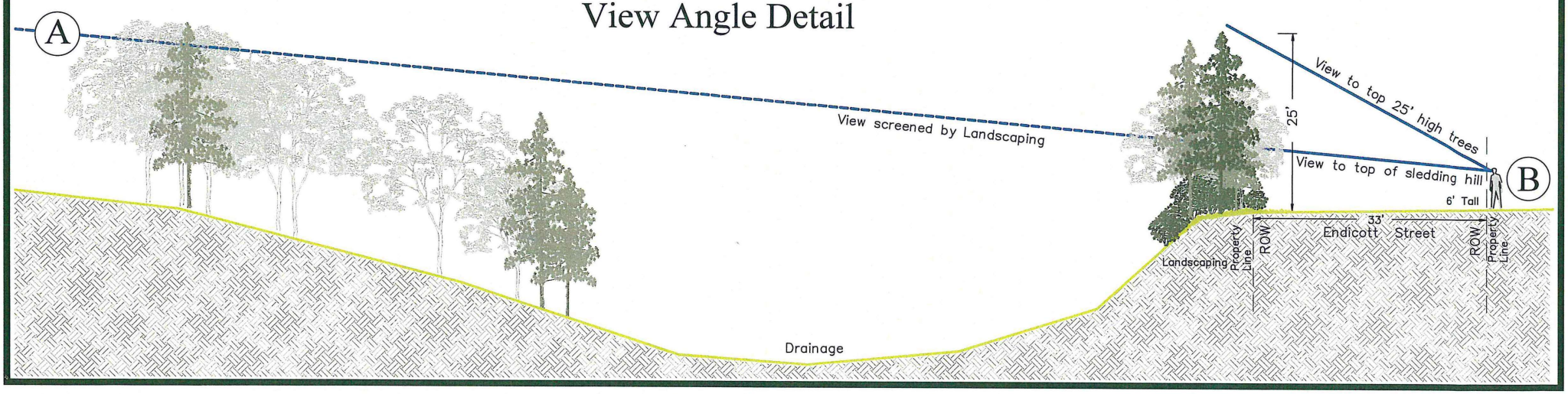
Top View



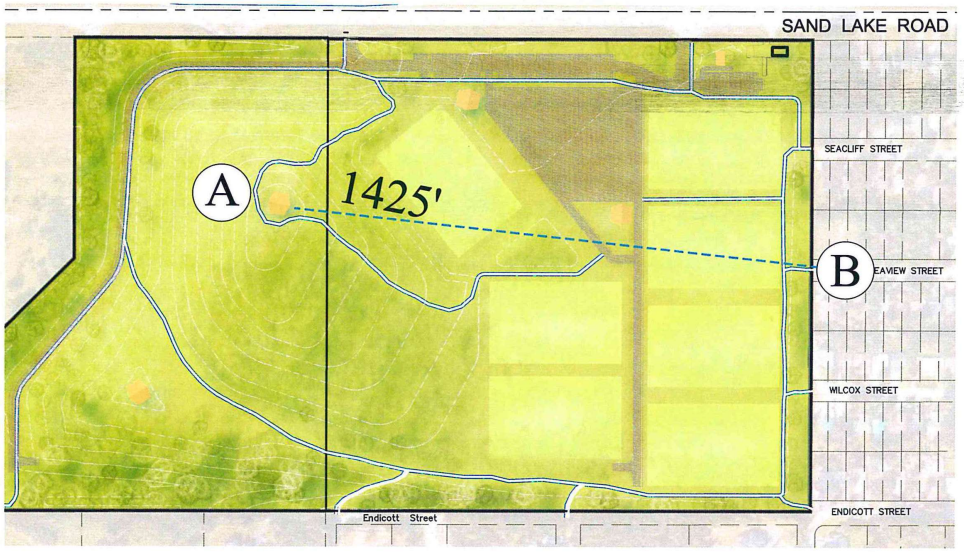
Side Elevation View



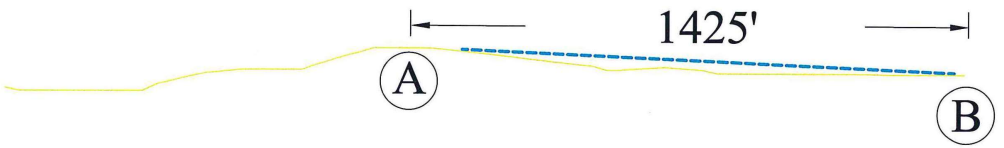
View Angle Detail



View Detail From North Property Line

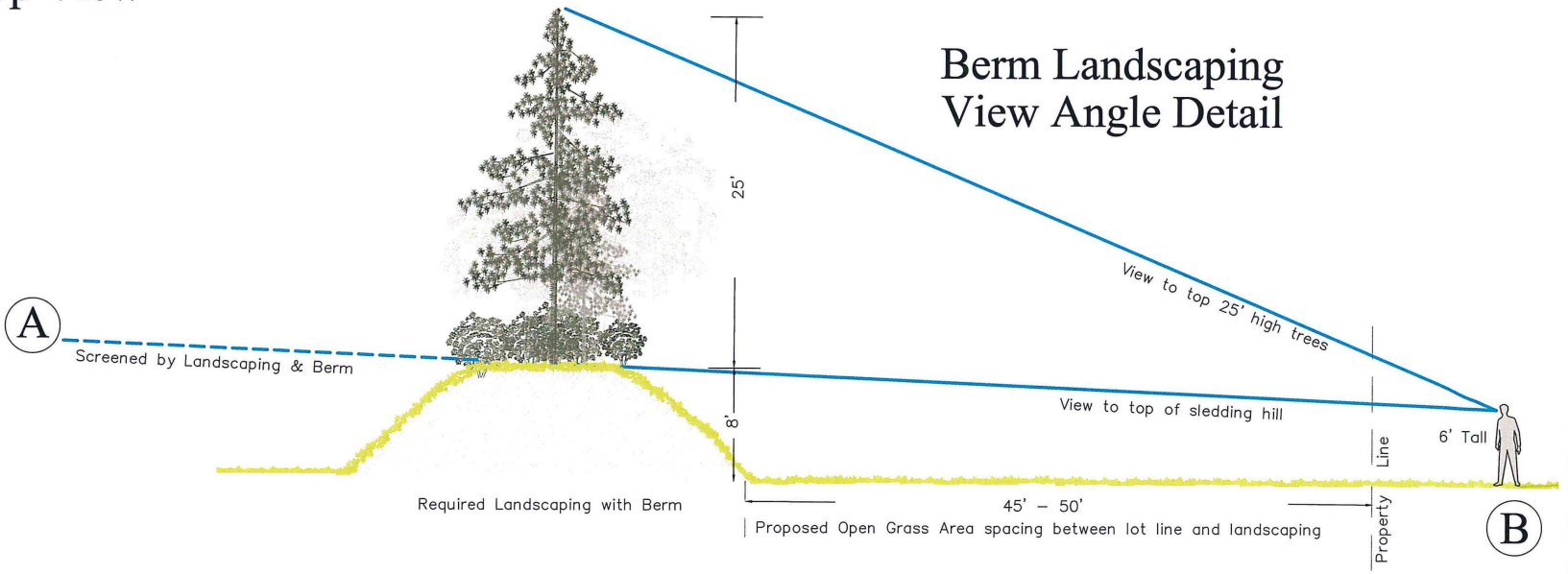


Side Elevation View



Top View

Berm Landscaping View Angle Detail



AS&G Recreational Park CUP
Summary of Community Meeting
January 16, 2023

MOA Planning Division Director
4700 Elmore Road
Anchorage, AK 99507

387 notices were mailed on December 21, 2022, 0 returned, see attached for content of notices.

Date and Time of Community Meeting: 01/12/2022 @ 6:00 PM
Presentation started at: 6:00 PM
Presentation ended at 6:59 PM
Participants: 19
Location: Zoom meeting
Subject: Proposed CUP for land reclamation and end use as park

Participants:

Craig Bennett (S4)	Steve Callaghan (S4)	Unknown phone caller #3
Ryan Zines (AS&G)	Beck Morman	Jennifer Rose
Brandon Marcott (TRIAD)	Chris	Lindsay Hobson
Austin	Unknown phone caller#1	Unknown phone caller #4
Robert Hayes	Robert Rubey	Unknown
Ashley Austin	Unknown phone caller#2	
Claire	Tobias Radke	

This community meeting was held by S4 Group on January 12, 2023 at 6 PM via zoom. Previously, 387 notices were mailed out on November 21, 2022 for the regularly scheduled SLCC December meeting on 12/12/2022. However, the SLCC canceled that meeting due to weather conditions. The SLCC did not have a scheduled January meeting, so S4 Group set this one up. We are also planning on being present at the SLCC February meeting to answer any questions. The following is a brief summary of the questions and comments by the community.

Q: Is there enough parking and where would the snow storage be?
A: We are proposing 100-125 parking spaces in the main parking lot and 2 acres of overflow parking which is about 550 parking spaces all together. Previous parking requirements would have been 175 spaces for the 7 sports fields. Ample snow storage will be provided.

Q: What are the public access points on the site plan?
A: Each of those public access spots are on dedicated ROWs and to the adjacent Jade Park.

Q: What if people decide to start parking on the neighborhood roads to access the park instead of the provided parking lots?

A: We are providing ample parking for the park on-site. If parking becomes a problem on the nearby ROWs steps can be taken to help prevent it.

Q: Who will have access to the park? Specific organizations/schools/ non-profits?
A: Everyone will have access to the park.

Q: What will the rental prices be for use?
A: We do not know at this time.

Q: Can you speak to the map that showed berms - what height will the berms be? Will this project be raising the current land any higher
A: Approximately 8 ft berms with landscaping on top are being considered. The project site will match the site plan elevations once finished.

Q: For continued income, will the parking lot be considered for RV parking?
A: At this time, no.

Q: For security, what is the plan? Will someone be hired to stay overnight- especially for summer months, like the schools do for summer months? It would be a shame to see the issues from Jade Park and Jewel Lake move down further Dimond.
A: Gates will be locked outside hours of operation.

Q:Will the park have lights? How late will the lights be on?
A: Potentially, there may be lighting at the Championship field. The proposed paved parking lot may be required to have lighting. We are not planning on putting any lighting along the walking trails or regular soccer fields.

Q: Are the yellow boxes restrooms?
A: The yellow boxes on the site plan indicate pavilions. We are still looking into the best way to provide restrooms, likely porta-potties.

Q: Will there be “no parking” signs along the roads around the park so that the neighborhood doesn’t get affected by the park?
A: We are providing approximately 550 parking spaces in the park, which is well over the recommended parking minimum of 175 spaces.

Q: Did all of the surrounding neighbors get notification of this meeting?
A: Notices of this meeting and the previous December meeting were sent out to the recipients on the MOA provided mailing list, which includes all residents within 500 linear feet of the project site.

Q: Is more fill going to come in?
A: Yes, to meet the site plan elevations.

Q: If homeless camps pop-up in the park will you have to wait 30 days for them to clear out?
A: No, as this is private property, we have the right to kick out any trespassers immediately.

Q: How wide will the multi-use trails be and what will they be made of?
A: They will be the width of a small dozer blade and will be made of gravel or something similar. We are still trying to figure that out?

Q: What is the anticipated end date of this project?
A: Based on historical numbers, we should be able to finish this within 9 years.

Q: Is there a plan for trash?
A: We will need to address how we are going to deal with trash, but do not have a solid plan yet.

Q: Is the drainage pond connected to AWWU?
A: No, it is an existing approved drainage basin from a previous CUP that is not connected to a Storm Drain.

Comments:

1. Please make sure you have signs for people to pick up their dog poop.
2. Electric provided at the pavilions and water provided by the parking would be preferable.
3. Thank you for moving forward with building a park and sports fields.

Overall, the main concerns voiced by the community were in regards to overflow parking on the nearby neighborhood streets and the water drainage plan for the site.

Community Meeting Notification: AS&G Recreational Sports Park CUP

Sand Lake Community Meeting
Date & Location:

JANUARY 12 @ 6 PM

Via Zoom @ zoom.us
Meeting ID: 381 739 7263
Passcode: 379146

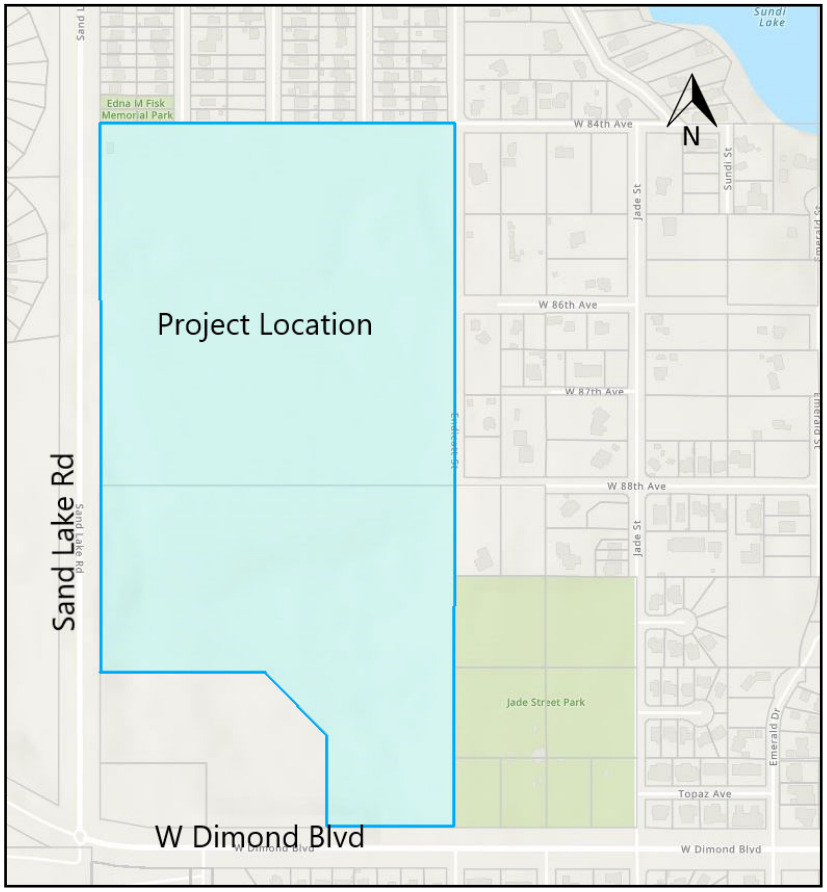
You can also dial in by phone: +1 253 215 8782

S4 Group, LLC will be presenting a Conditional Use Permit action to the Sand Lake community via zoom. The conditional use permit (CUP) is being proposed to allow for the transition into the eventual end use of the site as a sports park.

Representatives of the proposed project will provide an overview of the CUP action, project schedule, and will be able to answer questions. If you are not able to make this meeting, you can still contact us with any questions or concerns regarding the project at: craigb@s4ak.com or (907) 306-8104.

The project site of approximately 66 acres is located north east of the intersection of Sand Lake Road and West Dimond Blvd, described as Lancaster Subdivision Tract A and Polen Park Subdivision Tract 1.

For more information go to: s4ak.com/notice



Sent by: S4 Group, LLC, E 7th Ave, Anchorage, AK 99501

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«city», «state» «zip»

Community Meeting Notification: Sand Lake Sports Park CUP

Sand Lake Community Council Meeting
Date & Location:

DECEMEBER 12 @ 6:30 PM

Sand Lake Elementary School Library
7500 Jewel Lake Road
Anchorage, AK 99502

Please check the Sand Lake Council page on communitycouncils.org for possible meeting changes or updates.

S4 Group, LLC will be presenting a Conditional Use Permit action to the Sand Lake community council at their regularly scheduled December meeting. The project site is proposed to apply for a conditional use permit to allow for the eventual end use of the site as a sports park.

Representatives of the proposed project will provide an overview of the CUP action, project schedule, and will be able to answer questions. If you are not able to make this meeting, you can still contact us with any questions or concerns regarding the project at: craigb@s4ak.com or (907) 306-8104.

The project site of approximately 66 acres is located north east of the intersection of Sand Lake Road and West Dimond Blvd, described as Lancaster Subdivision Tract A and Polen Park Subdivision Tract 1.

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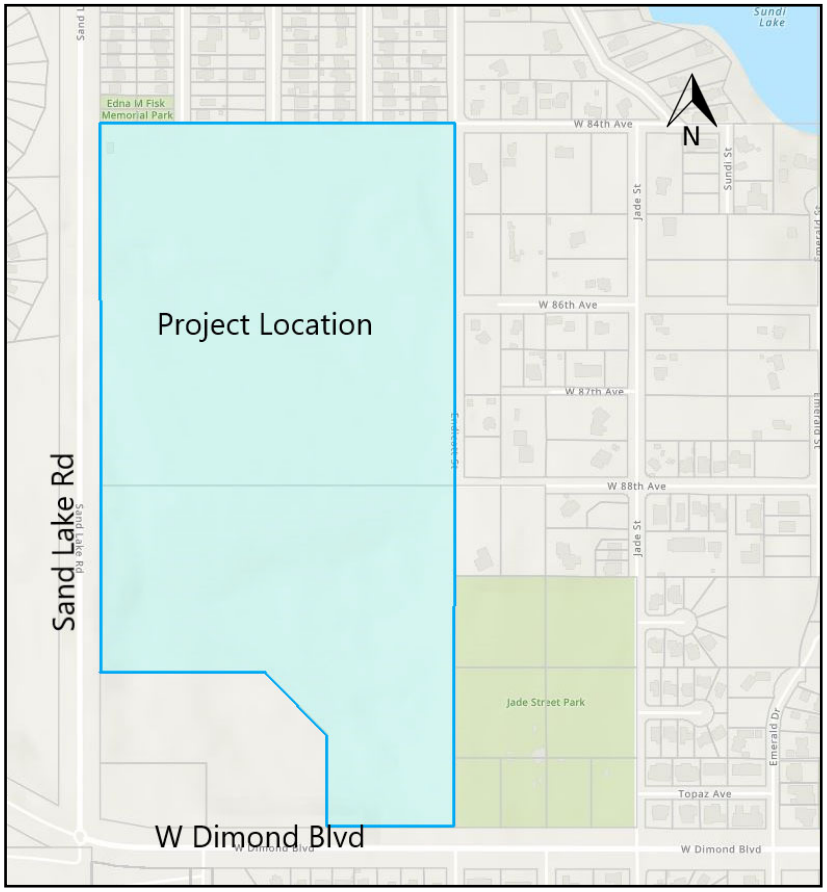

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