

AWWU O&M King Street Facility Master Plan



Final Report
June 2018

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ACRONYMS & ABBREVIATIONS

AWWTF – Asplund Wastewater Treatment Facility
AWWU – Anchorage Water and Wastewater Utility
B&G – Building and Grounds
CEA – Chugach Electric Association
CRW – CRW Engineering Group LLC
EAM – Enterprise Asset Management Software (Maximo)
EOC – Emergency Operations Center
ERWWTF – Eagle River Wastewater Treatment Facility
FOG - Fats Oils and Grease
HVAC - Heating, Ventilation and Air Conditioning
ICS – Industrial Control Systems
IT – Information Technology
MCG – McCool Carlson Green Architects
O&M – Operations and Maintenance
ROM - Rough Order of Magnitude
SCADA – Supervisory Control and Data Acquisition
WVS - Warm Vehicle Storage

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SECTION 1

EXECUTIVE SUMMARY



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EXECUTIVE SUMMARY

King Street Maintenance Facility

The King Street Facility serves as the primary facility for AWWU's Operations and Maintenance Division for the continued operation, maintenance, and general assets preservation of the municipal water and wastewater system. The 19.5-acre campus includes 3 major buildings and several minor buildings as well as site infrastructure.

Master Plan Scope and Methodology

This master plan was commissioned by AWWU to develop near term and long term planning for the King Street Maintenance campus. The master planning team was charged with addressing the Problem Statement created by O&M Division leadership and staff in 5 and 20 year planning timeframes. Through collaborative planning sessions, site walk-throughs and reviews of draft planning documents, the master planning team defined a list of recommendations to optimize the King Street campus. Each item on the Problem Statement was given a corresponding solution or solutions and construction costs were estimated for each of the solutions.

Master Plan Recommendations

A majority of the master plan recommendations are focused within the 5-year planning timeframe and address deficiencies in the existing facilities and important emergent needs for O&M to enhance efficient operations. The 20-year planning recommendations anticipate the need for future growth, potential evolution of operations and optimizations of the campus. The following is a list of key recommendations. The complete list and further details can be found in **Section 4.0** of this report.

5-Year Plan Recommendations

- » Warm vehicle storage building addition with upper level offices, a secure SCADA LS operating room, and large meeting/training space similar to ML&P training space
- » Expand warehouse by addition/renovation to Administration Building
- » Expand fleet and mechanics work and storage area by addition/renovation to Administration Building
- » Purchase the Chugach Electric Association property immediately to the east and on the opposite side of the Alaska Railroad tracks, to utilize as a spoils material storage area and long-term AWWU facility needs. Limits double handling of material
- » Construct a new covered shelter for classified soil storage to facilitate ease of retrieval during wintertime
- » Construct a new covered material storage shelter for water and sewer parts and components.

EXECUTIVE SUMMARY

- » Improve site storm drainage and vehicular circulation
- » Repair/ replace select locations of asphalt pavement
- » Improve site lighting
- » Install a new emergency backup generator in Administration Building to cover critical operations
- » Remodel Administration Building including HVAC renewal, energy efficiency improvements, accessibility (elevator), remodel of office spaces and addition/ remodel of shop spaces
- » Install new fuel islands with separate diesel and gasoline dispensers
- » Improve existing septage facility driveway to accommodate longer vehicles. Improve process of septage hauler dumping

20-Year Plan Recommendations

- » Enlarge existing or construct a new classified soil storage shelter to optimize retrieval in wintertime
- » Enlarge existing or construct a new covered material storage shelter for water and sewer parts and components
- » Construct another addition to the Warm Vehicle Storage building to accommodate future utility operations
- » Reevaluate the railroad spur for import/ export of soil from King Street Campus

Priority Projects and Estimated Costs

The recommendations can be consolidated into several separate projects. AWWU O&M leadership has identified the highest priority projects. The following table lists these in order of priority with estimated construction costs for each. The detailed cost estimate can be referenced in **Appendix B** of this report.

Project ID	Project Description	ROM Project Cost
1	Construct New Warm Vehicle Storage Building	\$9,810,000
2	Remodel and Expand Administration Building	\$6,710,000
3	Purchase Chugach Electrical Association Property	\$3,300,000
4	Fuel Island, Site Fencing, Relocate Spoil Pile, and Expand Parking Area	\$2,700,000
5	Covered Classified Soil Shelter	\$420,000
6	Covered Material Shelter for Parts and Components	\$1,800,000
7	Septage Facility and Grit Facility Improvements	\$1,740,000

SECTION 2

INTRODUCTION



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INTRODUCTION



Figure 01: Aerial of King Street O&M Campus from Southwest

General Property Description

The King Street Facility is a secure site located east of King Street, between East 92nd Avenue and East 94th Court; the Alaska Railroad right of way bounds the east side of the property. Chain-link fencing and locking vehicle gates bound the secure portions of property accessible by employees and authorized users. Primary AWWU fleet and public access to the facility is from East 94th Court for the majority of the onsite facility operations, including the O&M staff offices. Two driveways located along East 92nd Avenue provide secondary access to the site for oversize vehicles and large trucks and a third driveway provides access to the Septage Receiving Facility.

The approximate area of the King Street Facility is 19.5 acres consisting of nine individual lots within the Kruse Industrial Subdivision. The lots that make up the King Street Facility are: Lot 1A, Block 2 (12.2 acres) and Lots 1 through 8, Block 1 (approximately 0.91 acre/lot; total of 7.35 acres). This property is zoned I2, heavy industrial per the MOA zoning designation.

Facility Purpose

The King Street Facility serves as the primary facility for AWWU's Operations and Maintenance Division for the continued operation, maintenance, and general asset preservation of the municipal water and wastewater system. Typical operations at the King Street facility include:

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- » O&M staff offices, break rooms, meeting rooms.
- » IT servers and ICS SCADA Laboratory and network hubs.
- » Vehicle & Equipment Storage. Equipment ranges from small hand driven compactors to large loaders and excavators. Vehicles include half-ton utility trucks, large dump trucks, CCTV vans, boilers, jets, vector trucks and various other vehicles essential to AWWU system maintenance.
- » Fleet Maintenance. Maintenance work consisting of light duty to major overhauls of the equipment and vehicles described above.
- » Mechanical maintenance including metalworking and welding shop for all AWWU facility and fleet needs.
- » Building and Grounds maintenance shops for carpentry, painting, landscaping and other AWWU building and grounds maintenance functions.
- » Material Storage. This includes classified and unclassified gravel materials, piping, manholes, fittings, and other hardware required for water and wastewater system maintenance. Includes indoor heated storage, covered cold storage and outdoor storage.
- » Fleet Fuel Storage/Dispensing System. Two 10,000 gallon aboveground storage tanks (ASTs); one for unleaded and the other one for diesel fuel along with an integrated fuel dispensing system.
- » Septage Receiving Facility. Third party contractors and septage haulers dispose of septage waste at this location.
- » Grit Handling Facility. Facility providing dewatering of incoming slurry material generally composed of mineral soil, sewage, and water. This facility is primarily used for AWWU operations with occasional use by the MOA Streets and Maintenance and private contractors.
- » Snow Storage. Specific areas located onsite are used to store snow from within the King Street Facility boundary.
- » Bull Rail: Storage for retired AWWU fleet and equipment to be sent to auction and seasonal use for plugging in AWWU fleet, including Girdwood commuter vehicle.

Organizational Structure

AWWU's Operations and Maintenance Division (O&M) is headed by a Division Manager. The Division has several sub-groups led by superintendents who in turn supervise foremen heading crews in different work areas. The diagram below illustrates this structure, how many staff members are engaged in each department and which facilities they primarily utilize.

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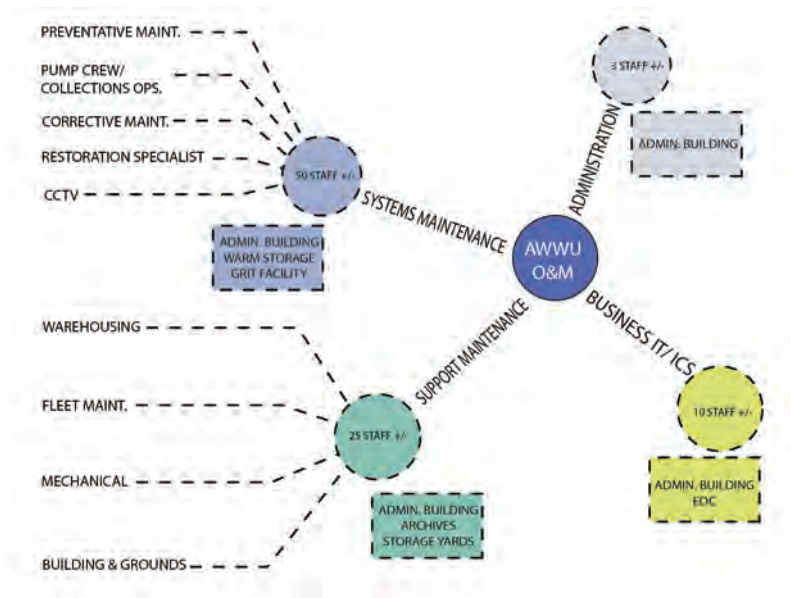


Figure 02: AWWU O&M Organizational Diagram

Each sub-group of O&M performs different functions, utilizes the site and facilities differently and interacts with other groups on site differently. The following paragraphs provide an abbreviated characterization of the King Street work groups:

Systems Maintenance

This group is in charge of maintaining all of AWWU’s water distribution and wastewater collection system across the entire service area from Eklutna to Girdwood. Group superintendents and foremen have office space in the Administration Building. Staff share break room and meeting space also located in the Administration Building. The systems maintenance group runs a variety of heavy equipment that is stored at the King Street facility.

The Warm Vehicle Storage Building is the center of activity for this group with many vehicles also stored outside due to limited building space available for parking. Systems maintenance vehicles primarily enter and leave the fenced site via 94th Court. There is significant vehicle traffic within the site for loading and unloading fill materials, fueling vehicles, snow clearing and repositioning vehicles. The Systems Group is sub-divided into two parts:

- » Preventative Maintenance – This sub-group includes line cleaning, CCTV and Hydrant maintenance crews and is on call to respond to problems in the collection system.
- » Corrective Maintenance – This sub-group includes Excavations and Manhole and Valve crews and is on call to respond to problems in the collection and distribution system.

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Support Maintenance

This group is in charge of a variety of maintenance functions to support AWWU facilities, but is not directly responsible for the repair or response of the water and sewer assets. The Support groups are all located within the Administration Building including shop spaces, offices, meeting and break rooms. This group utilizes the site areas around the Administration Building for loading/ unloading, work vehicle staging and outdoor materials storage. The Support Group is sub-divided into four parts:

- » Warehouse & Expeditors - The Warehouse staff and expeditors manage, purchase, receive and issue materials and inventory related to a wide variety of AWWU business functions. The main warehouse is within the Administration Building with receiving on the East side. A significant amount of warehouse material is also stored on the site outdoors, in connexes or in covered unheated storage. The warehouse group uses an office adjacent to the warehouse floor for receiving and offices.
- » Building & Grounds (B&G) – This group provides building and grounds facility maintenance for all AWWU facilities. Their work includes maintenance of facility lighting, windows, doors, plumbing, flooring, roofing, carpentry, landscaping and snow removal. They also provide oversight of outsourced services such as janitorial, refuse, security and snow removal. B&G occupies shop and office spaces in the Administration Building.
- » Fleet Maintenance – This group provides routine vehicle maintenance, including

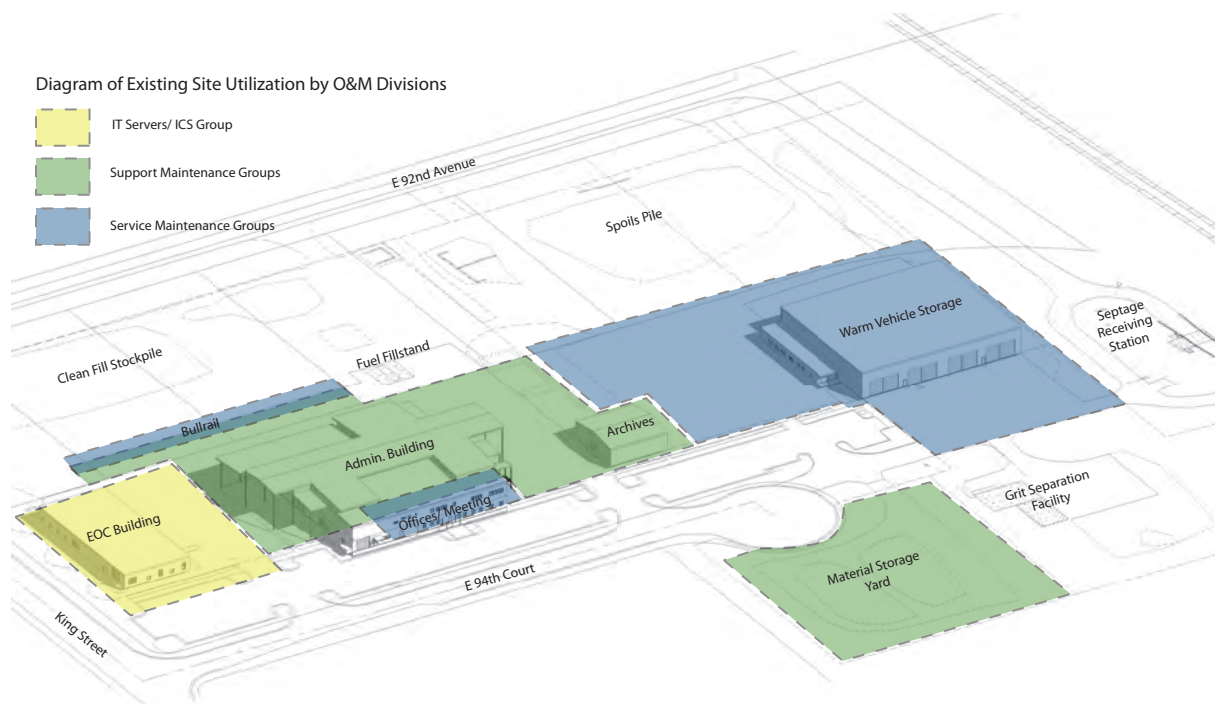


Figure 03: Existing O&M Divisions Site Utilization Diagram

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fluids, filters and tire changes for fleet vehicles in support of the entire AWWU fleet. Fleet Maintenance also diagnoses and repairs problems in a wide variety of AWWU vehicles and equipment. They have shop space in the Administration Building with an adjacent foreman's office.

- » Mechanics – This group supports all the treatment plants and remote facilities, fleet and B&G with machining, metalworking, welding, fabrication, pipefitting, pump maintenance and other mechanical and maintenance work. They have shop space in the Administration Building with an adjacent foreman's office.



Figure 04: Existing O&M Campus Facilities Map

ICS

The Industrial Control Systems (ICS) group provides electrical, instrumentation and process automation maintenance and services to all AWWU facilities. They operate and maintain the SCADA network which allows remote monitoring and control of a variety of system treatment, collection and distribution facilities. This group is based in the EOC Building. The SCADA antenna connecting the King Street campus to the rest of the network is located on the Administration Building roof.

Administration & Maximo

This group performs front office administrative functions for the O&M Division. This group

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Figure 05: Campus aerial with Archives building in foreground and Administration building behind



Figure 06: Fill storage piles



Figure 07: EOC Building

includes AWWU's computerized maintenance management system (CMMS) planning work group, also known as the Maximo group. The Maximo group manages, schedules, tracks and does quality assurance on all AWWU work orders. This group occupies offices on the first floor of the Administration Building.

Existing Facilities

Buildings on the King Street O&M campus include four major structures, several minor structures, and several temporary storage structures and containers. Previous studies have performed detailed condition assessments of the major structures. The following paragraphs are abbreviated descriptions of the existing buildings, highlighting the most important features, primary uses and major known issues. The Problem Statement in the next section of this report, identifies additional issues with the facilities and how they support O&M Division work.

EOC Building

The Emergency Operations Center (EOC) building is one story, with concrete masonry exterior walls and aluminum entry doors & windows. The building was constructed in 2009 and is in excellent condition. In 2015 in support of the 2014-2016 Strategic Plan and the Hazardous Response Plan (HRP) the EOC Training Room 103 and SCADA Room 105 were designated as the EOC. AWWU has adopted the nationally-recognized framework of the Incident Command System (ICS) to organize a response to any emergency - whether natural or caused by a hostile or malevolent act. On a day-to-day basis this building serves as office space for the ICS group and includes a break room, a SCADA lab and a shop/ garage space that stores the aerial boom truck and allows space for a portable backup generator. It also houses

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network servers for AWWU's IT group.

Administration Building

The Administration Building was built in 1981. The building is a pre-engineered steel frame high bay fabrication shop with a two-story office area along the south side. AWWU purchased the facility and the land it was built on in the mid-1980s. In 1987, the building was partially renovated and in 1992, a grease pit was added to the fleet maintenance area of the building.

Currently, the Administration Building serves as the headquarters of the AWWU O&M Facility, housing offices and break rooms for various work groups and personnel of the AWWU O&M Division, Fleet Shop, Machine Shop, Carpentry Shop and Warehouse. It is the primary congregation point for AWWU Systems Maintenance staff at the start of shift and for lunch. The Administration Building is the public entry point to the AWWU O&M Campus; however, it lacks any recognizable sense of entry. Many visitors have mistaken the EOC Building for the main campus building. Additionally, the building has siding, drainage, HVAC and egress challenges.

Archives Building

The Archives Building was built in 2005 and expanded in 2015. It is a steel frame building with steel wall panels and a gabled roof. The building is used as a repository for paper records from all AWWU operations.

The Archives Building was situated between the Administration Building and the Warm Vehicle Storage Building to promote efficient access from the Administration Building. However, this location has also caused congestion of site traffic and parking in this area. The building is in excellent condition. In addition to archives storage, it is currently used as overflow storage for warehouse



Figure 08: Administration building



Figure 09: Mechanics shop in the Administration building



Figure 10 – Crowded morning meeting in Administration Building

INTRODUCTION



Figure 11: Archives building



Figure 12: The warm vehicle storage is over-capacity and vehicles often get parked in.



Figure 13: Jump starting vehicles parked outside because the WVS building is full.

and critical spare parts.

Warm Vehicle Storage Building

AWWU staff and equipment are on call 24-hours a day, 365-days a year, to respond to water and wastewater treatment, water and wastewater distribution/collection, and water and wastewater service emergencies. AWWU's warm storage facilities allow AWWU's fleet and equipment to be in emergency ready state at all times. The first phase of the warm vehicle storage building was built in 1990-91. In 2001, a new warm storage wing was added. Both of these structures are pre-engineered metal buildings with metal panel walls. In 2005, a concrete masonry single story addition was built to the west, expanding the bathrooms and adding locker rooms and some storage space.

Septage Receiving Facility

The King Street Septage Receiving Facility is one of two remote, unmanned septage receiving stations in the AWWU collection system. Both facilities had site and security upgrades completed in 2000 and then further site upgrades and billing control upgrades done in 2008.

The septage receiving stations receive hauled liquid wastes from within Anchorage and the surrounding communities. Wastes include domestic septage, landfill leachate, commercial tank and portable toilet wastes, and other wastes. These facilities also receive fats, oils, and grease (FOG) collected from grease traps and other locations in the community in loads that are blended with septage. The King Street Septage Receiving Facility primarily receives domestic septage and commercial tank and portable toilet wastes from within the Anchorage Bowl. The large sediment loads discharged at the septage facility contribute to the increased time and cost

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to maintain the facility. The FOG contributes to inaccurate flow measurement.

The access driveway for the King St. Septage facility does not have adequate turning radii to allow haulers with tractor trailer trucks to use the facility. The lack of pre-treatment/screening built into the receiving stations causes debris to build up and accumulate in the downstream collection system. The facility is currently being evaluated for improvements.

Grit Handling Facility

The Grit Handling Facility receives a variety of materials but mainly a slurry mixture removed from the sanitary sewer collection system and pump stations, cleanings from the septage receiving stations, cleanings from scum boxes at the wastewater treatment facilities, manhole cleanings, and screenings from the Eagle River Wastewater Treatment Facility. Most of the material discharged into the grit facility is produced by AWWU as part of their operations and maintenance with occasional use by contractors working on AWWU projects.

Materials are off-loaded from a haul truck into the main grit pit. The material flows down the sloped floor of the pit, where solids begin to settle out of the slurry mixture. Additional settling of solids occur as the volume of mixture increases, raising the elevation of material within the grit pit creating a ponding effect. Outflow of the decant liquid is controlled using manually adjustable weir and sluice gates. The gates are operated to retain the floating scum and solids within the grit pit, and allow mostly liquid to discharge into the downstream concrete channel. The concrete channel includes angle iron sediment traps to retain additional solids before discharging into the sewer manhole.



Figure 14: Covered outdoor winter tire storage area adjacent to the Fleet shop.



Figure 15: The Warehouse is over-crowded and additional materials are stored outside or in temporary shelters.



Figure 16: Septage Receiving Facility

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Figure 17: Grit Handling Facility

A loader is used to move partially solidified solids into the drying area so they can continue drying before being hauled to the landfill. The drying area is covered with a heated floor slab that is used year round to promote drying.

Lime is applied to the surface of the grit pit and the drying beds to assist with dewatering and to control odors.

Because of the inconsistency and variation of the debris being disposed into the grit pit, the main facility does not adequately drain or dry the debris. A large amount of manual intervention and time is required to process and dry this debris for landfill disposal.



Figure 18: Overflow parking of fleet vehicles and storage connexes constrain the middle of the site

Temporary Structures

There are several connex containers on site providing covered cold storage for materials.

- » Two are designated to the warehouse for secure storage of small piping (up to 2-inch diameter copper, galvanized, black iron, etc), hydrant parts and ice melt and sand for B&G.
- » Two are designated for disaster relief materials including, heaters, propane, cots, pumps, kerosene, food, etc.
- » The electricians use one for wiring and electrical parts storage.
- » Building and Grounds uses three for storage of skid steer components (brush cutter, post hole digger, sweeper, etc.), large spare compressor for instrument air at plants, Turkey Day materials, concrete aggregate mix, scaffolding, glycol barrel for boiler, pipe insulation, roofing materials, cutoff saw, door hardware, tile and linoleum, glass, doors, pipe gates, leftover industrial vents, etc.



Figure 19: Outdoor storage of materials not accommodated in the existing warehouse

Many of the items in these connexes can be consolidated and/or disposed of or surplus.

SECTION 3

PROBLEM STATEMENT



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PROBLEM STATEMENT

Problem Statement

The AWWU Operations and Maintenance Division created a list of problems that form the basis of discussion for planning solutions. The following bulleted list represents highlights of the AWWU problem statement categorized by general site, general building and O&M groups. This is followed by the complete problem statement list.

- » Site Circulation: The King Street Campus lacks logical and relevant vehicle and pedestrian routes onsite. The Systems and Support sections are essentially divided into an East-West area of the site due to the several outdoor storage items, connexes and site fencing that separates the existing WVS building and the Administration building. A single, narrow driveway allows vehicle passage between these two areas. Recent facility projects on a limited footprint have further limited driving avenues and parking spaces. Designated site circulation and parking/storage is important for future growth.
- » Classified and Unclassified/Spoil Material Locations: The area needed for soil material storage is substantial. The area required to store and handle both classified and unclassified soil material stockpiles restricts site circulation for pedestrians and vehicles, and limits vehicle parking space. Furthermore, the subgrade near the spoil pile material is poor and develops seasonal bumps and ruts as traffic passes over. This creates driving obstacles and safety hazards and prevents vehicles with higher axle loads from accessing areas of the facility. Spoils material is frequently double-hauled which is inefficient and increases operational costs. Excavation occurring after hours or off-season when disposal pits are closed require initial material staging at King Street, then, moved a second time from the King Street facility to the final disposal location. Furthermore, excavation work during normal business hours requires classified material to be first hauled to King Street for temporary staging and subsequently moved a second time to bring to the job site.
- » Administration Building: Most areas of the Administration Building are over-crowded. The building HVAC systems are reaching the end of their useful life and are creating operational and comfort problems for staff. The interior building finishes are worn out and portions of the exterior walls are corroded. The building lacks wall insulation and energy performance could be greatly improved.
- » Warehouse and Building Storage: The warehouse is at approximately 150% capacity. Currently some parts and materials that should be covered and heated are stored outside or in unheated storage containers. The existing forklift is not capable of working outside in winter but there is no space within the warehouse to store a forklift that can be used during all four seasons.
- » Support Maintenance Shops: The Fleet shop is over-crowded and needs an

PROBLEM STATEMENT

additional long bay to handle current demand. There is not enough space for miscellaneous tools and equipment such as tire installers, lifting jacks, oils, lube, etc. Poor drainage in the shop and the grease pit create a mess and hazards and the vehicle exhaust is not ventilated causing indoor air quality problems. The vehicle repair grease pit has electrical/lighting issues and a leaky sump; it needs to be abandoned.

- » The Mechanics shop needs additional space to store metal materials that are currently stored outside, where they are exposed to the weather. The welding area does not have proper protection from adjacencies and is a safety concern for other personnel in the area.
- » The Building and Grounds shops are poorly laid out, requiring staff to walk through the middle of the carpenter shop to access staff and offices and they include some antiquated equipment that could be removed.
- » Warm Vehicle Storage: The existing building is well beyond 100% capacity with the current vehicle fleet that requires warm storage for timely emergency response. The building is over-parked with more vehicles stored inside than it can reasonably accommodate, creating safety concerns, vehicle collisions and inefficiency with overall operations. Response time to emergencies is increased and normal work day is slowed when the necessary equipment and vehicles are not parked adjacent to the garage doors due to space limitations. This creates a shuffle to move and adjust other equipment and vehicles in order to remove the needed equipment/ vehicles. Additionally, vehicular backing accidents occur frequently because the vehicles are packed in such that they are not in alignment with the exterior overhead doors. Overall, the space available is not sufficient to allow for timely and safe response to utility emergencies.
- » General Facility Space: Divided operational staff and administrative personnel lead to excessive meetings that could be more efficient and coordinated if consolidated. Inadequately sized and equipped space for Systems Maintenance staff; ADEC Collection & Distribution Operator, no secure, climate-controlled control room for SCADA info collection and distribution, not enough computers for time entry, email monitoring, WO management, no designated safety training space - problematic and logistical nightmare as staff must use Wilda Marston Theater at the Loussac Library for all O&M meetings, no space for training/safety so multiple locations at various facilities are used causing a logistical mess for those facilities.
- » Septage Receiving Facility: The existing King Street septage station is not designed to screen solids from being disposed of in the collection system, which puts the service pipe that connects the receiving station to the main collection system trunk on an accelerated line cleaning schedule. This is complicated by the lack of access on the downstream end of the trunk system. Additionally, flow measurement at

PROBLEM STATEMENT

the existing facility is not functioning. The facility configuration does not allow large tractor trailer trucks to access the septage receiving station.

- » Grit Handling Facility: Solids removal in the grit facility is inadequate which leads to an accelerated cleaning schedule for the sewer line flowing from the facility to the large diameter sewer main on the other side of the Alaska Railroad.
- » There are no provisions in the EOC for SCADA control room emergency operations. Facilities should accommodate not only the lift station operations, but a control room which accommodates distribution operational needs should the Ship Creek facility be unusable.

The Deficiency Exhibit and building plans following the Problem Statement are keynoted to identify the locations of specific issues from the Problem Statement.

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PROBLEM STATEMENT

AWWU Project ID: 00007929

AWWU King Street Facility Master Plan Problem Statement

ID No.	Issue Category Legend
A	General Operations - Site
B	General Operations - Building
C	Support Maintenance - Warehouse
D	Support Maintenance - Building and Grounds
E	Support Maintenance - Fleet
F	Support Maintenance - Mechanics
G	Systems Maintenance - General
H	Systems Maintenance - Vehicles
J	Systems Maintenance - Building
K	Systems Maintenance - Preventative

ID No.	Issue	Critical (Y/N)
A Series General Operations - Site		
A1	Engineering projects require staging area on the campus that further limit access and space for egress and O&M material and snow storage	N
A2	The classified material freezes in the winter and gets snow on it which increases time and safety risk in order to dig into the pile to find unfrozen material.	N
A3	O&M spends excessive time and money getting winter aggregate for sanding from AS&G as there is no covered place to store the material onsite. There have been times AS&G has been closed and staff have been unable to obtain winter aggregate.	N
A4	Systems crew space is at/over capacity for meetings and there is no parking for lunch. There are limited computer facilities and parking facilities for their needs for lunch and meeting with foremen during normal working hours without causing disruption to the warehouse and archives.	Y
A5	Multiple legacy and a newly contaminated fuel island site exists as a pollution liability	N
A6	South lot line at E. 95 th Court is giving up ½ acre and not being utilize by AWWU. Additionally, it is unsecure and illegal dumping is occurring on AWWU property, giving us a potential liability.	Y
A7	Sidewalk safety along south side of Admin Building	N
A8	Reduce snow plowing complexity for sidewalks	N
A9	Parking lot of Admin and other parking areas degrading causing safety concern and adverse driving conditions	N

PROBLEM STATEMENT

AWWU Project ID: 000007929

AWWU King Street Facility Master Plan Problem Statement

A10	Paving and drainage problems north of existing Warm Storage Building	N
A11	Potential stormwater utility moving to KS Campus. Identify space or location	N
A12	AWWU limited land for future growth	N
A13	Lack of site lighting and security cameras	N

ID No.	Issue	Critical (Y/N)
B Series General Operations - Building		
B1	There is inadequate legal/certified cabinets or space for new cabinets for flammable material storage, increasing the fire risk to the facility.	N
B2	O&M admin building has intermittent power outages. This building is a SCADA and network server hub. If there is an extended power outage, those networks have limited battery life.	Y
B3	The systems foremen offices area have inadequate HVAC and results in multiple seasonal complaints. Systems HVAC costs have increased (summer running 100% at all times) and complaints have worsened. Staff have noted that indoor air quality in winter is over-pressurized and poor. In summer, it is too hot, oftentimes 80 plus degrees even when system is running at 100% capacity at all times. Air bleeds need to be installed in piping to allow the removal of trapped air.	Y
B4	There is no onsite conference room space available for O&M or Utility wide meetings. Communication is a Strategic Plan initiative, and not having space for regular meetings is challenging and problematic.	Y
B5	Face of Admin Building falling apart	Y

PROBLEM STATEMENT

AWWU Project ID: 000007929

AWWU King Street Facility Master Plan Problem Statement

ID No.	Issue	Critical (Y/N)
C Series Support Maintenance - Warehouse		
C1	The AWWU warehouse is currently over 100% capacity with no room to grow. There are multiple makeshift access problems that including tripping hazards, fall hazards, head collision hazards, and equipment inaccessible areas. The warehouse space needs will grow by at least 50% in the next few years as we identify critical spare parts and repair parts needed for critical infrastructure and new AWWU facilities and assets (Asplund Disinfection, Ship Creek ERS, large diameter water and sewer mains, new booster stations, SCADA components, etc.).	Y
C2	Spare Parts (critical and contractual) left over from capital projects are not tracked and get lost, misplaced, forgotten, and mistreated such that they become unavailable and/or unusable when they are needed. Both SCADA and Asplund Disinfection have critical spares that are being stored but not inventoried or well controlled/documentated in the warehouse and the amount continues to grow.	Y
C3	Engineering Spare parts are stored outdoors, take up real estate, continue to age and deteriorate and are not being depleted/used by new engineering projects.	N
C4	The existing forklift for the warehouse does not work outside in the winter on snow and ice. There is no place to store another piece of equipment for outdoor use.	N
C5	Retrieval of warehouse parts outside in the winter has resulted in several safety near misses because parts cannot be unloaded from the outdoor storage racks with the existing configuration and equipment. To retrieve requires assistance from other work groups as the warehouse equipment is not capable of retrieval.	N
C6	The warehouse receiving area is congested with AWWU employees (Systems, Engineering, etc.) parking in front of the warehouse receiving and Archives area. Those employees have very limited parking to eat lunch in the break room above the warehouse and to be able to pick up warehouse parts.	Y

PROBLEM STATEMENT

AWWU Project ID: 00007929

AWWU King Street Facility Master Plan Problem Statement

ID No.	Issue	Critical (Y/N)
D Series Support Maintenance - Building and Grounds		
D1	Access/egress to the carpenter offices is remote and cut off and is unsafe to get to as it requires walking through an active woodworking area with active dangerous operating power tools	N

ID No.	Issue	Critical (Y/N)
E Series Support Maintenance - Fleet		
E1	The AWWU vehicle shop is at 100% capacity. Vehicle work orders are behind as only a limited number of vehicles/equipment can be worked on at a time. There is no spare bay to accommodate an emergency service order for a vehicle or to accommodate leaving a vehicle in place while parts are on order. Only one longer bay exists to service larger vehicles, and the larger vehicle count has and continues to increase. There is also only one bay that has a grease pit to allow for access to underside of vehicles. This limits the amount of concurrent vehicle work that can be done.	Y
E2	The fleet shop does not have enough space to accommodate tools and equipment which results in tripping hazards and egress issues. Larger vehicle service equipment (hydraulic jacks, tire servicing equipment, engine lifts, etc.) is cluttered between service bays and throughout the vehicle area instead of a consolidated location for efficient access.	Y
E3	There is not a dedicated location in the fleet shop for tire servicing equipment. The existing tire rack is inaccessible, requires overhead manual tire removal which increases injury risk and takes up space as opposed to a tire rotisserie system.	Y
E5	There is no planned future space for a studded tire assembly/storage building if the Utility ever goes down the road of studded tires in the future.	N
E6	There is no dedicated location for an O&M Manual Library. ICS has an O&M Manual Library for their electrical and control items, but Mechanical Support and Fleet have no O&M Manual Library.	Y
E7	Vehicle Bay has drainage and vehicle exhaust ventilation problems.	Y

PROBLEM STATEMENT

AWWU Project ID: 000007929

AWWU King Street Facility Master Plan Problem Statement

ID No.	Issue	Critical (Y/N)
F Series Support Maintenance - Mechanics		
F1	Mechanic Shop steel storage gets rain and snow, hence the new materials corrode prematurely and they have to be dug out of snow in winter	N
F2	HVAC fans are loud in the mechanic shop when they run, causing work and communication issues.	N
F3	When bay doors are opened in the summer in mechanic shop & fleet shop (and likely in Warm Storage), the HVAC System runs when it is not truly necessary	N
F4	Welding in mechanic shop and vehicle running in fleet bays can cause CO warnings and smoking issues, causing HVAC system to run.	N

ID No.	Issue	Critical (Y/N)
G Series Systems Maintenance - General		
G1	The Sand Lake disposal site will be full in a few years. Operational costs to dispose of unclassified material from excavations will increase by an order of magnitude because of driving time and dumping fees if the only alternative is to dispose at the landfill	Y
G2	Systems lift station group needs a SCADA control room for lift station operations. It needs to be secured in a dedicated room. The King St. campus needs a SCADA control room for AWWU-wide SCADA needs used in conjunction with the EOC	Y
G3	The overall campus vehicular flow has limited routes and can be problematic, particularly the east west routes. This problem is made worse by the fact that much of O&M's fleet is larger and longer than conventional light duty vehicles. Additionally, E. 94th Ct. is a bottleneck of heavy vehicular traffic with a warehouse/logistics company (Charlies Produce) regularly blocking the ROW when their tractor trailers pull in and out of loading bays. This is further complicated by having the traffic from the only year -long open red top hydrants on E. 94th Ct.	Y
G4	Disposal of spoils at King St. is necessary and temporary. Spoils are hauled a second time to a final disposal site. Double-handling of this material is inefficient and an added cost.	N

ID No.	Issue	Critical (Y/N)
H Series Systems Maintenance - Vehicles		
H1	The archives expansion has taken away parking space for larger equipment which constricts vehicular flow through the east part of the campus and the end users for the archives are not located at King St.	N

PROBLEM STATEMENT

AWWU Project ID: 00007929

AWWU King Street Facility Master Plan Problem Statement

H3	Additionally, the asphalt and structural subsection at the north and west side of the facility between the EOC and Admin Building and north of the vehicle shop is not able to be used as a driving route for heavy duty fleet as the subgrade and asphalt thickness are substandard and not adequate for regular driving of heavy duty fleet, as it damages the asphalt. The west auto-gate sensors also don't work correctly.	Y
H4	Warm storage for critical heavy duty vehicles and equipment is over 100% capacity. Additional equipment will further exacerbate this problem.	Y
H5	At times during emergency projects, Engineering needs a place for their contractors to store their vehicles in warm storage, which further exacerbates the vehicle/equipment warm storage space problem.	Y
H6	Critical heavy duty equipment/vehicles not stored in warm storage must be left plugged in all winter to allow for adequate response. This is a high energy usage and cost as both the engine block and sometimes a battery warmer/tender must be plugged in. Response time for critical heavy duty equipment/vehicles that are not kept in warm storage is delayed by the need to brush off snow, scrub off ice, jump-start and to allow the vehicle to run for 30 minutes to warm up and defrost. Many of AWWU's heavy duty vehicles/equipment will be damaged if left outdoors as there are components that will freeze and crack (boilers, hoses, pumps, water tanks, etc.)	Y
H7	Heavy duty vehicle accidents continue to occur in Warm Storage	Y

ID No.	Issue	Critical (Y/N)
J Series Systems Maintenance - Building		
J1	Portable Generator for existing Warm Storage Building	Y
J2	Inadequate water service in existing Warm Storage Building	N
J3	Systems Foremen require close working relationships and coordination. The area they currently reside in is not an ADA compliant location. Support Super and work group does not have adequate space for regular group coordination meetings.	Y

PROBLEM STATEMENT

AWWU Project ID: 00007929

AWWU King Street Facility Master Plan Problem Statement

ID No.	Issue	Critical (Y/N)
K Series Systems Maintenance - Preventative		
K1	The existing King St. septage station sewer main is on accelerated line cleaning and access is limited to only the west side of the tracks. No access on the downstream side allows debris to enter the trunk, contributing to filling it with debris.	N
K2	The existing King St. septage station cannot accommodate larger tractor trailers without taking up additional real estate on the King St. campus.	N
K3	The existing grit facility is on accelerated cleaning on a weekly basis due to the fact it clogs regularly.	N
K4	The sewer main that the grit facility drains into is on accelerated line cleaning due to the fact the grit facility has operational problems that allow solids to pass	N

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PROBLEM STATEMENT

Figure 20: Annotated Site Plan with deficiencies

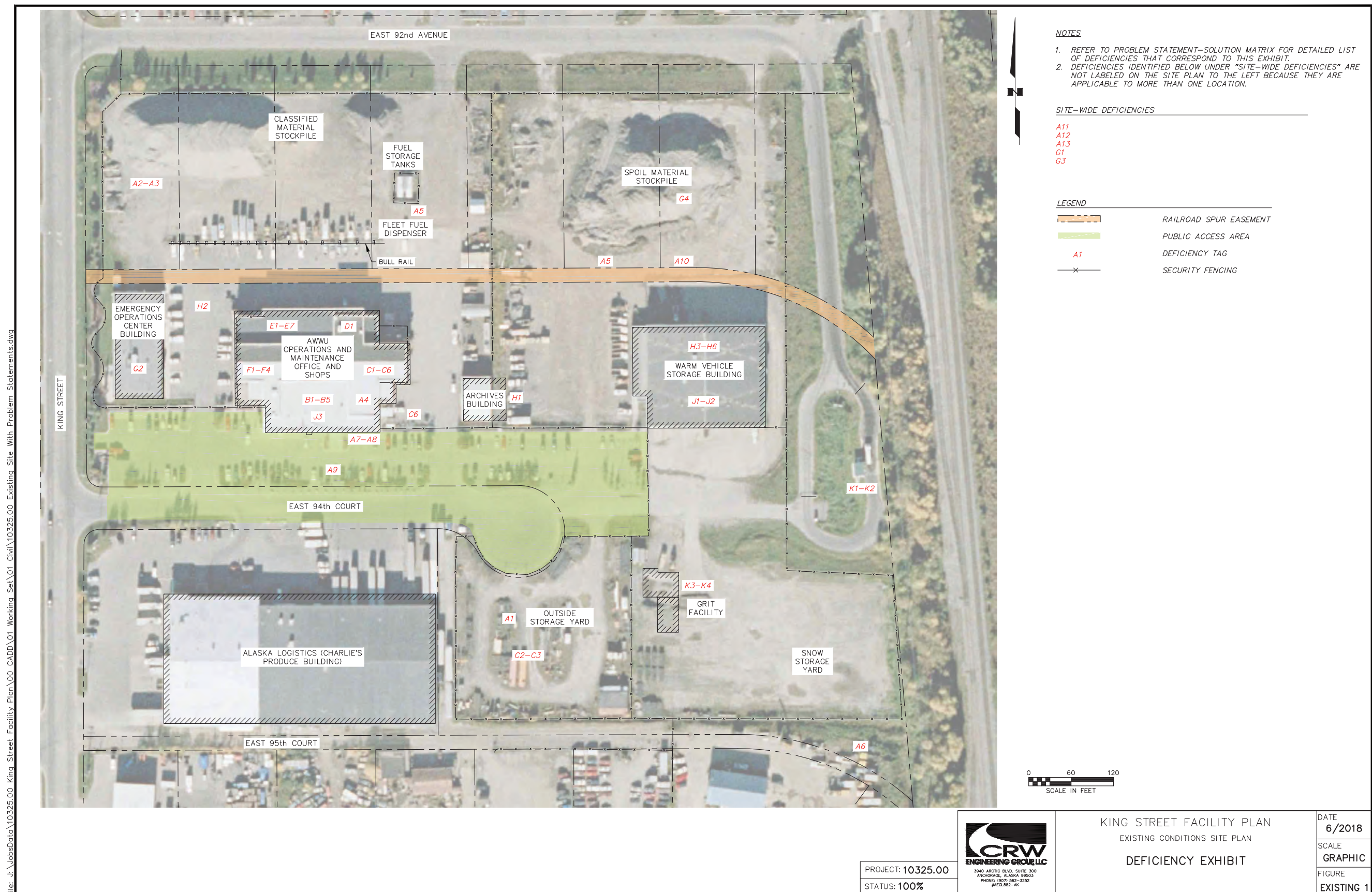


Figure 21: Annotated Existing Floor Plan of Administration Building Level 1 with deficiencies

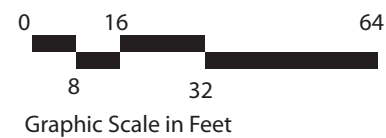
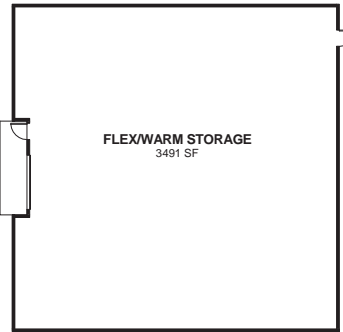
PROBLEM STATEMENT

ISSUE CATEGORY LEGEND
(REFER TO PROBLEM-SOLUTION MATRIX) FOR COMPLETE LIST

A	General Operations - Site
B	General Operations - Building
C	Support Maintenance - Warehouse
D	Support Maintenance - Building and Grounds
E	Support Maintenance - Fleet
F	Support Maintenance - Mechanics
G	Systems Maintenance - General
H	Systems Maintenance - Vehicles
J	Systems Maintenance - Building
K	Systems Maintenance - Preventative

BUILDING-WIDE ISSUES

B1-B4

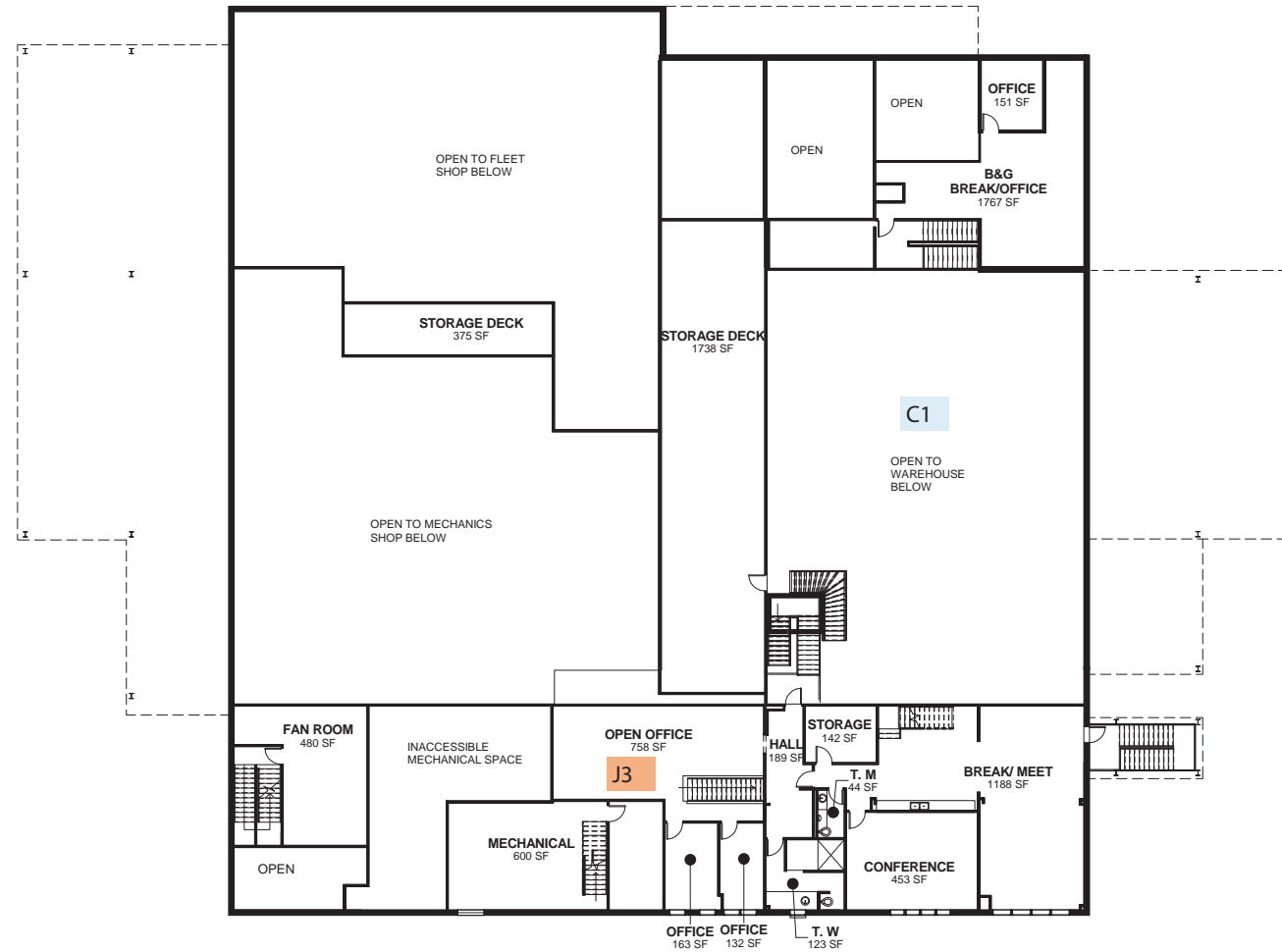


AWWU O&M KING STREET FACILITY MASTER PLAN
ADMINISTRATION BUILDING - LEVEL 1 EXISTING
DEFICIENCY PLAN



PROBLEM STATEMENT

Figure 22: Annotated Existing Floor Plan of Administration Building Level 2 with deficiencies

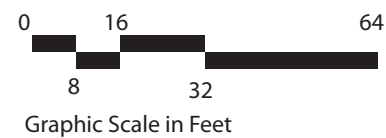
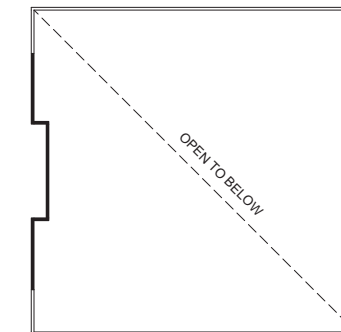


ISSUE CATEGORY LEGEND
(REFER TO PROBLEM-SOLUTION MATRIX) FOR COMPLETE LIST

- A General Operations - Site
- B General Operations - Building
- C Support Maintenance - Warehouse
- D Support Maintenance - Building and Grounds
- E Support Maintenance - Fleet
- F Support Maintenance - Mechanics
- G Systems Maintenance - General
- H Systems Maintenance - Vehicles
- J Systems Maintenance - Building
- K Systems Maintenance - Preventative

BUILDING-WIDE ISSUES

B1-B4

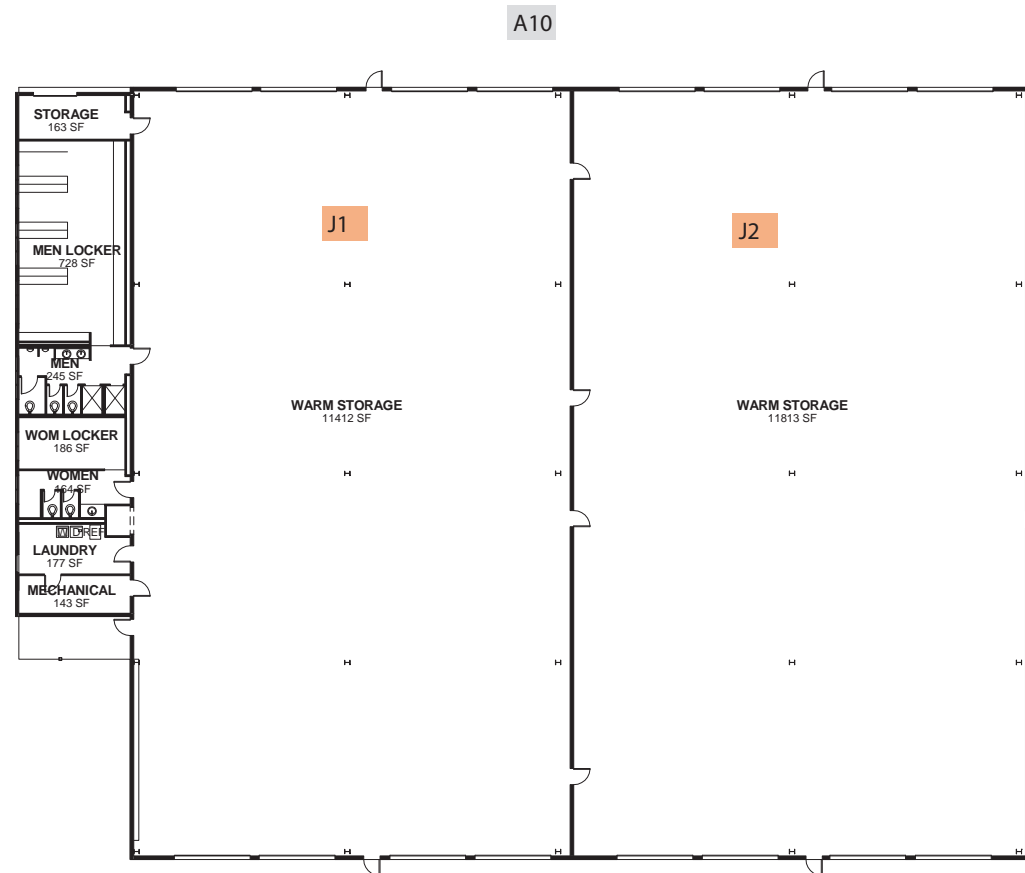


AWWU O&M KING STREET FACILITY MASTER PLAN
ADMINISTRATION BUILDING - LEVEL 2 EXISTING
DEFICIENCY PLAN



Figure 23: Annotated Existing Floor Plan of WVS Building Level 1 with deficiencies

PROBLEM STATEMENT

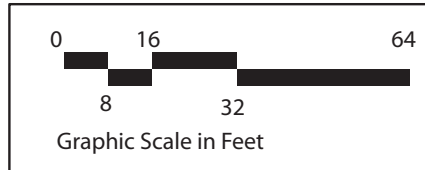


ISSUE CATEGORY LEGEND
(REFER TO PROBLEM-SOLUTION MATRIX) FOR COMPLETE LIST

A	General Operations - Site
B	General Operations - Building
C	Support Maintenance - Warehouse
D	Support Maintenance - Building and Grounds
E	Support Maintenance - Fleet
F	Support Maintenance - Mechanics
G	Systems Maintenance - General
H	Systems Maintenance - Vehicles
J	Systems Maintenance - Building
K	Systems Maintenance - Preventative

BUILDING-WIDE ISSUES

H4-H7



AWWU O&M KING STREET FACILITY MASTER PLAN
WARM VEHICLE STORAGE - LEVEL 1 EXISTING
DEFICIENCY PLAN



SECTION 4

MASTER PLAN



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MASTER PLAN

Planning Process

This master planning process began with the collection and review of past planning documents and recent facility improvement project documents. AWWU O&M leadership provided the planning team with a Problem Statement in the form of a list of issues related to both facility deficiencies and operational challenges. In a 2-day planning charrette, held June 14th and 15th 2017, the planning team and O&M leadership reviewed the problem statements in detail and developed a list of options for campus improvements with 5 year and 20 year outlook. A variety of campus challenges and possible future scenarios were explored with the aid of a scale cardboard model. The following is a synopsis of the major discussion points and decisions resulting from the planning charrette:

Day 1

- » AWWU is considering purchasing the CEA property east of the King Street Campus for future expansion. This site could potentially be used for material disposal and storage, relocation of the grit facility, relocation of the septage receiving station, and to site a high production well in the future.
- » The short term priority is additional warm storage for AWWU fleet vehicles.
- » Currently, all traffic enters the site on 94th Court because there is no automatic security gate installed on 92nd Avenue.
- » Office space should be reorganized so that superintendents and foreman of each department are in the same location.
- » AWWU needs a multi-use conference room with capacity for at least 150 people. This space could potentially be used for up to 300 people. Sufficient parking needs to be provided for large gatherings.



Figure 24: Working with cardboard site model during charrette

- » The site layout, including parking areas, needs to be designed with snow removal and storage in mind.
- » AWWU is concerned that the current configuration of vehicles on site is a safety

MASTER PLAN

hazard. A layout that provides one-way traffic would be beneficial.

- » A new MOA Stormwater Utility, which is currently being evaluated by MOA, may be placed under AWWU since they have similar equipment and functions. Office space for the stormwater utility could be located at the CEA lot to the east of the King Street Facility.
- » A north-south route is needed on site between 92nd Avenue and 94th Court

Day 2

- » As of December 2016, Charlie's Produce was not interested in selling their property south of 94th Court.
- » Additional emphasis was placed on the importance of co-locating all personnel from each work group (superintendents, foremen, laborers).
- » Alaska Railroad has indicated in writing that they would be willing to abandon the railroad easement when the King Street Facility land is re-platted.
- » MOA would need more ROW on 95th Avenue to upgrade the roadway.
- » AWWU would like the Master Plan to discuss re-platting and benefits/complications with 95th Court.
- » Archives building can be removed and relocated to free up space to expand the O&M building and the Warm Vehicle Storage (WVS).
- » Enclosing the covered spaced on the east and west sides of the Administration Building would provide additional warehouse space at minimal cost.

The complete meeting minutes are also included in **Appendix A** of this report.

Following the planning charrette, the planning team made site visits to several warm vehicle storage facilities including MOA AnchorRIDES, Anchorage International Airport Airfield Maintenance, and MOA Street Maintenance to compare parking layouts and operations. The team also revisited the King Street O&M Facility to verify existing conditions. The findings from the charrette and the site visits informed the development of Warm Vehicle Storage Building, Administration Building and overall campus design options.

A follow-up meeting between AWWU O&M leadership and the planning team held on August 24, 2017 reviewed the progress of proposed solutions and provided another opportunity to discuss problem-solution options in detail. This meeting included review and discussion of the proposed Warm Vehicle Storage Building expansion and several site exhibits. The site exhibits were divided into three main categories: 1.) WVS expansion to the west of the existing WVS, 2.) WVS expansion to the east and west of the existing WVS building and

MASTER PLAN

3.) a separate WVS building. Each category included several sub-options to address how the remaining King Street Campus Facility could be improved.

Regulatory and Permitting Requirements and Decisions

A meeting on May 30, 2018 with Platting Officer Dave Whitfield, Municipality of Anchorage Planning Department, discussed the preliminary requirements and possible challenges with subdividing the CEA property for AWWU use. The first step to subdividing property is preparing and submitting a Preliminary Plat of the parent parcel identifying proposed lots, roads, legal and physical access, easements, topography, drainage and utilities. After various MOA Departments, agencies and utility companies review and provide comments on the Preliminary Plat, the MOA Planning Department provides conditions for final approval of the plat. For the required improvements, the owner and MOA will enter into Subdivision Agreement where CEA is the applicant formally initiating this Agreement with the MOA. The Subdivision Agreement identifies the necessary monetary bonds to assure construction completion, design requirements, cost estimating and other conditions. Subdividing the property could occur using a Short Plat process contingent on specific requirements such as no variances or vacations, appropriate lot width to depth ratio, and adequate legal and physical property access. Improvements to 94th Avenue between Old Seward and the CEA property are necessary to upgrade this public roadway to minimum MOA standards, and must be completed prior to finalizing the platting process. The roadway improvements, at a minimum, will include the following:

1. Improve the existing roadway surface with asphalt strip paving, a length of about 700 feet. An alternate could include an attached curb and gutter.
2. Roadway drainage improvements, including ditching, driveway and roadway culverts. The closest location of the Municipality piped storm drainage system is at the intersection of Scooter Avenue and Old Seward, approximately 700 feet from 94th Avenue intersection; this is too far for an economical storm drain extension. ADOT has existing piped storm drain system within Old Seward; however, it is unknown if the 94th Avenue drainage improvements would receive permission to convey runoff into this system.
3. Extension of water main to the CEA property. . An existing water main is installed within the Gambell Street right-of-way, ending at the 94th Avenue intersection. This water main would have to be extended approximately 360 feet west to the CEA property.
4. Sidewalk on one or both sides of the roadway. The sidewalk(s) could be attached with a curbed roadway or separated if strip paving is utilized.
5. Roadway lighting along the entire length of 94th Avenue between Old Seward and the CEA property, approximately 700 feet.

MASTER PLAN

6. Develop an urban industrial cul-de-sac turnaround with a 60-foot radius. This would be located inside the CEA property and could be offset from the 94th Avenue alignment to better fit the geometry of the onsite improvements.

The Final Plat must be recorded with the State of Alaska Records Office prior to any request for a building permit to improve the subdivided lots, unless the improvements meet the current Title 21 requirements for construction on the existing lot. AWWU will need to initiate a Conditional Use Permit or Site Plan Permit with the MOA Zoning Department prior to any Building Permit issuance.

Chugach Electric Association Property Purchase Outreach

Coordination with CEA discussed their plan for long-term use of the (13) thirteen acre parcel of land located immediately east of the King Street Campus. The basis of discussion was determining if CEA plans to use the entire property or if there is opportunity to purchase a portion of this lot. CEA expressed they are interested in selling the northern portion of the property to AWWU and retaining the southern half for possible future expansion of the Sub-Station. Initial discussions identified their need is (7) seven acres for current and future use, with the remaining (6.6) (six.six) acres being sold to AWWU.

Discussions with CEA also approached the possibility of co-owning this property under a joint venture, private land lease, or similar method that would allow both companies beneficial use of the property while avoiding any formal subdivision process. CEA expressed they have no interest in co-owning property with another company or leasing a portion of their land for any length of time.

Problem-Solutions Matrix

By refining and expanding the original problem statement provided by the AWWU O&M Division, the planning team developed a Problem-Solutions Matrix. The matrix organizes the problem statement items by work group, facility and site area. Each item is identified by an alphanumeric and expanded upon to include solution options, recommendations, ROM cost estimates and do-nothing consequences. Each item is also designated as either a 5 year or 20 year planning target. The complete matrix is included here. Following the matrix are narrative descriptions of the 5 year and 20 year Master Plan Recommendations.

MASTER PLAN

AWWU Project ID: 00007929

AWWU King Street Facility Master Plan Problem Statement

ID No.	Issue Category Legend
A	General Operations - Site
B	General Operations - Building
C	Support Maintenance - Warehouse
D	Support Maintenance - Building and Grounds
E	Support Maintenance - Fleet
F	Support Maintenance - Mechanics
G	Systems Maintenance - General
H	Systems Maintenance - Vehicles
J	Systems Maintenance - Building
K	Systems Maintenance - Preventative

Project ID	Project Description
1	Construct New Warm Storage Building
2	Remodel and expand Administrative Building
3	Purchase Chugiak Electrical Association property
4	area
5	Covered classified soil shelter
6	Covered material shelter for parts and components
7	Septage Facility and Grit Facility Improvements

ID No.	Issue	Critical (Y/N)	Possible Solutions	Master Plan Recommendation	ROM Cost Estimate	Do-Nothing Consequences	Outlook (5-20yr)	Project ID
A Series General Operations - Site								
A1	Engineering projects require staging area on the campus that further limit access and space for egress and O&M material and snow storage	N	A.) Dedicate space in the new covered material storage space.	Dedicate space in the new covered material storage space.	\$1,800,000	Continued conflicts on site between staging and operations.	5	6
A2	The classified material freezes in the winter and gets snow on it which increases time and safety risk in order to dig into the pile to find unfrozen material.	N	A.) Construct a covered material storage facility on site B.) Purchase the CEA property and construct fill storage there	Construct covered fill material storage on site to handle material enough for winter months	\$450,000	Continued operational challenges due to frozen and snow-covered material. Loss of time and productivity. Ongoing expense of winter aggregate from AS&G	20	5
A3	O&M spends excessive time and money getting winter aggregate for sanding from AS&G as there is no covered place to store the material onsite. There have been times AS&G has been closed and staff have been unable to obtain winter aggregate.	N	See A2	See A2	See A2 for capital cost. \$150,000 employee wages	Continued operational inefficiency and lost AWWU staff time employee time being diverted away from System and Support work.	20	5
A4	Systems crew space is at/over capacity for meetings and there is no parking for lunch. There are limited computer facilities and parking facilities for their needs for lunch and meeting with foremen during normal working hours without causing disruption to the warehouse and archives.	Y	A.) Incorporate space into a new WVS building or expansion of the existing WVS. B.) Relocate Warehouse to a new facility and capture addition meeting space in the O&M building	Construct an addition to WVS building with additional vehicle storage below and office/meeting/breakroom space above	\$10,080,000	Continued operational inefficiency. Communication difficulty between crews and management. Inability to grow or improve structure within O&M Division	5	1
A5	Multiple legacy and a newly contaminated fuel island site exists as a pollution liability	N	A.) Move fuel island to a more strategic location on site	Build new fuel island(s) with buried tanks to handle gasoline and diesel vehicles. Abate contaminated sites.	\$500,000	Continued challenge with site circulation. Risk of further contamination and/or fines.	20	4
A6	South lot line at E. 95 th Court is giving up ½ acre and not being utilize by AWWU. Additionally, it is unsecure and illegal dumping is occurring on AWWU property, giving us a potential liability.	Y	Recent email traffic from AWWU shows the adjacent land owner is requesting to purchase this triangle portion of AWWU land given their operations are already using this area. Also, this triangle piece of land may not be of value or beneficial use to AWWU anyway (it is odd shaped).	If no vehicle access via 95th court is desired, sell or lease this property to adjacent landowner. Verify with MOA Planning, Right of Way and Zoning specific requirements to subdivide.	(May generate income from sale or lease)	Liability of injury or contamination due to use of AWWU land by private company.	5	n/a
A7	Sidewalk safety along south side of Admin Building	N	A.) Incorporate sidewalk repairs and verify ADA compliance. Part of ongoing design	Evaluate current design for compatibility with the Master Plan and complete sidewalk repairs.	see A4	Risk of injury. Continued damage to Admin Building due to sidewalk draining back to building wall.	5	2
A8	Reduce snow plowing complexity for sidewalks	N	A.) Remove parking lot islands. B.) Create larger open parking lot.	Remove parking lot islands in areas with parking lot changes as part of other scope. Design any new parking for efficient plowing.	see A4	Continued inefficiency and lost staff time to plowing. Damage to curbs requiring repairs.	5	2
A9	Parking lot of Admin and other parking areas degrading causing safety concern and adverse driving conditions	N	A.) Remove and replace asphalt and subgrade, Part of ongoing design	Re-pave parking area to improve drainage conveyance and improve structural subgrade improvements.	see A4	Parking lot condition will continue to continue to degrade causing increased safety concerns for drivers and pedestrians.	5	2

AWWU Project ID: 000007929

AWWU King Street Facility Master Plan Problem Statement

A10	Paving and drainage problems north of existing Warm Storage Building	N	A.) Incorporate subgrade and storm drainage improvements with design of new WVS or expansion of existing WVS	Extend onsite storm drain piping to area north of Warm Storage Building to include one or more manhole inlets. Remove and replace existing subgrade material with classified material, then re-pave	\$450,000	Exiting paving will continue to degrade causing driving difficulty for vehicular and equipment accessing WVS. Un-paved areas will continue to rut and pump during spring and fall seasons, creating driving difficulty and transporting material offsite and into WVS building.	5	4
A11	Potential stormwater utility moving to KS Campus. Identify space or location	N	A.) Identify possible parking and people spaces	Plan and/or dedicate space in the new WVS building. This would be added as a future building addition.	\$1,700,000	Future expense of adding space will be more or possibly not realistic if not considered as part of a planning effort	20	1
A12	AWWU limited land for future growth	N	A.) Purchase CEA property	Purchase CEA property	n/a	King Street Campus operations will reach a point where the site can no support expansion of services and operations. Future growth is halted.	20	3
A13	Lack of site lighting and security cameras	N	A.) Install new site lighting and security cameras as part of WVS expansion	Install site lighting along buildings and luminaires throughout the site.	\$650,000	Driving difficulty during winter months. Safety considerations for pedestrians when walking through shared space/site in un-lighted areas.	5	4

ID No.	Issue	Critical (Y/N)	Possible Solutions	Master Plan Recommendation	ROM Cost Estimate	Do-Nothing Consequences	Outlook (5-20yr)	Project ID
B Series General Operations - Building								
B1	There is inadequate legal/certified cabinets or space for new cabinets for flammable material storage, increasing the fire risk to the facility.	N	A.) Reorganize Admin Space B.) Build addition to Warm Storage with offices - incorporate	Provide flammable storage cabinets as needed when adding or renovating spaces.	\$85,000	Risk of fire and workplace safety violations. Risk of worker injury.	20	2
B2	O&M admin building has intermittent power outages. This building is a SCADA and network server hub. If there is an extended power outage, those networks have limited battery life.	Y	A.) Install emergency generator, side space off Mechanics with OH door. (part of ongoing design project) B.) Install generator in connex and emergency transfer switch for Admin Bldg.	Install emergency backup generator at SW corner of Admin Building as indicated in ongoing design.	\$350,000	Potential interruption of communications in SCADA network. Potential for snowball effects due to lack of SCADA oversight during outage.	5	2
B3	The systems foremen offices area have inadequate HVAC and results in multiple seasonal complaints. Systems HVAC costs have increased (summer running 100% at all times) and complaints have worsened. Staff have noted that indoor air quality in winter is over-pressurized and poor. In summer, it is too hot, oftentimes 80 plus degrees even when system is running at 100% capacity at all times. Air bleeds need to be installed in piping to allow the removal of trapped air.	Y	A.) Insulate the exterior walls of the building B.) Remodel the HVAC system C.) Part of on-going design project	Complete energy efficiency (insulation) upgrades and remodel HVAC. (\$75/sf)	\$2,250,000	Increasing heating/cooling expense. Increasing maintenance costs for over-taxed HVAC system. Loss of productivity and low moral due to discomfort.	5	2
B4	There is no onsite conference room space available for O&M or Utility wide meetings. Communication is a Strategic Plan initiative, and not having space for regular meetings is challenging and problematic.	Y	A.) Incorporate space into a new WVS building or expansion of the existing WVS B.) Relocate Warehouse to a new facility and capture addition meeting space in the O&M building C.) Demo and replace O&M building	Construct an addition to WVS building with additional vehicle storage below and office/meeting/breakroom space above	see A4	Continued operational inefficiency. Communication difficulty between crews and management. Inability to grow or improve structure within O&M Division	5	2
B5	Face of Admin Building falling apart	Y	A.) Part of ongoing design	Fix sidewalk and pavements to drain away from the building. Replace siding.	see B3	Further corrosion of walls including potential corrosion of structure. Poor appearance. Poor thermal performance/ heat loss.	5	2

ID No.	Issue	Critical (Y/N)	Possible Solutions	Master Plan Recommendation	ROM Cost Estimate	Do-Nothing Consequences	Outlook (5-20yr)	Project ID
C Series Support Maintenance - Warehouse								
C1	The AWWU warehouse is currently over 100% capacity with no room to grow. There are multiple makeshift access problems that including tripping hazards, fall hazards, head collision hazards, and equipment inaccessible areas. The warehouse space needs will grow by at least 50% in the next few years as we identify critical spare parts and repair parts needed for critical infrastructure and new AWWU facilities and assets (Asplund Disinfection, Ship Creek ERS, large diameter water and sewer mains, new booster stations, SCADA components, etc.).	Y	A.) Expand existing Warehouse (into Grounds space or into wood shop, or enclose area under existing roof) B.) Build new Warehouse C.) Purchase Charlie's building	Expand Warehouse to enclose existing covered roof area to a conditioned area. Reorganize shelving and implement inventory tracking system. (4000sf at \$250/sf)	\$1,000,000	Continued inefficiency of parts storage and retrieval. Inability to expand warehousing with evolving operations	5	2
C2	Spare Parts (critical and contractual) left over from capital projects are not tracked and get lost, misplaced, forgotten, and mistreated such that they become unavailable and/or unusable when they are needed. Both SCADA and Asplund Disinfection have critical spares that are being stored but not inventoried or well controlled/documentated in the warehouse and the amount continues to grow.	Y	A.) Develop inventory tracking system. B.) Expand warehouse under existing roof C.) Purge and reorganize Warehouse	See C1	See C1	See C1	5	2

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C3	Engineering Spare parts are stored outdoors, take up real estate, continue to age and deteriorate and are not being depleted/used by new engineering projects.	N	A.) Sell back to vendor B.) Surplus sale C.) Dispose of corroded or unlikely to be used spare parts D.) Account for space in new Cold Storage	Purge inventory of engineering spare parts.	(Cost of disposal. May generate income from sale)	Clutter of site impedes efficient use of space and makes it difficult to find needed parts/material.	5	2
C4	The existing forklift for the warehouse does not work outside in the winter on snow and ice. There is no place to store another piece of equipment for outdoor use.	N	A.) Expand Warehouse to store/locate forklift B.) Build new Warehouse C.) Expand Warm Vehicle Storage	Expand Warehouse as in C1 and designate a parking space for forklifts. Purchase a forklift capable of working outdoors.	(Cost of a forklift)	Continued inefficiency of parts storage and retrieval. Inability to expand warehousing with evolving operations	5	2
C5	Retrieval of warehouse parts outside in the winter has resulted in several safety near misses because parts cannot be unloaded from the outdoor storage racks with the existing configuration and equipment. To retrieve requires assistance from other work groups as the warehouse equipment is not capable of retrieval.	N	A.) Build new covered cold storage B.) Build new Warehouse C.) Bring more connexes on site for cold storage	Reorganize outdoor storage yard to the east of Charlies and build new covered cold storage. (5000sf at \$200/sf)	\$1,000,000	Continued inefficiency of parts storage and retrieval. Inability to expand warehousing with evolving operations. Risk of injury and damage to parts and equipment.	5	6
C6	The warehouse receiving area is congested with AWWU employees (Systems, Engineering, etc.) parking in front of the warehouse receiving and Archives area. Those employees have very limited parking to eat lunch in the break room above the warehouse and to be able to pick up warehouse parts.	Y	A.) Move Warehousing operation to new location B.) Reorganize Admin building to utilize the space between archives and warehouse for storage C.) Create a landscaped area for employee gathering away from the Warehouse receiving area	Construct Warm Vehicle Storage addition as in A4 and relocate employee lunch parking away from warehouse receiving area.	see A4	Continued site congestion and conflict between warehouse operations and employee parking.	5	2

ID No.	Issue	Critical (Y/N)	Possible Solutions	Master Plan Recommendation	ROM Cost Estimate	Do-Nothing Consequences	Outlook (5-20yr)	Project ID
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D Series Support Maintenance - Building and Grounds								
D1	Access/egress to the carpenter offices is remote and cut off and is unsafe to get to as it requires walking through an active woodworking area with active dangerous operating power tools	N	A.) Repurpose the first part of the carpentry shop as office, move carpentry to where storage and office are now B.) Move warehouse to a new building or into building enclosure, expand Fleet and relocate Building & Grounds into old Warehouse space.	Remodel B&G areas in the Admin Building to have better flow for safety and efficiency. Remove unused and antiquated functions (paint booth).	\$490,000	Continued inefficient operations. Safety risks.	5	2

ID No.	Issue	Critical (Y/N)	Possible Solutions	Master Plan Recommendation	ROM Cost Estimate	Do-Nothing Consequences	Outlook (5-20yr)	Project ID
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E Series Support Maintenance - Fleet								
E1	The AWWU vehicle shop is at 100% capacity. Vehicle work orders are behind as only a limited number of vehicles/equipment can be worked on at a time. There is no spare bay to accommodate an emergency service order for a vehicle or to accommodate leaving a vehicle in place while parts are on order. Only one longer bay exists to service larger vehicles, and the larger vehicle count has and continues to increase. There is also only one bay that has a grease pit to allow for access to underside of vehicles. This limits the amount of concurrent vehicle work that can be done.	Y	A.) Add additional bay by enclosing building envelope (to west of current bays). B.) Break apart shop spaces with attendant offices from less connected Admin functions (Maximo/administration/ CCTV) C.) Relocate warehouse operations to new building or relocate to Charlie's building	Add two new bays by enclosing the area under existing roof to the west. One bay will be for vehicle service, the other for tire service. This does not address the long vehicle service need but it could be accommodated in the proposed Warm Vehicle Storage addition.	\$540,000	Growing backlog of service causing operational delays. Deferred maintenance may increase equipment replacement costs. Prevents growth of O&M operations.	5	2
E2	The fleet shop does not have enough space to accommodate tools and equipment which results in tripping hazards and egress issues. Larger vehicle service equipment (hydraulic jacks, tire servicing equipment, engine lifts, etc.) is cluttered between service bays and throughout the vehicle area instead of a consolidated location for efficient access.	Y	A.) Add additional bay by enclosing building envelope (to west of current bays). B.) Break apart shop spaces with attendant offices from less connected Admin functions (Maximo/administration/ CCTV) C.) Relocate warehouse operations to new building or relocate to Charlie's building	Reorganize existing Fleet space while adding new bays as in E1. Repurpose current office space as central tool storage. Provide smaller office or centralized office space with other Support Maintenance staff.	see E1	Continued inefficient operations for mechanic equipment storage and use. Safety risks to employees moving within the bays and near building exits, when equipment interferes with egress routes.	5	2
E3	There is not a dedicated location in the fleet shop for tire servicing equipment. The existing tire rack is inaccessible, requires overhead manual tire removal which increases injury risk and takes up space as opposed to a tire rotisserie system.	Y	A.) Add additional bay by enclosing building envelope (to west of current bays). B.) Add a dedicated bay in the new Warm Vehicle Storage building for tire servicing.	Use newly enclosed bay as in E1. Install rotisserie tire rack system.	see E1 for Building \$100,000 tire rack	Continued inefficient operations for tire servicing. Safety risks to employees removing and stocking tires.	5	2

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E5	There is no planned future space for a studded tire assembly/storage building if the Utility ever goes down the road of studded tires in the future.	N	A.) Add additional bay by enclosing building envelope (to west of current bays). B.) Add a dedicated bay in the new Warm Vehicle Storage building for tire servicing. C.) Share expanded bay for tire change overs with maintenance	Share bay with expansion per E1	none	No consequences unless there is a plan to implement a studded tire program. Offsite tire assembly/storage will incur annual costs and employee time to transfer vehicles to offset location.	20	n/a
E6	There is no dedicated location for an O&M Manual Library. ICS has an O&M Manual Library for their electrical and control items, but Mechanical Support and Fleet have no O&M Manual Library.	Y	A.) Locate a shared library between Fleet and Mechanics (break room?) B.) Build an extension of Mechanics for Welding and turn this space into a shared library C.) Plan for in new facility	Dedicate O&M library space and shared computer workstations in the connective area between the Warehouse and Mechanics. Remodel interiors.	\$90,000	Continued inefficiency associated with a disorganized technical manual library. Duplication of resources between Fleet and Mechanics.	5	2
E7	Vehicle Bay has drainage and vehicle exhaust ventilation problems.	Y	A.) Rebuild floor slab and drainage (ongoing design project) B.) Relocate Fleet to new WVS building and backfill with other functions to alleviate crowding at Admin Building.	Install additional floor drains and connect piping to existing outlet	\$165,000	Building damage due to standing water. Slip and fall risk with melting snow pooling on shop floor.	5	2

ID No.	Issue	Critical (Y/N)	Possible Solutions	Master Plan Recommendation	ROM Cost Estimate	Do-Nothing Consequences	Outlook (5-20yr)	Project ID
F Series Support Maintenance - Mechanics								
F1	Mechanic Shop steel storage gets rain and snow, hence the new materials corrode prematurely and they have to be dug out of snow in winter	N	A.) Enclose building to store to protect materials from the weather	Enclose the area under existing roof to expand Mechanics Shop. (1400sf at \$200/sf)	\$280,000	Degradation of materials and operational inefficiency due to wet and snowy materials. Additional inefficiency of space use if not staked in an organized vertical structure	5	2
F2	HVAC fans are loud in the mechanic shop when they run, causing work and communication issues.	N	A.) Renovate the HVAC systems & controls.	Remodel building HVAC systems as in B3.	See B3	Increasing heating/cooling expense. Increasing maintenance costs for over-taxed HVAC system. Loss of productivity and low moral due to discomfort.	5	2
F3	When bay doors are opened in the summer in mechanic shop & fleet shop (and likely in Warm Storage), the HVAC System runs when it is not truly necessary	N	A.) Renovate the HVAC systems & controls.	Remodel building HVAC systems as in B3.	See B3	Increasing heating/cooling expense. Increasing maintenance costs for over-taxed HVAC system.	5	2
F4	Welding in mechanic shop and vehicle running in fleet bays can cause CO warnings and smoking issues, causing HVAC system to run.	N	A.) Relocate Welding to Storage 122 and provide dedicated exhaust ventilation B.) Renovate the HVAC systems & controls.	Construct a new welding booth with dedicated exhaust in expansion of Mechanics space.	See F1	Continued nuisance alarms. Health concerns with continued smoke inhalation. Fire risk.	5	2

ID No.	Issue	Critical (Y/N)	Possible Solutions	Master Plan Recommendation	ROM Cost Estimate	Do-Nothing Consequences	Outlook (5-20yr)	Project ID
G Series Systems Maintenance - General								
G1	The Sand Lake disposal site will be full in a few years. Operational costs to dispose of unclassified material from excavations will increase by an order of magnitude because of driving time and dumping fees if the only alternative is to dispose at the landfill	Y	<i>Short Term</i> A.) Purchase CEA property and move spoil stock pile off KS Campus.	Purchase CEA property and move all spoil pile material to this location.	\$3,500,000	Continued congestions with site operations. Inability for O&M Division to expand services and function.	5	3
G2	Systems lift station group needs a SCADA control room for lift station operations. It needs to be secured in a dedicated room. The King St. campus needs a SCADA control room for AWWU-wide SCADA needs used in conjunction with the EOC	Y	A.) Incorporate space into a new WVS building or expansion of the existing WVS.	Construct an addition to WVS building with a dedicated secure SCADA room in the 2nd floor office area	See A4	Continued operational inefficiencies and security concerns.	5	
G3	The overall campus vehicular flow has limited routes and can be problematic, particularly the east west routes. This problem is made worse by the fact that much of O&M's fleet is larger and longer than conventional light duty vehicles. Additionally, E. 94th Ct. is a bottleneck of heavy vehicular traffic with a warehouse/logistics company (Charlies Produce) regularly blocking the ROW when their tractor trailers pull in and out of loading bays. This is further complicated by having the traffic from the only year -long open red top hydrants on E. 94th Ct.	Y	A.) Relocate fuel station. B.) Removing and/or relocating connexs from site. C.) Relocate site fencing to provide more usable space within KS campus. D.) Relocate one or more driveways approaches from 94th Ave. to 92nd to better align with new site development	In order of priority: A.) Relocate site fencing to property line and include automatic slide gates. B.) Relocate driveways to 92nd contingent on development of new WVS building location. C.) Relocate fuel station contingent on development of new WVS building. D.) Remove connexs from site contingent on existing warehouse space expansion.	A.) \$300,000 B.) \$275,000 C.) See A5 D.) \$100,000	Continued onsite vehicle and pedestrian movement and circulation problems. Safety concerns for pedestrians walking within constricted areas without much shared space.	5	4
G4	Disposal of spoils at King St. is necessary and temporary. Spoils are hauled a second time to a final disposal site. Double-handling of this material is inefficient and an added cost.	N	See A2	See A2	See A2 for capital cost. \$150,000 employee wages	Continued operational inefficiency and lost AWWU staff time employee time being diverted away from System and Support work.	20	5

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ID No.	Issue	Critical (Y/N)	Possible Solutions	Master Plan Recommendation	ROM Cost Estimate	Do-Nothing Consequences	Outlook (5-20yr)	Project ID
H Series Systems Maintenance - Vehicles								
H1	The archives expansion has taken away parking space for larger equipment which constricts vehicular flow through the east part of the campus and the end users for the archives are not located at King St.	N	A.) Move spoilage pile to CEA property with the intent to improve site circulation and add vehicle parking stalls. B.) Remove storage connex's from site. C.) Remove Archives building from site or relocate onsite elsewhere and repurpose.	Storm term: Move spoil pile to CEA property. Remove connex's from site as new covered storage structure is constructed and existing warehouse space is expanded Long term: Consider relocating Archive Building offsite	Short Term: cost included with G1 with an additional \$800,000 to improve site with parking and circulation	Equipment will no longer be able to park at this location due to WVS expansion to west. Further exacerbation of parking problem onsite.	5	3 and 4
H3	Additionally, the asphalt and structural subsection at the north and west side of the facility between the EOC and Admin Building and north of the vehicle shop is not able to be used as a driving route for heavy duty fleet as the subgrade and asphalt thickness are substandard and not adequate for regular driving of heavy duty fleet, as it damages the asphalt. The west auto-gate sensors also don't work correctly.	Y	A.) Improve structural section to accommodate heavy vehicle routes B.) Install additional storm drain inlets and piping. C.) Remove contaminated soil from footprint of building or subgrade improvements D.) Replace auto gate sensors	Extend storm drainage system to area north of the existing warm storage building. Remove existing subgrade and replace with classified material and asphalt pave. Remediate contaminated soil per ADEC approved Plan	\$1,200,000	Continued ponding of runoff after heavy or continual rainfall. Continued ponding of melting snow. Ground surface will continue to degrade and will require continued maintenance to repair and replace select areas of soft soils and asphalt pavement during seasonal changes	5	1
H4	Warm storage for critical heavy duty vehicles and equipment is over 100% capacity. Additional equipment will further exacerbate this problem.	Y	A.) Construct new WVS building. Requires spoil material to be removed from site. B.) Construct wing to existing WVS building. Spoil pile may or may not be relocated to CEA property.	Construct new wing on WVS building per A4.	See A4	Increased challenge of storing vehicles inside warm building. Decision must be made as to what critical vehicles will be moved outside and plugged in.	5	1
H5	At times during emergency projects, Engineering needs a place for their contractors to store their vehicles in warm storage, which further exacerbates the vehicle/equipment warm storage space problem.	Y	A.) Construct new WVS building to include multi-use location for contractor use. Requires spoil material to be removed from site. B.) Construct wing to existing WVS building. Spoil pile may or may not be relocated to CEA property.	Construct new wing on WVS building per A4 with dedicated spare parking stalls to accommodate occasional contractor vehicle storage.	See A4	Reduced Contractor response time and working efficiency	5	1
H6	Critical heavy duty equipment/vehicles not stored in warm storage must be left plugged in all winter to allow for adequate response. This is a high energy usage and cost as both the engine block and sometimes a battery warmer/tender must be plugged in. Response time for critical heavy duty equipment/vehicles that are not kept in warm storage is delayed by the need to brush off snow, scrub off ice, jump-start and to allow the vehicle to run for 30 minutes to warm up and defrost. Many of AWWU's heavy duty vehicles/equipment will be damaged if left outdoors as there are components that will freeze and crack (boilers, hoses, pumps, water tanks, etc.)	Y	A. Construct new WVS building. Requires spoil material to be removed from site. B.) Construct wing to existing WVS building. Spoil pile may or may not be relocated to CEA property.	Construct new wing on WVS building as per A4.	See A4	Continued program of plugging vehicles in all winter long, with associated high energy cost. Responses time to System emergencies reduced.	5	1
H7	Heavy duty vehicle accidents continue to occur in Warm Storage	Y	A.) New or expansion to WVS building will mitigate this problem B.) Move vehicles outside existing WVS to store in a new unheated covered structure. C.) Move vehicles outside existing WVS to store uncovered elsewhere on site.	Construct new wing on WVS building as in A4.	See A4	Continued vehicle accident if the number of vehicles inside existing WVS remains the same	5	1
J Series Systems Maintenance - Building								
J1	Portable Generator for existing Warm Storage Building	Y	A.) Incorporate with design and construction of new WVS or expansion of existing WVS B.) Include with improvements to O&M Building	Include with design and construction of new WVS	\$400,000	Lack of standby power result in unheated building and challenge of opening vehicle bay doors. Safety concern during occupied durations	5	1
J2	Inadequate water service in existing Warm Storage Building	N	A.) Install new water service and piping within building as part of WVS expansion	Extend new, larger water service to building	\$150,000	Continued challenges with enough pressure and flow for beneficial use.	5	1
J3	Systems Foremen require close working relationships and coordination. The area they currently reside in is not an ADA compliant location. Support Super and work group does not have adequate space for regular group coordination meetings.	Y	A.) Incorporate space into a new WVS building or expansion of the existing WVS B.) Relocate Warehouse to a new facility and capture addition meeting space in the O&M building C.) Demo and replace O&M building	Construct new wing on WVS building as in A4.	See A4	See A4	5	1

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ID No.	Issue	Critical (Y/N)	Possible Solutions	Master Plan Recommendation	ROM Cost Estimate	Do-Nothing Consequences	Outlook (5-20yr)	Project ID
K Series Systems Maintenance - Preventative								
K1	The existing King St. septage station sewer main is on accelerated line cleaning and access is limited to only the west side of the tracks. No access on the downstream side allows debris to enter the trunk, contributing to filling it with debris.	N	A.) Move septage station to CEA property. B.) Install trash rack C.) Install additional manhole/sumps to capture grit D.) Pipe upgrades (HDD or open trench)	Install trash rack and grit removal system similar to the Turpin septage facility	\$200,000	Problem will continue requiring regular and emergency scheduling of AWWU employee time to clean and flush. Problem will get worse once Turpin septage facility shuts down and all septage haulers dump at the King Street facility	5	7
K2	The existing King St. septage station cannot accommodate larger tractor trailers without taking up additional real estate on the King St. campus.	N	A.) Widening of driveway and enlarging radii under current configuration. B.) create a one-way direction for users (to eliminate circular driveway). This will require access through King Street Campus secure area or install new driveway access around outer limits of KS campus site or improve 95 Ct for access	Widen driveway to accommodate a WB109 tractor trailer unit	\$1,300,000	Turpin septage facility must remain operational. This will create more expense for AWWU to maintain Turpin.	5	7
K3	The existing grit facility is on accelerated cleaning on a weekly basis due to the fact it clogs regularly.	N	A.) Modify gate openings / improve concrete channel with sediment basins B.) Install mechanical or chemical treatment to system	Short Term: install vertical mesh screens at the gates and install improved check dams in the dewatering area. Long Term: Install a mechanical grit removal system or a chemical treatment system	Short Term: \$120,000 Long Term: \$2,200,000	Problem will continue requiring regular and emergency scheduling of AWWU employee time to clean and flush.	5	7
K4	The sewer main that the grit facility drains into is on accelerated line cleaning due to the fact the grit facility has operational problems that allow solids to pass	N	this problem should be minimized once the above solution is incorporated.	See K3	See K3	See K3	5	7

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Master Plan Recommendations

5 Year Master Plan

Many of the issues identified in the Problem Statement and examined during the Planning Workshops relate to three primary deficiencies of the King Street O&M facilities. First is the lack of adequate warm vehicle storage on the campus. This affects operations on several fronts: congestion of parking areas outside, over-crowded parking inside the warm vehicle storage, inefficiencies due to tight parking and cold vehicles and increased vehicle maintenance. The second is a lack of adequate office and meeting space, especially for the Systems and Support Maintenance groups. Management is not able to collaborate efficiently because they are cloistered in distant offices or crowded in small, ad hoc cubicles. The existing office and meeting spaces have poor lighting and temperature control, antiquated technology infrastructure and limited flexibility for changing operations or growth. The third deficiency is that all the support maintenance shops in the Administration Building have either outgrown the available space or have evolved awkwardly and need to be reorganized.

CEA Property Purchase

Property owned by CEA, located nearby on the east side of the Alaska Railroad, provides space to expand/relocate one or more King Street O&M Facility operations. Ownership of this property would facilitate the relocation and storage of unclassified and spoil materials, freeing up valuable space on the King Street campus for additional vehicle parking and improved vehicle circulation and providing a more economical disposal location for spoils than currently employed. AWWU recently obtained a water easement from CEA to construct a new PRV facility on this site. This is a strategic geographic location for the PRV facility because it is adjacent to the 36-inch water main that provides flow to a large portion of AWWU's customer base in southwest Anchorage. Design of the 92nd Avenue PRV facility is complete and construction is scheduled for 2018. According to AWWU, CEA is agreeable to transferring ownership of this property to AWWU. Pending an evaluation of the aquifer, AWWU is considering locating one or more water wells on this site.

Although the CEA property is separated from the King Street campus by the railroad right of way, a planned road project will provide a convenient connection. The 2017 Capital Project list includes the 92nd Avenue Extension – King Street to Old Seward Highway project. The scope of this project includes a new road base, pavement, curbs, drainage, lighting, pedestrian facilities, signals, and an Alaska Railroad underpass; the \$18 million project is currently not funded.

Site Circulation

Site circulation on the King Street campus is driven by the needs of both pedestrian and vehicular traffic. The vehicular traffic is comprised of the following:

- » AWWU fleet vehicles
- » AWWU employee personal vehicles
- » Septage haulers
- » Material delivery trucks
- » Campus visitors

Critical planning considerations for site circulation are identified and described below.

AWWU Fleet Vehicle Routing

These vehicles require access to the materials storage area, grit facility, fuel dispensers, material stockpiles, maintenance shop, and Warm Vehicle Storage Building. The portion of campus west of the Administration Building lacks satisfactory subgrade depth and the pavement cannot support the load of these heavy vehicles. As a result, fleet traffic must avoid traveling over this area during the breakup season. To minimize conflicts with other user groups, fleet vehicles should follow the same general traffic pattern each day and minimize use of the routes needed by other user groups.

Septage Haulers

Septage haulers require access to the septage receiving facility and a potential future FOG facility. Routes for these non-AWWU owned vehicles need to be physically isolated from the rest of campus. These facilities must provide for tractor-trailer type vehicles with large turning radii.

Material Delivery

Materials delivered to campus are brought to the east side of the Administration Building, where they are offloaded and placed inside. This is a central part of campus, which currently experiences congestion. This area should be kept clear of other vehicular traffic to minimize conflicts and provide for efficient offloading. According to AWWU O&M, this area is generally congested by Systems Maintenance and other AWWU fleet vehicles during lunch hours.

Campus Visitors

Campus visitors first report to the Administration Building. As such, the Administration Building should be accessible via a noticeable and clearly identified public entrance. Efforts should be made to minimize the amount of fleet and other vehicle traffic at this

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entrance.

Snow Storage and Removal

During winter months, snow is generally stored in the southeast corner of campus. In order to transport snow from other areas of the site, north-south and east-west routes must be maintained to allow fleet vehicles to efficiently and effectively move the snow.

AWWU Pedestrians

AWWU personnel travel by foot between the Administration Building, Emergency Operations Center, and Warm Vehicle Storage Building. These buildings are currently located within close proximity of each other to provide for effective and efficient communication between O&M employees. All future planning on campus should consider the proximity of these facilities as well as the location of employee parking.

Fleet Re-Fueling

Fleet vehicles are generally refueled at the on-site diesel and gasoline dispensing facility at the end of the work day. This way, in the morning, and in the event of an emergency, AWWU vehicles are fueled and can quickly respond to the needs of the AWWU customer base. As such, the fleet dispenser should be located so vehicles can conveniently refuel as they return at the end of the work day, and then park in the Warm Vehicle Storage Building.

Congestion South of the Administration Building

Other users at properties adjacent to the King Street O&M Facility impact traffic flow along 94th Court. As a result, traffic through this corridor should be minimized to improve site circulation and minimize conflicts. This is exacerbated by the red top hydrants that are in operation year-round.

Site Layouts

Seven site layout alternatives are presented with this report, representing possible configurations of site improvements to the King Street campus for the short term (5-year) and long term (20-year) time frame. The alternatives focus on expansion of the existing Warm Vehicle Storage Building, in addition to improving site circulation and increasing parking capacity. The presented alternatives include three options for WVS expansion:

1. West Expansion (5-year)
2. West and East Expansion (20-year)
3. Additional West Expansion (20-year)

Alternatives 1A and, 1B are discussed in the 5-Year Recommendations section as they represent the expected near term improvements. The remaining four site alternatives are

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located in the 20-Year Plan Recommendations section, as they correspond with the long term site plan options and more logically fit within that section.

Alternative 1A – Warm Vehicle Storage to West (5-year)

This alternative includes a western expansion of the Warm Vehicle Storage Building, including a covered outdoor fleet vehicle storage area with electrical outlets for equipment that will not fit inside building during the initial expansion. The previous subsurface petroleum contamination near the northwest corner of the existing warm storage building will require removal and remediation given the close proximity to the new WVS building footprint and associated pavement improvements. Unclassified material stockpile would remain on site. Fleet vehicles would enter the campus from 92nd Avenue and refuel at the existing fuel dispensers before entering the WVS building after their shift. The Septage Receiving Facility would remain on-site and receive improvements to accommodate large delivery vehicles. Septage delivery vehicles would enter and exit the site from 92nd Avenue, minimizing conflicts with AWWU operations. A north-south corridor through the middle of campus would be provided exclusively for delivery vehicles. A narrow corridor east of the WVS building would provide a north-south route for snow transport. A covered material storage area with a drive-through configuration would be constructed on the south side of the campus. Classified material for sanding would be covered by a tent-like structure in winter months. Challenges with this alternative include providing sufficient parking for employee vehicles and other AWWU vehicles. Potentially, the existing bull rail could remain in place for vehicle parking on one or both sides, or used as a barrier between parking and on-site operations near the classified material stockpile.

Alternative 1B – Warm Vehicle Storage to West, Unclassified Material to CEA Property (5-year)

This alternative follows the 1A improvements, except the unclassified material stockpile would be relocated to the CEA property to the east, across the Alaska Railroad tracks. This would create space for a 70-vehicle asphalt paved parking area dedicated for AWWU employee vehicles and fleet vehicles, directly north of the expanded WVS building, in current footprint of the unclassified material stockpile. The parking area improvements consist of several light poles and security cameras, and removal and replacement of the poor subgrade soil with classified material. The existing fleet fueling dispenser island and two above ground fuel tanks would be removed and replaced with new fueling dispensers and two new below ground fuel tanks relocated to the northeast side of campus. The returning fleet vehicles will refuel before parking in the WVS building. The fueling island location is strategically shown beyond the core site operations and will minimize conflicts with on-site vehicle equipment/vehicles maneuvering. The western portion of covered material storage area could be leased or sold to Charlie's Produce, generating a revenue stream for the

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utility. The small wedge of land at the south east corner of the campus, south of the grit facility, could be leased for an additional revenue stream.

Warm Vehicle Storage

AWWU's most immediate concern is additional warm storage for fleet vehicles. Three alternatives proposed a new vehicle layout to alleviate the conflicts in the existing WVS building, which are driven by both space and vehicle orientation. The 5-year plan for additional warm storage is presented below and shown in figure WVS1.

Alternative 1 – West Expansion (5-year)

This alternative meets the immediate short term needs of the utility by constructing a new 20,000 square foot expansion to the west of the existing WVS building. Parking orientation for fleet vehicles will use a 'back-in' at a 45-degree angle. This configuration allows employees to park and remove their vehicles by pulling forward, without conflicting with other vehicles stored in the facility. Structural supports would be located to maximize space and efficiency of the new building. Overhead doors would allow vehicles to enter through the north side of the building and exit to the south. Emergency contractor parking would be provided, as needed, in the center aisle of the WVS expansion. Space in the corners of the building could be designated for work/additional storage.

The existing Warm Vehicle Storage Building would remain in place and maintain parallel parking; however, the vehicle bay doors could be relocated to align with the drive through aisle, given the constraint of the interior support columns which cannot be moved and are a restriction for parking fleet vehicles. Water and sewer vehicles would be kept separate. The WVS addition will alleviate some of the congestion issues in the existing Warm Vehicle Storage Building, improving emergency response times and minimizing vehicle conflicts. Dump trucks and trailers could be stored outside in a covered area with electrical outlets to plug in engine block heaters. Long-term expansion plans for the Warm Vehicle Storage Building are presented in the 20-Year Master Plan Recommendations portion of this document.

Office/Teaming and Meeting Spaces

Improving the quality and organization of office and meeting spaces is a primary goal for this master plan. AWWU O&M Division has identified the need to improve teaming of the leadership within groups by co-locating their offices. Currently all superintendents and foremen have offices in the Administration Building. Some foremen are isolated in their shops and others are in overcrowded cubicles without adequate HVAC controls. Furthermore, the majority of offices and the shared break room, training room and conference room are located on the 2nd floor without ADA access. Another need identified in the planning

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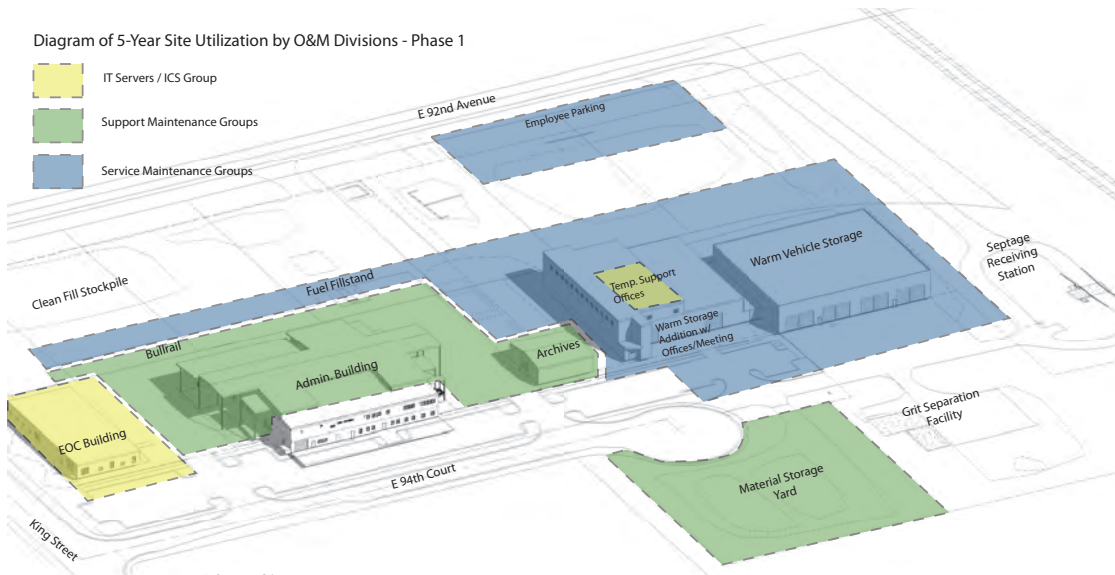


Figure 25: 5-Year Master Plan Site Utilization by O&M Division - Phase I

process is for a larger meeting center that can accommodate the entire O&M Division for trainings and could also provide training and meeting space for other AWWU divisions. Additionally, there is a need for a secure SCADA control area for Lift Station operations and utility-wide SCADA operations when the EOC is initiated. Any control rooms will need independent climate-controlled computer rack space. To meet these needs, a 2-phase project is recommended.

Phase 1 - WVS Expansion Office and Meeting Center

In the first phase an addition to the Warm Vehicle Storage Building will be constructed (WVS Alternative 1 above). A second floor above the warm storage garage includes enough individual offices to accommodate the Systems Maintenance management with

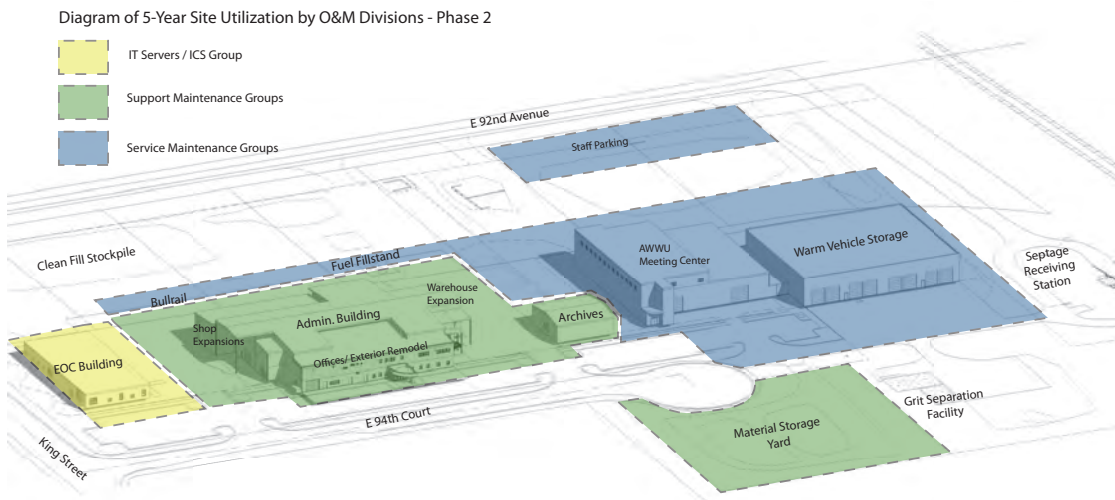


Figure 26: 5-Year Master Plan Site Utilization by O&M Division - Phase II

MASTER PLAN

additional closed and open offices to allow for future growth in the Division. One concept being considered is moving Treatment Admin. and Pre-Treatment staff to King St. for improved collaboration as the groups rely heavily on each other. One of the office spaces includes a secure SCADA Lift Station Operating room, as the regulatory responsibility of these collection facility operations is assigned to the Systems Maintenance Collection and Distribution Operators. The SCADA control room will be designed with local cooling to manage the high heat loads from the computer equipment. The addition also includes a small conference room for Group management and private meetings. The other half of the second floor space includes a double meeting/training/break room dividable by an operable wall. At one end of the meeting room is a kitchen to support AWWU events. Roof and rooftop equipment maintenance access is provided via a door from the kitchen area to the level 1 roof. A roof ladder can be used to access the level 2 roof from there. Toilets, storage and mechanical space occupy the remainder of the floor. On the south side, easily accessible from the parking lot is an entry lobby with an elevator and stairs to access the second floor.

Phase 2 - Administration Building Remodel

After the new office and meeting space are completed in phase 1, phase 2 remodels the 2-story section of the Administration Building. Staff can be temporarily relocated to the new office/ meeting center at WVS while this work is completed. This project would create an office suite for the Support Maintenance Group, allowing their superintendent and foremen to work more closely together. A new entry vestibule and canopy are proposed to provide a clear and welcoming public reception to the Administration Building. The second floor will be converted to primarily storage space and connected to the Warehouse by a new freight elevator. Treatment Admin. and Pre-Treatment staff offices could be accommodated in the Administration Building and/ or the new Warm Vehicle Storage office spaces.

Covered (Cold) Material Storage

An efficient step in organizing the material stored outside is the construction of a large covered structure with multiple platforms or racks on different elevations to place various types of parts/ material. The structure would include an open front for placement and retrieval of parts/ material, with sides and back enclosed with a non-insulated wall to help limit the intrusion of rain and snow. Additionally, walls provide a security measure that limits visual ability and restricts physical access by non-AWWU personnel. The overall storage space is dependent on the overall programming effort conducted in a subsequent design phase. This Facility Master Plan recommends the use of two or more elevations or platforms to place material, as this is an efficient approach that shares the same roof and footprint.

It is recommended that this covered area be configured so that access is provided in a single directional, drive-through fashion. This will maximize storage space, while minimizing congestion and vehicle conflicts. Space should be provided so that an outdoor fork lift can access the equipment and material racks.

Grit Facility Improvements

Two options to increase efficiency of the Grit Facility are the implementation of vertical mesh screens at the weir sluice gates and check dams within the dewatering area. It is recommended that these options be delayed and re-evaluated after the new Eagle River Wastewater Treatment Facility headworks facility comes on line in late 2018. The new headworks will eliminate the screenings waste stream from the Grit Facility which , may improve operation of the Grit Facility.

Vertical Mesh Screens at the Weir and Sluice Gates

Screens that cover the openings of the weir and sluice gates would reduce the amount of floating debris that enters the deep channel. The screens will likely rapidly clog with material, requiring cleaning with a high-pressure hose from the clean side to redistribute the clogging material. Depending on the size of the screens, they may not reduce the amount of small suspended solids in the effluent from the grit facility, which would not reduce the deposition of the line downstream of the grit facility.

Check Dam within the Dewatering Area

Installation of a removable barrier on the sloped dewatering area of the facility may reduce the amount of solids carried into the collection system. The barriers should be placed so that the volume of one truck can be distributed on the sloped area above the barriers and the liquid can flow into the lower portion of the basin. As the material held by the barriers dries, it can be removed to the drying area. This option may not significantly reduce the amount of suspended solids that are carried through the system.

Septage Facility Improvements

Septage Improvements are currently being evaluated via a separate project. The primary objective is to provide septage disposal at the lowest cost of service and least amount of impact to downstream sewer mains which may include improvements such as a pretreatment system, increased vehicular turning radii, consolidation of AWWU's septage receiving facilities at King Street, and a dedicated FOG receiving station.

Site Fence Relocation

A portion of the perimeter site fencing along the north and east property lines are currently

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not located for optimum use of the King Street campus. The chain-link fence along the north side of the campus is located approximately 40 feet inside the property line thereby giving up beneficial use of this area. The fence along the east side of the property results in a non-maintained landscaped area along the Septage Facility driveway. The width of this area ranges between 21 feet and 50 feet and is lost space for the King Street campus operations.

Removing and replacing the north fence line will result in a 0.90-acre increase for site operations. Removing and replacing a portion of the east fence line will result in a 0.30-acre increase for site operations. The north fence replacement should include new automatic cantilever slide gates for all driveway locations to enhance the ingress/egress of the secure site using a vehicle based remote or keypad and loop detectors.

Classified and Unclassified Soil Material Stockpiles

The classified material stockpile should remain on-site at the King Street campus to have this material in close proximity to fleet trucks for emergencies and normal work repairs on the water and sewer assets. Alternatively, the classified material could be moved to the CEA property when the unclassified stockpile moves to take advantage of disposal and classified pickup at the same location. The winter aggregate could stay on the King St. campus as that is primarily used by Building and Grounds and is not associated with excavations. Evaluation of a simple covered structure or tent is recommended to enclose a limited quantity of classified material for use during the winter months. The covered structure or tent will reduce the amount of snow and rain accumulating on top of the soil material and the resulting frozen stock-pile. This approach will reduce employee time and equipment necessary to break up the frozen material during the winter season.

The unclassified material stockpile may move to the CEA property within the next five years depending on the purchase process time line and overall space programming of the site. AWWU may elect not to move the spoil pile to the CEA property for the short term thereby maintaining its general location on-site. The spoil pile should move slightly to the northwest from its current location once the site security fencing is moved to the north property boundary. This will free up more space for on-site vehicle circulation and re-locating the fuel dispensing station.

5-Year Site Plan Exhibits and Building Diagrams: See included exhibits and diagrams on the following pages that graphically represent King Street Facility improvements.

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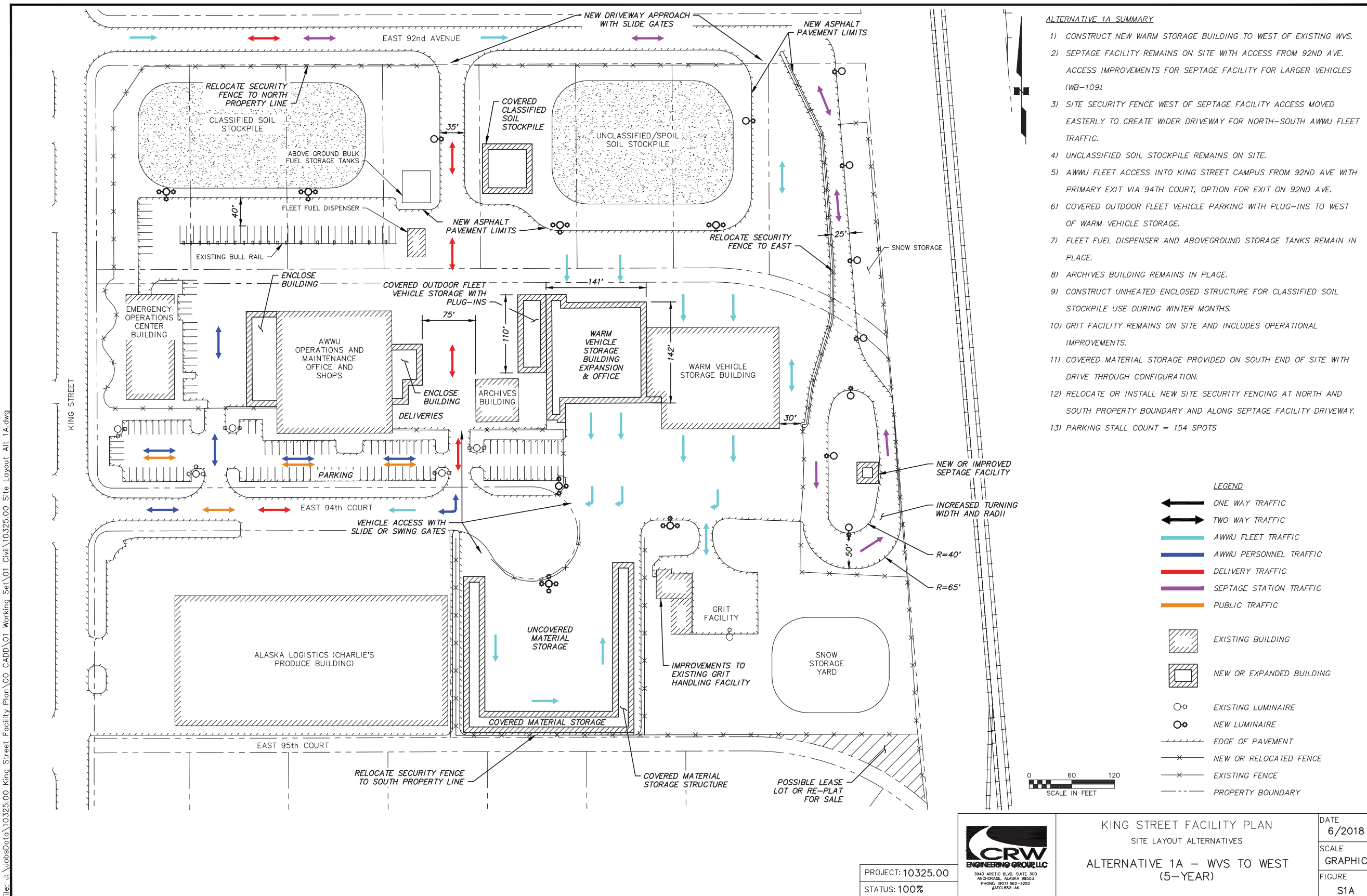
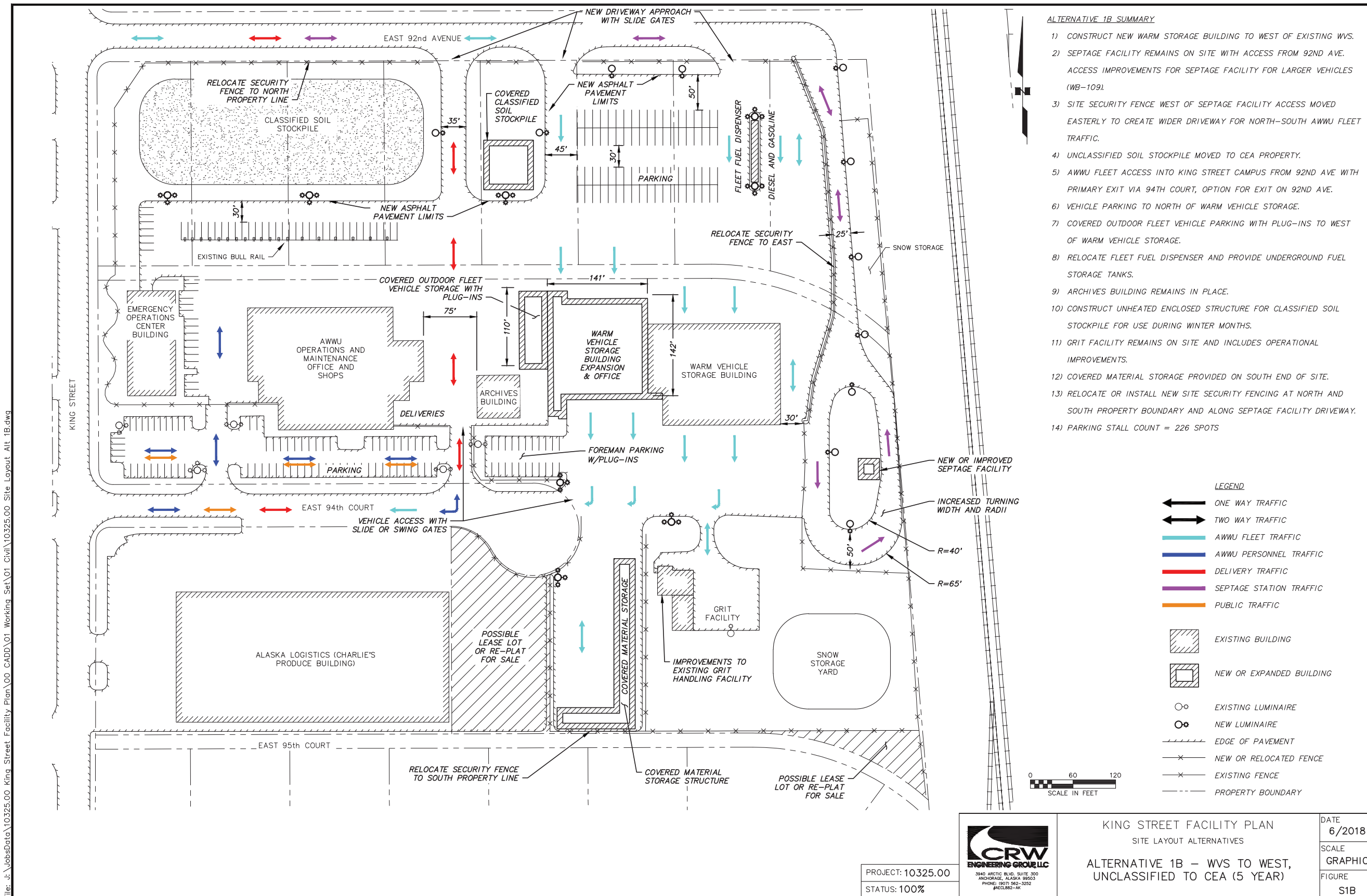


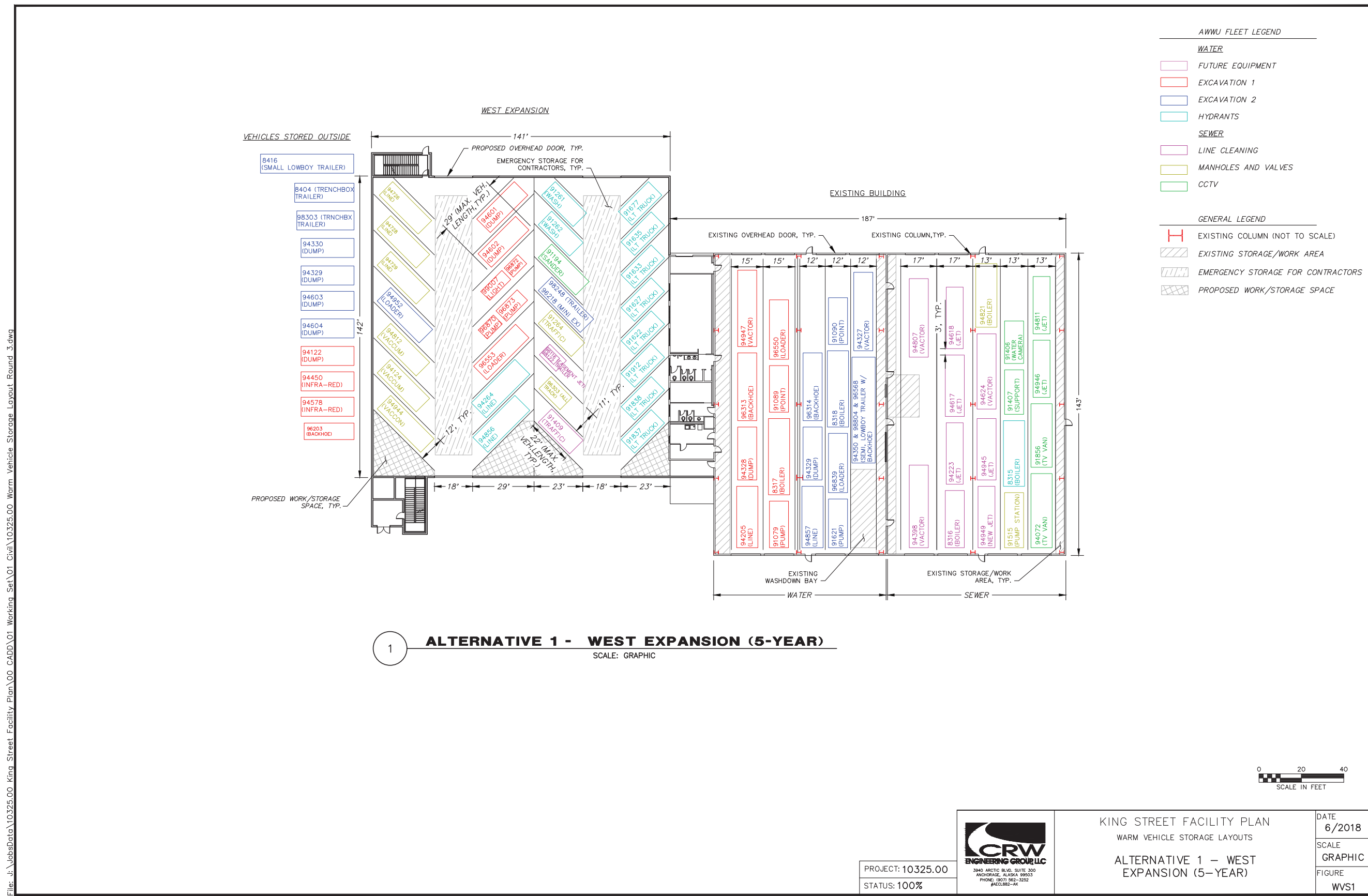
Figure 28: Site Layout Alternative 1B

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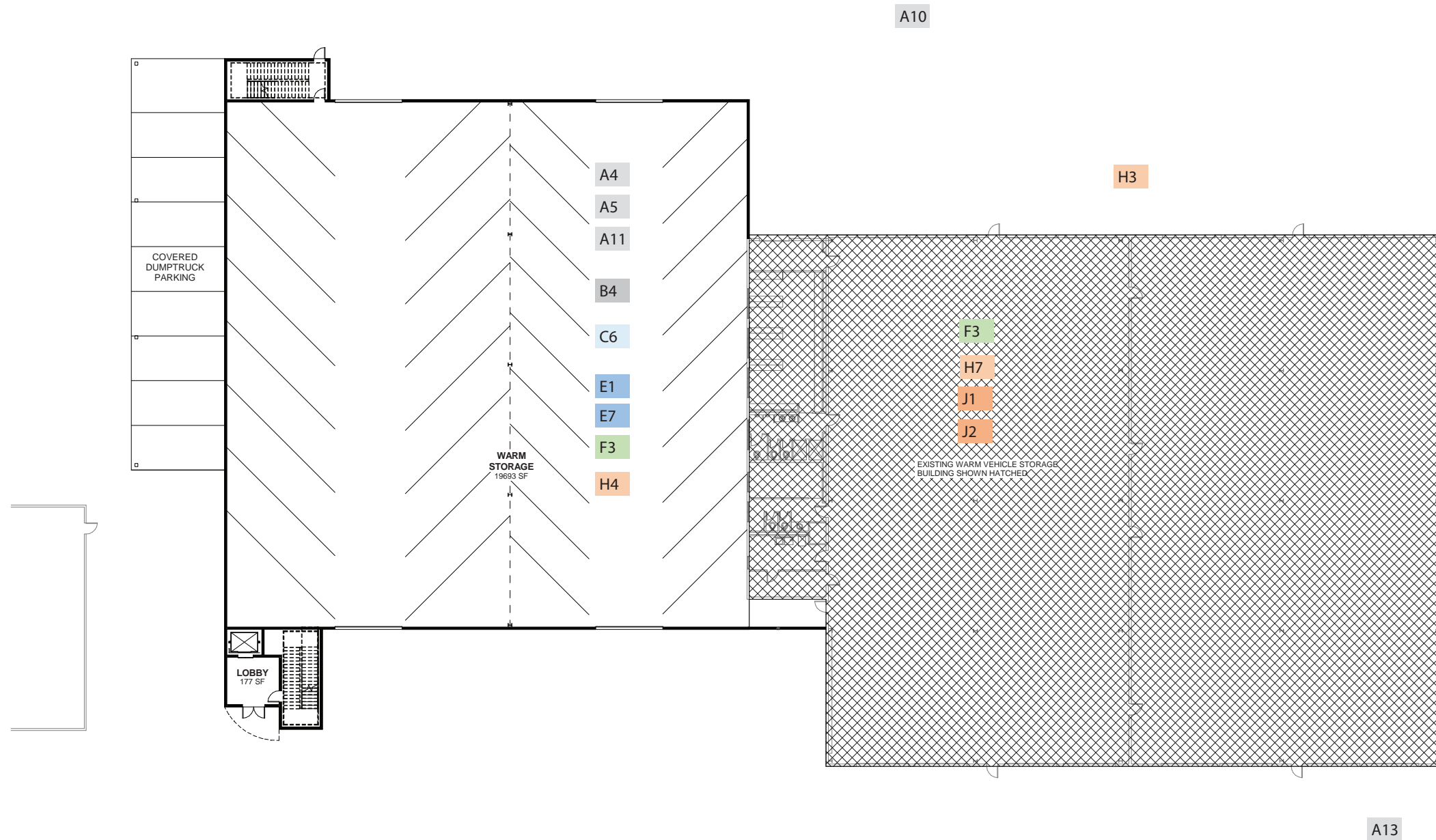
Figure 29: Warm Vehicle Storage Expansion Alternative 1 - 5-Year



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Figure 30: Phase I - Warm Vehicle Storage Expansion Level 1 Floor Plan

MASTER PLAN



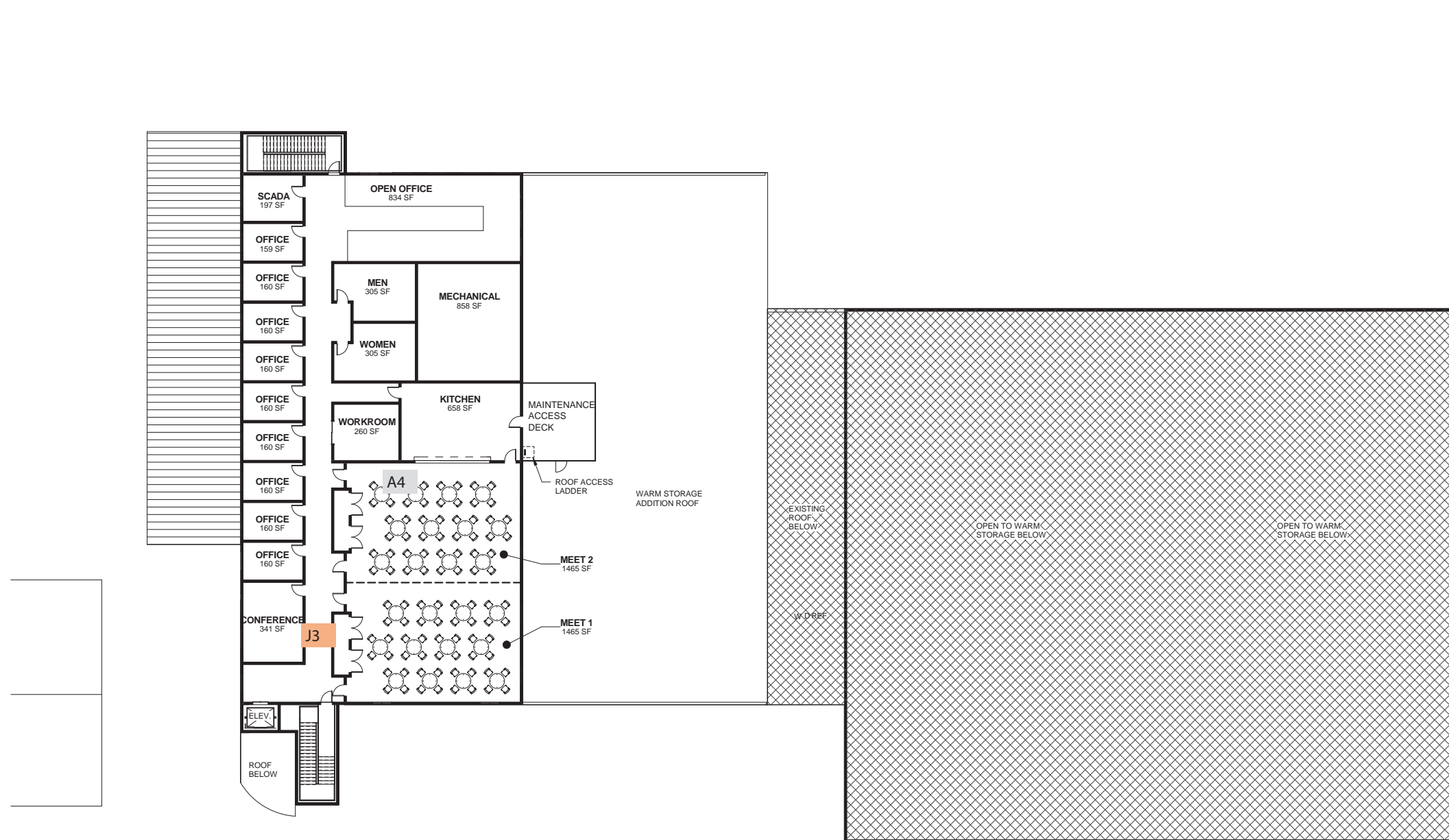
ISSUE CATEGORY LEGEND (REFER TO PROBLEM-SOLUTION MATRIX) FOR COMPLETE LIST	
A	General Operations - Site
B	General Operations - Building
C	Support Maintenance - Warehouse
D	Support Maintenance - Building and Grounds
E	Support Maintenance - Fleet
F	Support Maintenance - Mechanics
G	Systems Maintenance - General
H	Systems Maintenance - Vehicles
J	Systems Maintenance - Building
K	Systems Maintenance - Preventative

BUILDING-WIDE ISSUES	
B1-B4	

<p>Graphic Scale in Feet</p>	<p>AWWU O&M KING STREET FACILITY MASTER PLAN PHASE 1 - WARM VEHICLE STORAGE BUILDING - LEVEL 1 5-YEAR MASTER PLAN</p>	
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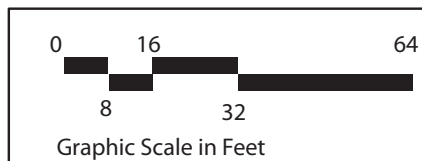
MASTER PLAN

Figure 31: Warm Vehicle Storage Expansion
Level 2 Floor Plan - 5-Year



ISSUE CATEGORY LEGEND (REFER TO PROBLEM-SOLUTION MATRIX) FOR COMPLETE LIST	
A	General Operations - Site
B	General Operations - Building
C	Support Maintenance - Warehouse
D	Support Maintenance - Building and Grounds
E	Support Maintenance - Fleet
F	Support Maintenance - Mechanics
G	Systems Maintenance - General
H	Systems Maintenance - Vehicles
J	Systems Maintenance - Building
K	Systems Maintenance - Preventative

BUILDING-WIDE ISSUES	
B1-B4	



AWWU O&M KING STREET FACILITY MASTER PLAN
PHASE 1 - WARM VEHICLE STORAGE BUILDING - LEVEL 2
5-YEAR MASTER PLAN



Figure 32: Phase II - Admin Building Addition/
Remodel Level 1 Floor Plan

MASTER PLAN

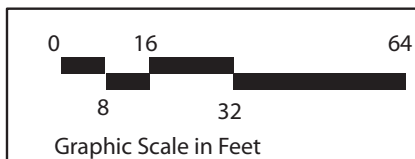
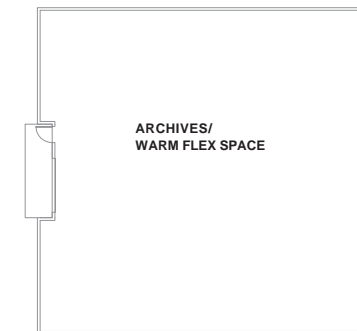


ISSUE CATEGORY LEGEND
(REFER TO PROBLEM-SOLUTION MATRIX) FOR COMPLETE LIST

A	General Operations - Site
B	General Operations - Building
C	Support Maintenance - Warehouse
D	Support Maintenance - Building and Grounds
E	Support Maintenance - Fleet
F	Support Maintenance - Mechanics
G	Systems Maintenance - General
H	Systems Maintenance - Vehicles
J	Systems Maintenance - Building
K	Systems Maintenance - Preventative

BUILDING-WIDE ISSUES

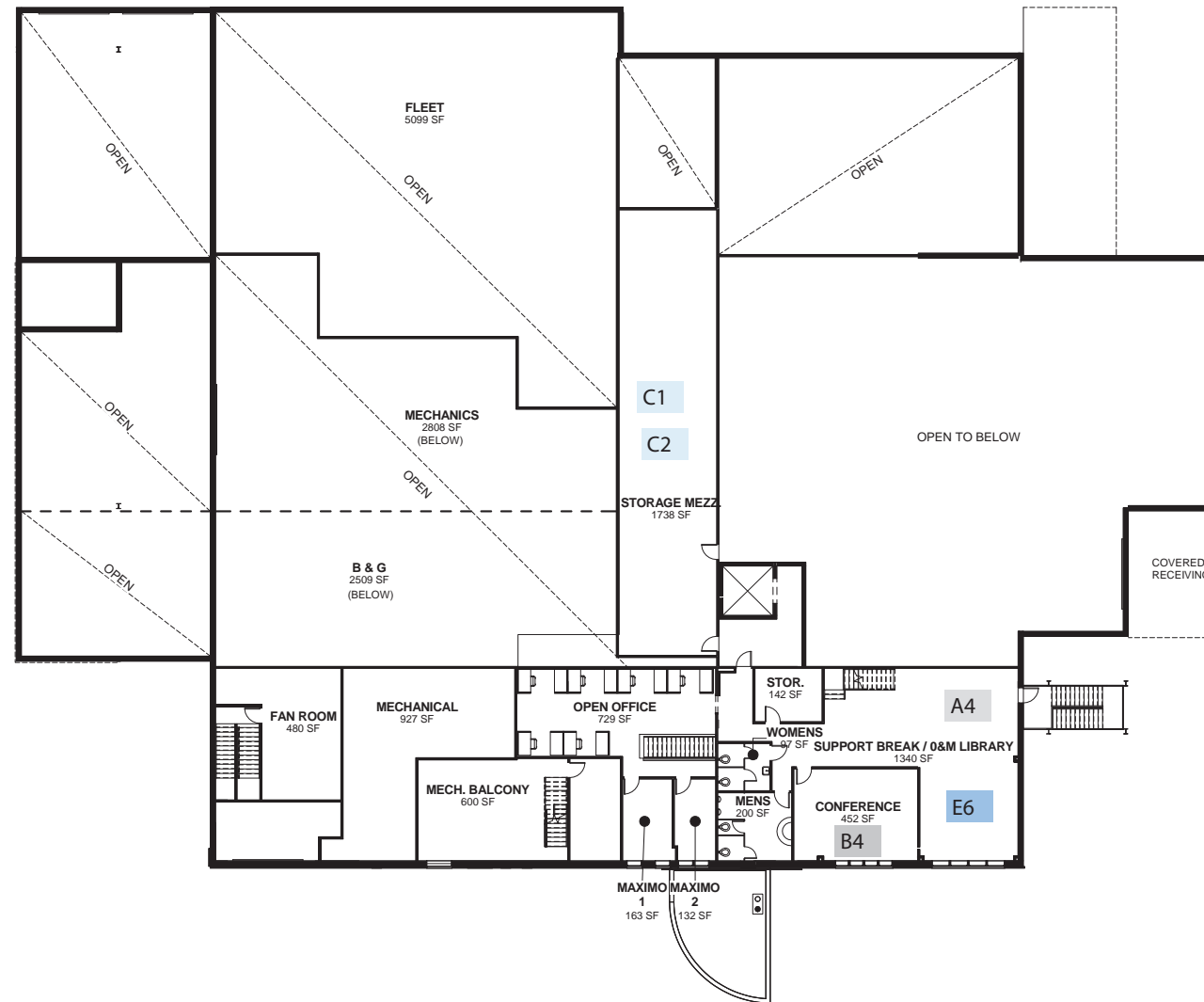
B1-B4



AWWU O&M KING STREET FACILITY MASTER PLAN
PHASE 2 - ADMINISTRATION BUILDING - LEVEL 1
5-YEAR MASTER PLAN



Figure 33: Phase II - Admin Building Addition/
Remodel Level 2 Floor Plan

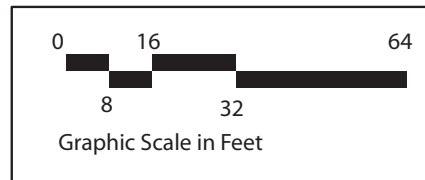
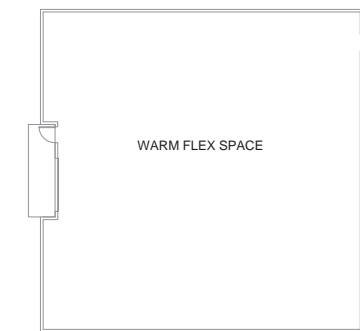


ISSUE CATEGORY LEGEND
(REFER TO PROBLEM-SOLUTION MATRIX) FOR COMPLETE LIST

A	General Operations - Site
B	General Operations - Building
C	Support Maintenance - Warehouse
D	Support Maintenance - Building and Grounds
E	Support Maintenance - Fleet
F	Support Maintenance - Mechanics
G	Systems Maintenance - General
H	Systems Maintenance - Vehicles
J	Systems Maintenance - Building
K	Systems Maintenance - Preventative

BUILDING-WIDE ISSUES

B1-B4



AWWU O&M KING STREET FACILITY MASTER PLAN
PHASE 2 - ADMINISTRATION BUILDING - LEVEL 2
5-YEAR MASTER PLAN



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20-Year Master Plan Recommendations

Site Layouts

Site layout alternatives 2A, 2B, 3A, and 3B address the expected 20-year timeframe improvements and are presented in this section. Short term, 5-year site layout alternatives are presented in the 5-year planning portion of this document.

Alternative 2A – Warm Vehicle Storage Expansion to the East, Septage Receiving Facility Moved off Campus (20-Year)

This 20-year, long term alternative would provide additional warm vehicle storage on the east side of the existing WVS building, and allow for parking on the east side of campus. In addition, all fleet vehicle traffic could enter and exit from 92nd Avenue, minimizing conflicts with delivery vehicles, and reducing congestion south of the Administration Building. The Septage Receiving Station would be relocated off campus, creating space for parking and vehicular movement and snow transport on the east side of the WVS building. Classified and unclassified material stockpiles would remain on site, readily available for emergency operations. Expanding the warm vehicle storage would allow more AWWU fleet vehicles to be stored inside, ready for efficient emergency response.

Alternative 2B – Warm Vehicle Storage Expansion to the East, Unclassified Material Stockpile Moved to CEA Property (20-year)

Similar to Alternative 2A, this is a long term option that would provide additional warm storage for AWWU's fleet vehicles. The Septage Receiving Facility would remain onsite, but access would be provided from 95th Court, south of the campus. This would allow septage hauling vehicles to circumvent campus, reducing circulation conflicts with other user groups. Fleet vehicles would enter and exit from 92nd Court and a north-south avenue would be widened on the east side of campus for snow removal. Unclassified material stockpile would be moved to the CEA property, creating 1) space for additional parking spaces to the north of the WVS building and 2) relocation of fleet fuel dispensing appurtenances to the north of the WVS building, where they can easily be accessed for refueling. In addition, the western portion of the material storage area could be leased to Charlie's Produced, generating a revenue stream for AWWU.

Alternative 3A – Warm Vehicle Storage Expansion to the West, Septage Receiving Facility Moved off Campus (20-Year)

This alternative is very similar to 2A, except the WVS building would receive further expansion to the west, freeing up space for circulation and parking on the east side of campus. For this to occur, the existing Archives Building would be relocated either offsite or to another

er part of campus. A secondary advantage of moving the Archives Building is that it would free up space in the center of campus, providing less congestion from materials delivery and a more substantial north-south avenue.

Alternative 3B – Warm Vehicle Storage Expansion to the West, Unclassified Material Stockpile Moved to CEA Property (20-year)

This alternative is similar to 2B, except WVS would be expanded further to the west. Similar to Alternative 3A, this option would require relocation of the Archives Building. This alternative proposes to route septage hauling vehicles through 94th Court, which could be an option if the 95th Court right of way is not adequate for these vehicles to enter through the south side of campus.

Warm Vehicle Storage

Alternative 2 – East Expansion (20-Year)

As funds allow, the building proposed under the 5-year plan could be expanded to include an additional 6,500 square feet of warm vehicle storage to the east. This would allow all fleet vehicles that need warm storage to be parked in a manner that they could be dispatched without having to relocate other vehicles. This would maximize efficiency for emergency responses.

Alternative 3 – Additional West Expansion (20-Year)

Similar to Alternative 2, this would be a long term expansion when funds are available. The additional 6,500 square feet would be added to the west side of the WVS building, allowing for alternative site circulation benefits on campus. All fleet vehicles requiring warm storage could be stored inside and oriented in a manner that allows them to be parked and dispatched without having to rearrange other vehicles.

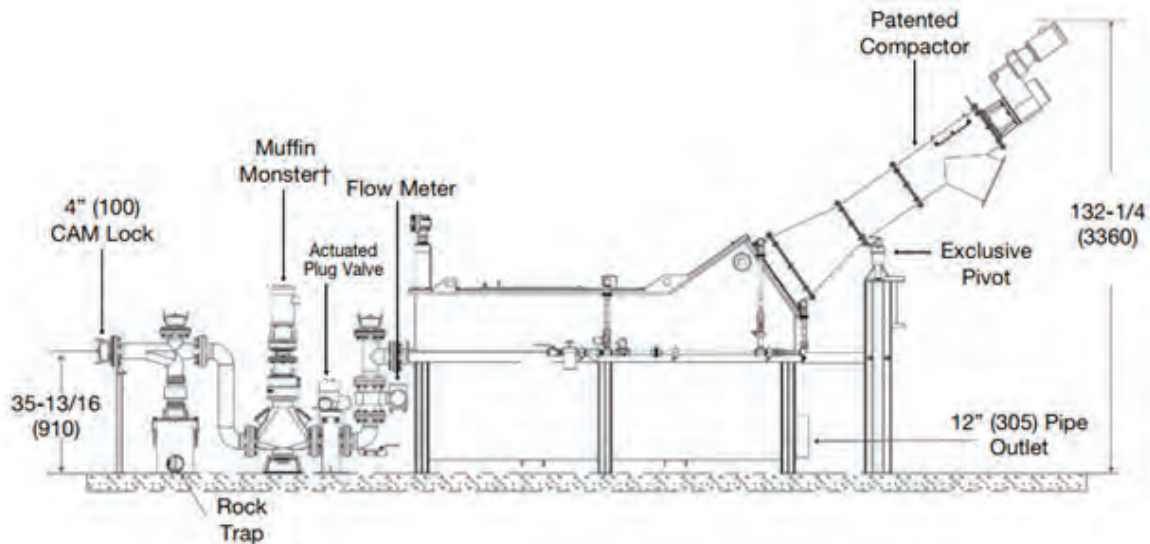
Septage Receiving Facility Relocation

Relocation of the septage receiving facility to the CEA property would allow for adequate space for a new facility that would include pretreatment (screening and grit removal), as well as access for a large variety of truck sizes. Access would be for one way traffic along 92nd Avenue from the Old Seward Highway through the facility, and returning along 94th Avenue.

The new facility could include dual septage receiving connection points, allowing two trucks to offload simultaneously. The septage would be sent through a mechanical pre-treatment process that would include a rock trap, grinder pump, washing/screening and compaction of the solids as shown in the figure below. Each discharge point would have a dedicated pre-treatment train. The solids would be discharged into a bag or dumpster for disposal at the landfill. Septage and wash water would flow through the

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Figure 34: Diagram of proposed septage pre-treatment equipment



wastewater collection system to AWWTF. This equipment can include instrumentation to assist in alerting operators of a potentially illicit discharge, as well as automated flow measurement.

The septage receiving equipment would be housed in a building for freeze protection and odor mitigation from nearby properties. The driveways where the septage haulers park to offload would be covered with awnings and have a heated pad to reduce snow removal maintenance and ice build-up. The area would be sloped with a drain to the sewer to contain spills. The cover would reduce the amount of precipitation that is allowed into the wastewater collection system.

The relocated facility could be expanded to accommodate a dedicated FOG receiving station to alleviate downstream impacts of FOG on the collection system, and treatment plant in the future.

Grit Facility Improvements

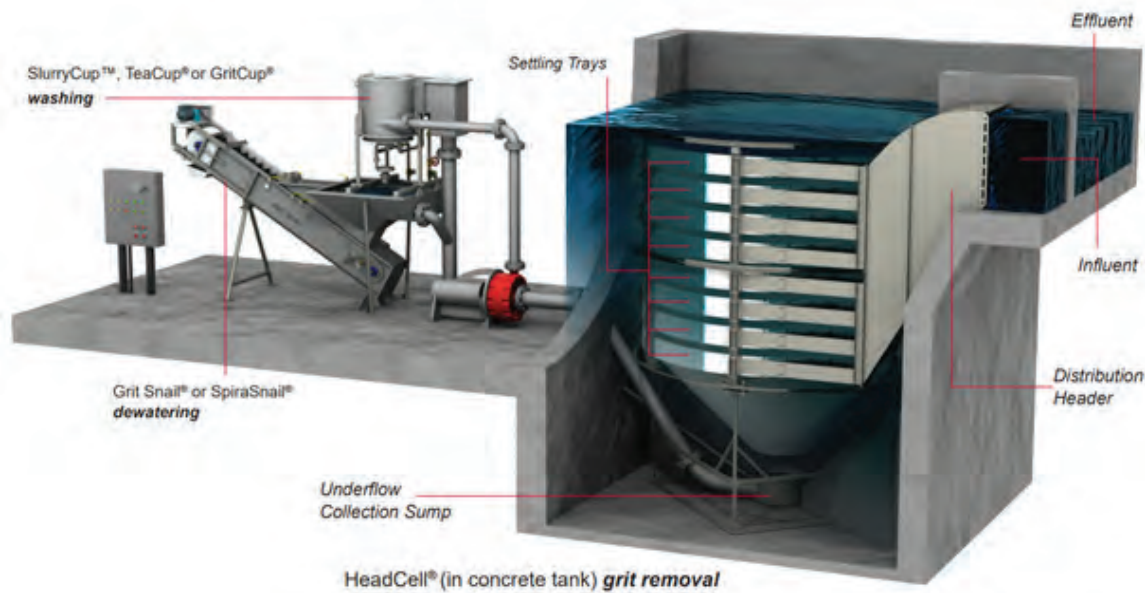
Two options are presented that have proved effective at separating solids and liquids from incoming slurry material. Both options require significant upgrades to the existing facility.

Mechanical Grit Removal

A mechanical grit removal system could be installed to receive and process waste from vector trucks. A schematic of the facility is shown in Figure 33, below. The facility would have a location where the liquid is discharged to a dedicated port on the equipment. The solids are then deposited onto a screened tank to accept the waste and exclude

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Figure 35: Schematic of proposed mechanical grit removal equipment



large rocks or other solids. From the acceptance tank, the grit and water conveys to a wash drum, where the coarse material separates from the liquids and washed. A final step would wash and separate the grit, sending the washwater and decant water to AWWTF for treatment and disposal. The system would need to be enclosed in a building to protect the equipment from the weather and freezing and limit inflow of precipitation into the wastewater system.

Similar equipment has been considered by the MOA solid waste and stormwater divisions for use in handling storm drain and street vector wastes. Installation of this equipment could be combined with the potential location of a stormwater utility at the King Street Campus.

Chemical Treatment

Chemical treatment would include modifications to the dewatering basin to add an area for chemical mixing and then two settling basins prior to discharge into the existing deep channel. The decant water from the top of the dewatering area would flow into a mixing chamber where a coagulant would be added and mixed with a vertical paddle wheel mixer. The water would then flow through two mostly quiescent settling basins where suspended solids settle before the water flows into the collection system. This would require modifications to the area around the existing grit facility to allow access for a vector truck to remove the settled solids for drying and disposal.

Classified and Unclassified Soil Material Storage

Classified material storage on the King Street campus is recommended for the long term

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solution since this material is continually used. AWWU may elect to construct a larger and more permanent covered storage structure to house larger quantities of material for the winter months. The structure could include walls to better shelter the soil material from precipitation. Sufficient interior lighting is necessary to aid in placement of new material and removal for use.

The re-location of unclassified material to the CEA property is recommended if not already included with the short term selected solutions. Creating more usable space within the King Street campus is an important consideration to account for evolving improvements to this facility as additional buildings or site improvements are likely over the next several years.

Contaminated Fuel Cleanup

The opportunity to cleanup legacy fuel spills is whenever the existing fuel station is relocated elsewhere onsite and when related site work disturbs subsurface soil to expose any contaminated soil.

ARRC Spur

AWWU conducted an investigation in 2016 to review the possibility of extending a railroad spur into the King Street campus as the primary method to import classified material and haul off unclassified material with the outbound rail cars. This study reviewed potential material sources between the Matanuska Susitna Valley and Anchorage and the associated cost to purchase and transport. Similarly, waste locations between Eagle River and Matanuska Valley were investigated to deposit spoil material and their associated costs. The study determined only 10 rail cars could be moved onsite for material import and export, which was not economically feasible due to the ARRC transportation fee in 2016 and the capital cost to construct this spur line. Future capacity limitations and closure of existing disposal sites within and near the Anchorage Bowl may allow the economical feasibility of this railroad spur into the King Street campus. This should be revisited at least every 5 years, or as specific situations arise that would limit waste material deposition.

Stormwater Utility Moving to King Street Campus

The opportunity to incorporate the Municipal Stormwater Department to the King Street O&M Facility is a consideration being developed between leadership teams at AWWU and MOA Street Maintenance. There is an economical advantage to the Municipality to co-locate these services with the AWWU facility as it will reduce redundancy of fleet and equipment between the two departments. Space within a future addition of WVS building should be considered now to anticipate and accommodate a future building size in the 20-year timeframe.

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20-Year Site Plan Exhibits and Building Diagrams: See included exhibits and diagrams on the following pages that graphically represent King Street Facility improvements.

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Figure 36: Site Layout Alternative 2A

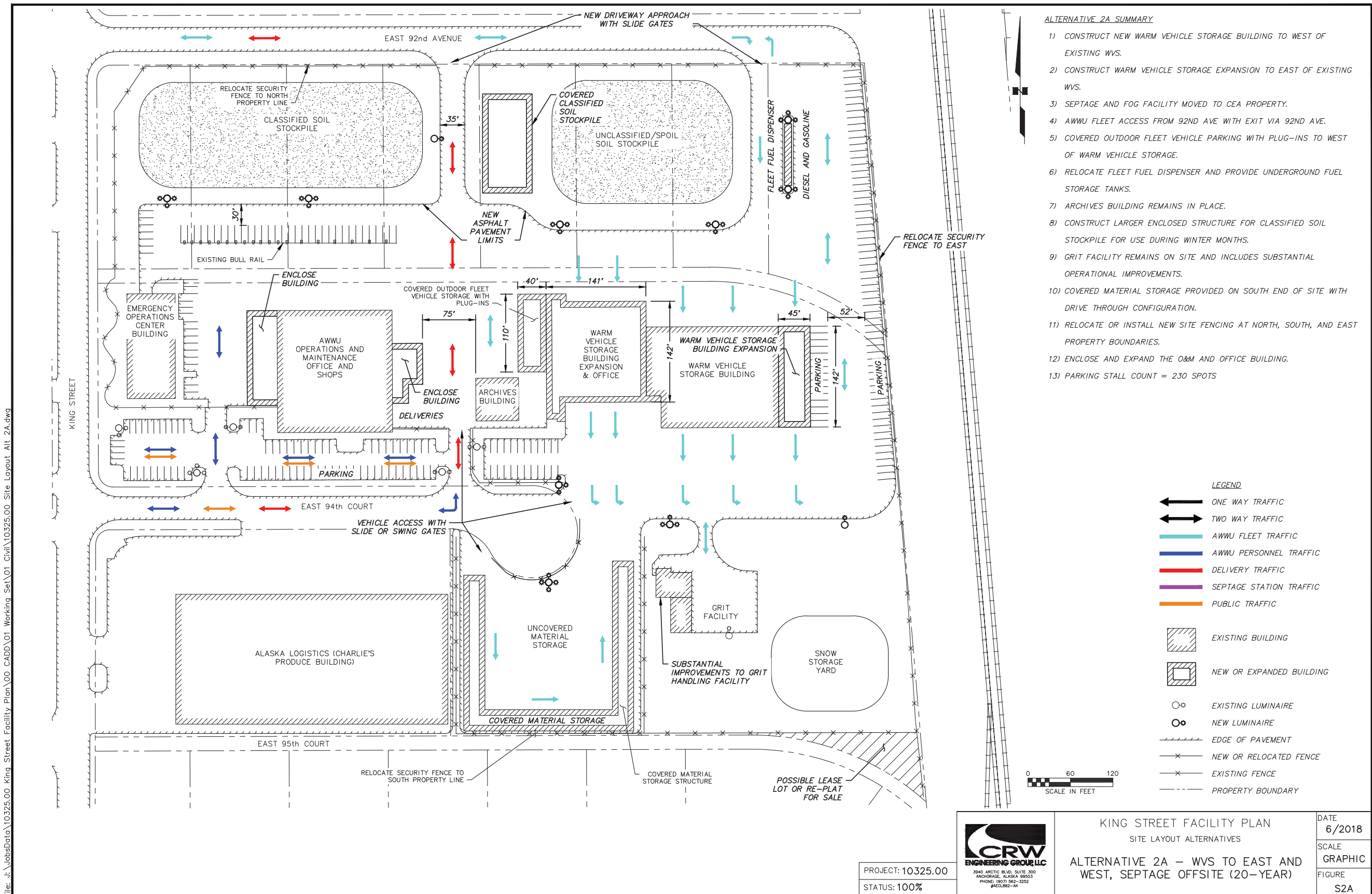
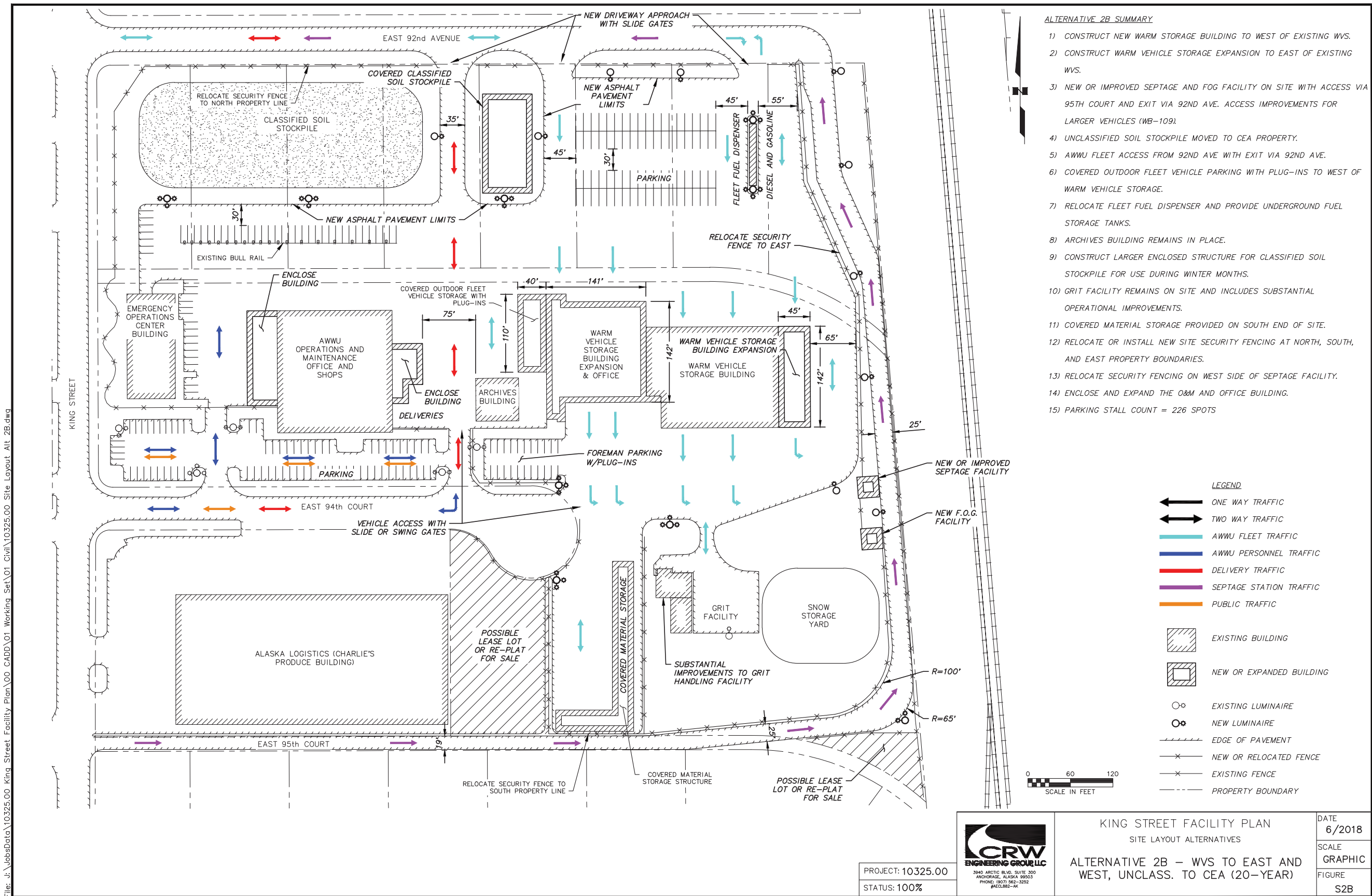


Figure 37: Site Layout Alternative 2B

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Figure 38: Site Layout Alternative 3A

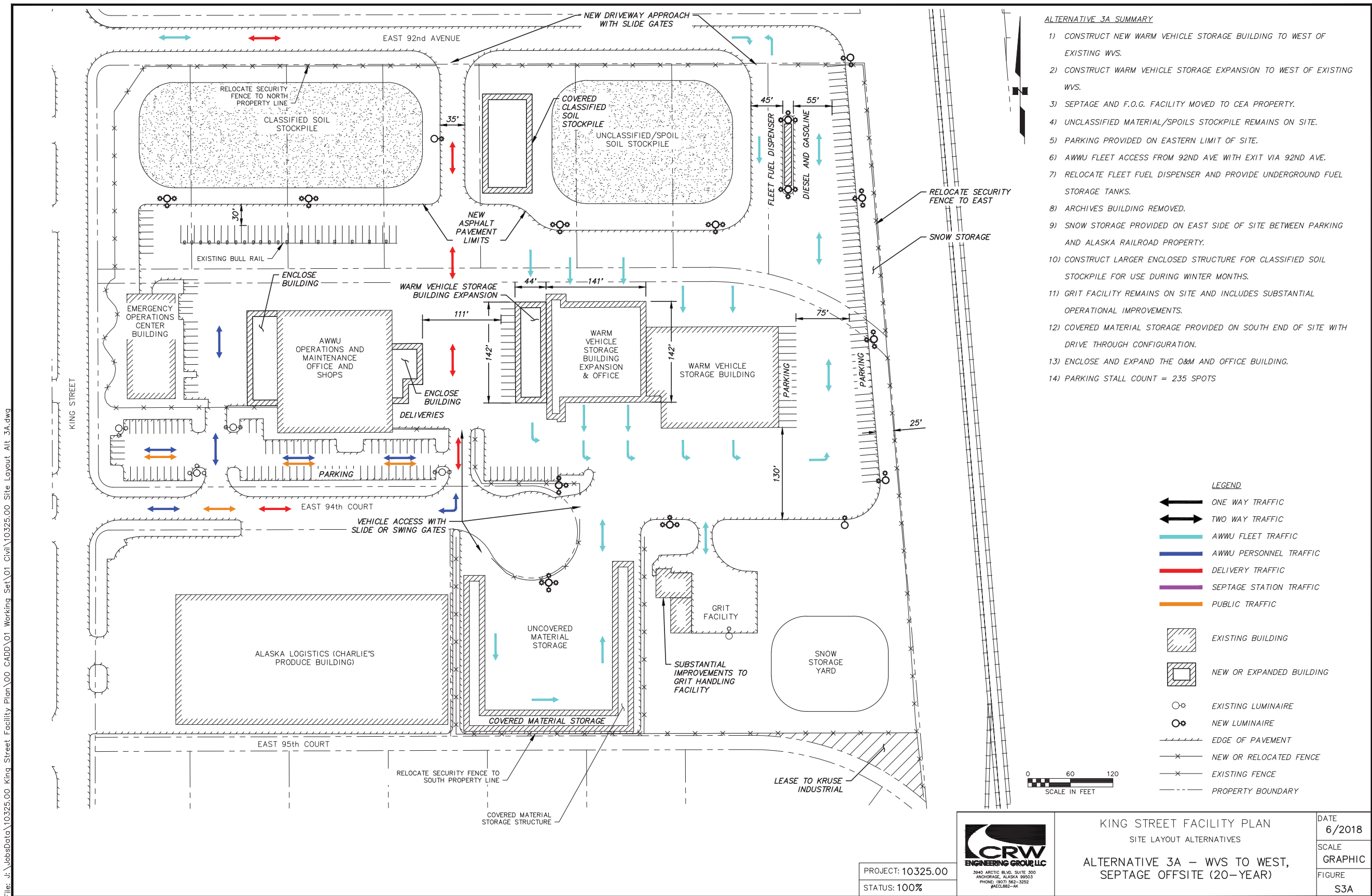
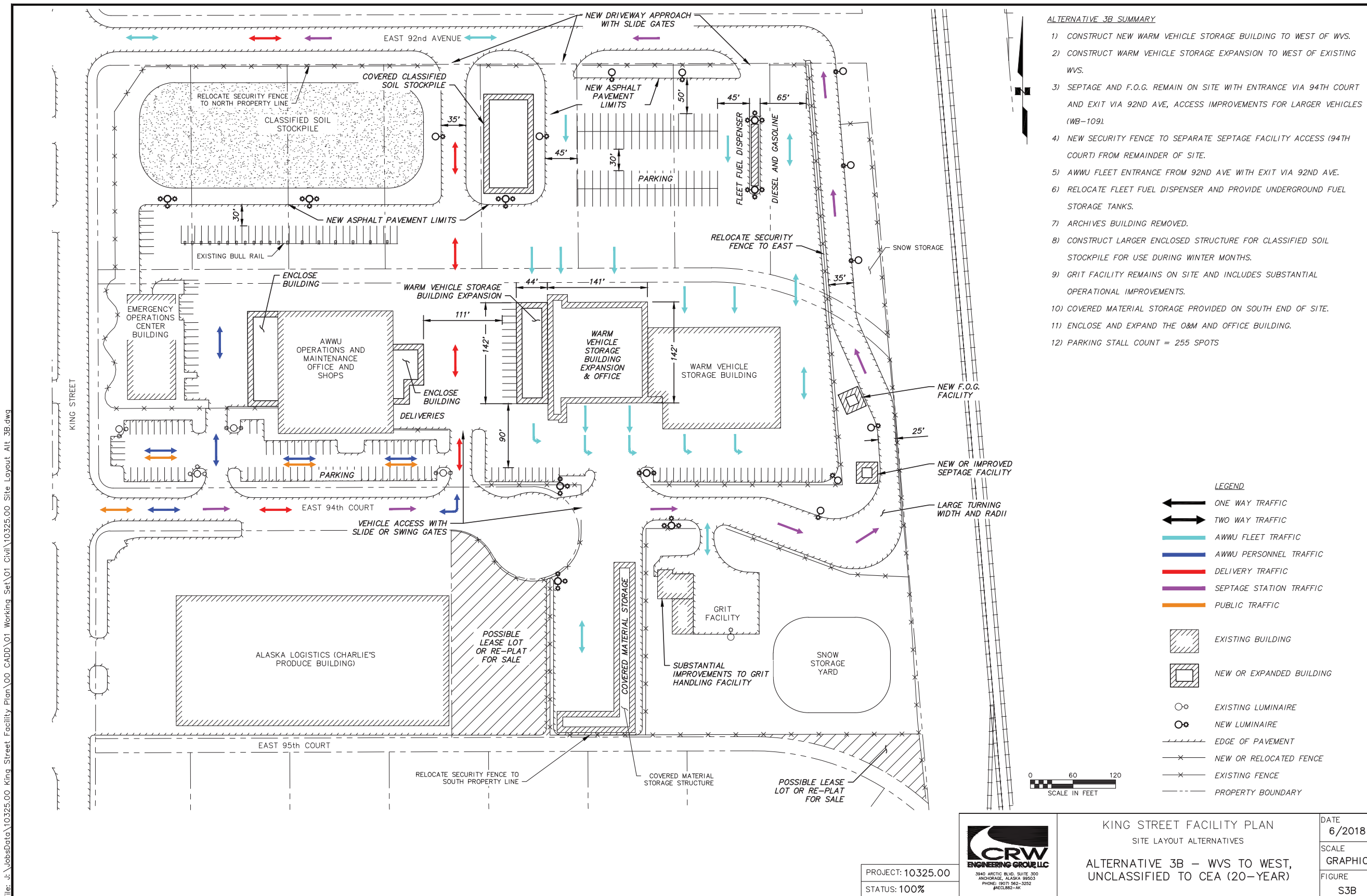


Figure 39: Site Layout Alternative 3B

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Figure 40: Warm Vehicle Storage Expansion Alternative 2

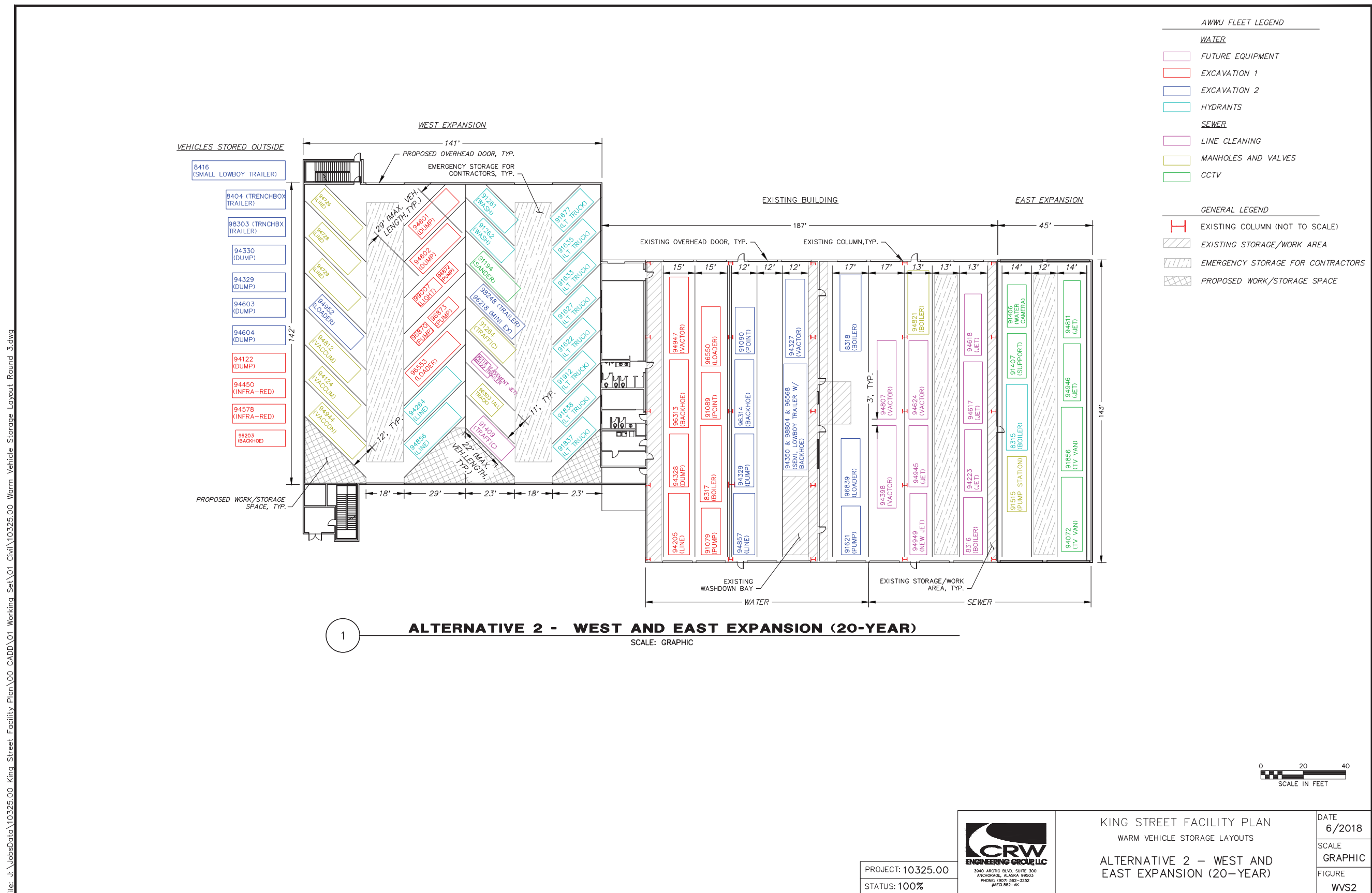
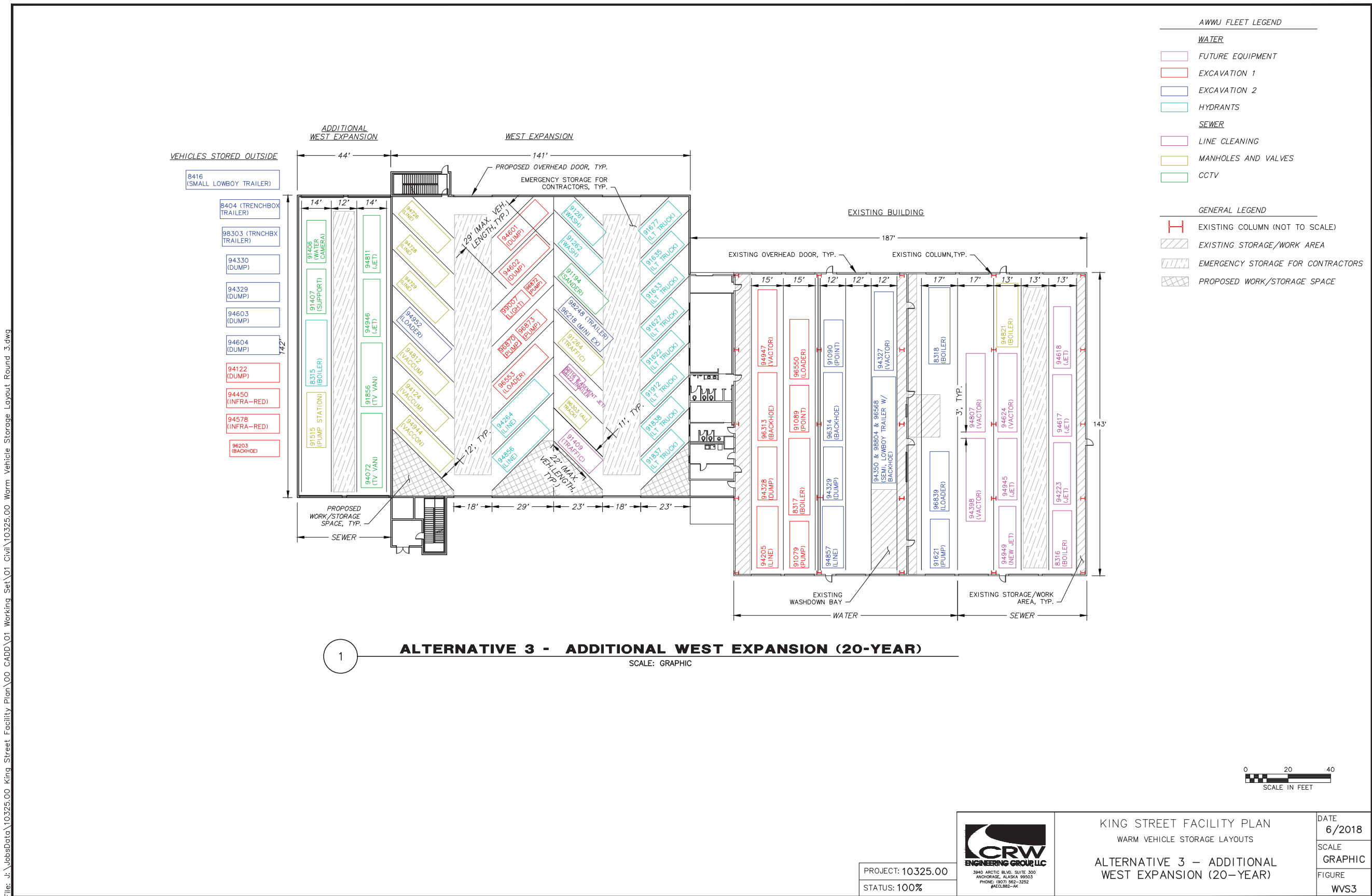


Figure 41: Warm Vehicle Storage Expansion
Alternative 3

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Individual projects

This section summarizes the improvements shown on the master plan drawings and narrative into separable projects AWWU may use as a tool for project planning and defining rough order magnitude project costs. The projects provide a menu of options to select from based on discrete projects that are logically defined by location or problem. A total of seven independent projects are defined using a number system and in the order of priority.

Project 1: Construct New Warm Vehicle Storage Building

Project 2: Remodel and Expand Administrative Building

Project 3: Purchase Chugach Electric Association Property

Project 4: Fuel Island, Site Fencing, Relocate Spoil Pile, and Expand Parking Area

Project 5: Covered Classified Soil Shelter

Project 6: Covered Material Shelter for Parts and Components

Project 7: Septage Facility and Grit Facility Improvements

Project 1: Construct New Warm Vehicle Storage Building

This project consists of a constructing a new 20,000 square foot pre-engineered Warm Vehicle Storage building to house new and existing vehicles and includes a 10,000 square foot second story with office and meeting space. Developing complete engineering documents defining the improvements and obtaining the required MOA building permits are part of this project cost. This building improvement will include the following main features:

1. Concrete foundation, concrete floor, and CMU walls
2. Heating, cooling, and ventilation system
3. New water and sanitary sewer services
4. New electrical and telecommunications services
5. Backup electrical generator
6. Install asphalt pavement north and west of new and existing WVS building. This includes removal of subgrade soil and replace with classified material.
7. Remove and remediate contaminated subsurface soil near the northwest corner of the existing WVS building.

Reorganization of the existing Warm Vehicle Storage building layout includes increased spacing between vehicles and equipment for better maneuvering and personnel access. Overhead vehicle doors, man doors, and wall sections will be removed and replaced with new overhead doors to better align with the revised parking layout.

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Project 2: Remodel and Expand Administration Building

The remodeling and expansion of the existing Administrative Building includes several minor and major improvements. Developing complete engineering documents defining the improvements and obtaining the required MOA building permits are part of this project cost. This building improvement will include the following main features:

1. Replace the south side face of building with new insulated wall construction.
2. Replace the building HVAC system.
3. Install elevator.
4. Relocate several interior walls on the second floor.
5. Mechanical and electrical improvements on the second floor.
6. Relocate and remove several interior walls and create new office within the first floor spaces.
7. Remove mechanic pit.
8. Enclose building to add the following spaces:
 - » Fleet Bay and Tire Bay expansion
 - » Mechanics shop expansion
 - » Warehouse expansion
9. Install permanent backup generator to accommodate SCADA access point, or relocate infrastructure to Warm Vehicle Storage expansion.
10. Repave existing asphalt parking area. This includes 30 inches of subgrade removal and replacement with classified material.
11. Remove existing sidewalks and replace with heated PCC sidewalks.
12. Install a new covered canopy entrance.

Project 3: Purchase Chugach Electric Property

The cost of purchasing the CEA property includes the land cost, the preliminary planning and permitting efforts, and site development costs for site preparation and vehicular access. Developing complete engineering documents defining the improvements and required MOA building permits are part of this project cost. The following items are estimated to be part of the project cost:

1. Prepare planning documents and re-plating per MOA code and requirements
2. Cost for property
3. Construct approximately 500 linear feet of 24-foot wide asphalt pavement roadway with curb and gutter roadway and an attached sidewalk to site via E 94 Court. This

MASTER PLAN

include storm drain piping and manholes.

Project 4: Fuel Island, Site Fencing, Relocate Spoil Pile, and Expand Parking Area

This project includes several site improvements to the northeast portion of the property to enhance traffic flow, increase safety of vehicle – pedestrian interaction, and increase the number of vehicle parking stalls. Developing complete engineering documents defining the improvements and required MOA building permits are part of this project cost. The following items are estimated to be part of the project cost:

1. Remove existing above ground fuel tanks, pumps, and associated fuel plumbing and electrical services.
2. Remove petroleum contaminated subsurface soil and remediate per approved ADEC plan.
3. Construct new elevated fuel island with 2 dispensers for diesel and 2 dispensers for gasoline. This includes two 10,000 gallon below grade fuel tanks and associated electrical power and fuel pipe plumbing between the tanks and fuel pumps.
4. Remove existing chain-link fence and gates along the north property line and along half of the east property line.
5. Install new chain-link fencing on the east property line and north property line including 3 automatic cantilever slide gates for vehicle access.
6. Remove the spoil material stockpile from the King Street campus and relocate to the CEA property.
7. Asphalt pavement for the parking lot, fuel island, and driveways between East 92nd Avenue to where the asphalt paving for the WVS building ends.
8. Install multiple light poles.

Project 5: Covered Classified Soil Shelter

The covered shelter for classified material storage is a year-round use structure, however the main purpose is to house material needed during the winter season to avoid freezing and snow covering. The 5-year plan identifies a 4,900 square foot shelter, with an additional 4,900 square feet for the 20-year plan. The unheated, pre-engineered shelter will include the following:

1. Metal roof and walls on three sides. The fourth side would have a partial wall with an enlarged opening of at least 24 feet allowing equipment and truck traffic passage.
2. Concrete foundation for column and building supports.
3. Interior lighting and exterior lighting.
4. Gravel floor.

Project 6: Covered Material Shelter for Parts and Components

The covered (cold) shelter will store a variety of water and sewer parts and components with many different sizes and shapes. The elevated racks or platforms within the shelter will have the ability to raise and lower specific sections independently to provide the maximum flexibility to store the various materials. The 5-year plan identifies a 19,000 square foot shelter, with no updates for the master plan. The unheated, pre-engineered shelter will include the following:

1. Metal roof and walls on three sides, with open front the entire height of the structure.
2. Concrete foundation for column and building supports.
3. Electrical service for interior fixtures and exterior light poles.
4. Concrete or asphalt pavement floor.
5. Asphalt paved open area for site circulation and access.

Project 7: Septage Facility and Grit Facility Improvements

The septage facility and grit facility includes improvement for the 5-year plan and the 20-year plan.

The 5-year plan for the Grit Facility includes the following:

1. Install vertical mesh screens at the existing weir and sluice gates.
2. Install multiple check dams within the existing dewatering trough, located between the gates and sewer inlet.

The 20-year plan for the Grit Facility includes the following:

1. Install a mechanical grit removal processing station, such as a Headcell system. This would require concrete pad for the system to rest on and a large concrete sump to house the settling trays.
2. Electrical service for the mechanical grit removal station and lighting.
3. Water service for wash down.

The 5-year plan for the Septage Facility includes the following:

1. Widen the oval portion of the driveway to accommodate a large truck and trailer combination (WB109).
2. Install enhanced pre-treatment facility using mechanical separation.
3. Install FOG receiving station.

APPENDIX A

PLANNING MEETING MINUTES



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King Street O&M Facility Master Plan
Planning Charrette – **Meeting Minutes**
Day 1: June 13, 2017

Micah, Pete, Andrew, John McCool, and Garrett (of the design team) met with John Rescober, Mark, Lance, Tim, Steven, Robert, and Reese (AWWU) in the CRW 3A Conference Room for Design Charrette No. 1 for the King Street Facility Plan.

Resources:

Site Map:

Problem Statement Spreadsheet: <J:\JobsData\10325.00 King Street Facility Plan\04 Meetings n Trips\03 Meeting Agendas\June 13 - 14 Planning Charrette\Problem Statement Spreadsheet - CRW edits.xlsx>

Sign in Sheet: <J:\JobsData\10325.00 King Street Facility Plan\04 Meetings n Trips\03 Meeting Agendas\June 13 - 14 Planning Charrette\2016-06-13 Charrette No. 1 Signin Sheet.PDF>

Introduction:

The group discussed short term (5 year) and long term (20 year) priorities for the facility, which included structures, function, future plans, and overall traffic flow. A map of the facility with 3D buildings to scale was available to facilitate discussion.

Mark Corsentino began by describing the purpose the project, explaining that previous reports of this nature did not account for the long term needs and plans for AWWU's use of the site.

Topics of Note:

- AWWU is considering purchasing the CEA property east of the King Street Facility for future expansion. This site could potentially be used for material storage, relocation of the grit facility, relocation of the septage receiving station, and to site a high production well in the future.
- The location and size of the warm storage structure is critical to determining site layout.
- The design team requested an inventory of all fleet vehicles in order to develop a plan for storage and layout on site.
- Reese explained that the IT handles business needs and ICS handles plant operation and SCADA.
- The group discussed issues, whether they were critical or not, potential solutions, and short or long term priority. These are organized in the Problem Statement Spreadsheet (linked above).

Short Term Priorities/Concerns (5 years):

1. Additional warm storage for AWWU fleet vehicles.
2. AWWU anticipates a higher demand for grit disposal as a result of large diameter pipe cleaning throughout Anchorage.
3. Fuel Station is on a contaminated site. Mark recommended installing buried tanks to conserve space on site. AWWU also expressed a need for both gasoline and diesel fuel dispensing. We discussed two separate islands - one for diesel and one for gasoline. AWWU gets a steep discount for buying bulk fuel (road taxes are eliminated), so is not interested in using a commercial vendor.
4. Freight trailers at Charlie's Produce extend into the 94th Ct ROW, cutting off vehicle traffic to and from the AWWU facilities.
5. All traffic enters the site on 94th Ct because there is no automatic security gate installed on 92nd Avenue.
6. Backup power at the EOC Building and O&M Building is insufficient.
7. Additional office space may be required if treatment/pre-treatment department at the Ship Creek WTP is relocated or if IT/Purchasing/HR/Field Services are relocated from the 3000 Arctic location.
8. The 12" DI sewer main that flows from the septage facility to the east, under the Alaska Railroad frequently backs up and requires flushing.

9. Warm storage for the portable generators. Currently, warm storage is only provided for one of the trailer mounted generators (in the winter).
10. Designated space for tire storage.
11. Enclose the east bay of the O&M building.
12. Reorganize office space so that superintendents and foreman of each department are in the same location.
13. AWWU needs a multi-use conference room with capacity for at least 150 people. This space could potentially be used for up to 300 people. Sufficient parking needs to be provided for large gatherings.
14. An organized staging area for pre-purchased materials for large capital projects.
15. Power and overhead lighting throughout the facility.
16. The site layout, including parking areas, needs to be designed with snow removal and storage in mind.
17. Pavement to the west of the O&M building is not suitable for heavy vehicle traffic.
18. Expanding the warm storage building, designating the second floor for office space and a large conference room.
19. Maximo is closely tied with all of the O&M divisions. Office space should be provided for Maximo on campus, but they do not necessarily need to be close to the other divisions.
20. If the Charlie's Produce lot were purchased, this building could potentially be used for warm storage.
21. The connexes located east of the O&M building need to be evaluated to determine their purpose and need.
22. The archive building could potentially be a good location for portable generators and truck storage. It could also potentially be used for Buildings & Grounds group.
23. Safety - Mark is concerned that the current configuration of vehicles on site is a safety hazard. A layout that provides one way traffic would be beneficial.
24. Space for storage of hazardous and flammable materials needs to be provided in new buildings.
25. About 1/2-acre to the south of the winter snow dump is currently occupied by another business. Mark is working to re-claim this space.
26. The east half of the existing warm storage building does not have water service.
27. Boilers at the O&M building are reaching the end of their serviceable life.
28. Fleet services currently has 4 working bays, a 5th bay is desired.
29. A consideration is to utilize Warm Storage Building for minor vehicle service such as oil changes.

Long Term Priorities/Concerns (20 Years):

1. A new MOA Stormwater Utility, which is currently being evaluated by MOA, may be placed under AWWU since they have similar equipment and functions. Office space for the stormwater utility could be located at the CEA lot to the east of the King Street Facility.
2. Septage receiving station at CEA property.
3. Grit disposal facility at CEA property can be evaluated at a later date.
4. A north-south route is needed on site between 92nd Ave and 94th Ct.
5. The 95th Ave ROW is currently 20' wide. This could be replatted to create a 50 or 60-ft ROW so that 95th Ave can be used for large truck/septage access.
6. Railroad Spur for material transport has been evaluated and is not economically feasible. It is also highly dependent on future material disposal costs in Anchorage.

Site Layout Consideration and Discussion:

- Construct a road east of the vehicle warm storage building to facilitate north-south flow on site.
- 92nd Avenue designated for fleet vehicle and heavy vehicle access.
- Fuel dispensing facility located adjacent to 92nd Ave.
- Warm Storage:
 1. Relocate building to the North
 2. Add to the existing building (1/2 to the east and 1/2 to the west)

King Street O&M Facility Master Plan
Planning Charrette – **Meeting Minutes**
Day 2: June 14, 2017

Micah, Pete, Andrew, John McCool, and Garrett (of the design team) met with John Rescober, Mark, Lance, Tim, Robert, and Paul (AWWU) in the AWWU King Street Facility O&M Building "High-back" 2nd Floor Conference Room for Design Charrette No. 2 for the King Street Facility Plan.

Resources:

Site Map:

Problem Statement Spreadsheet:

Sign in Sheet:

Introduction:

During the second day of the Design Charrette, the group focused on potential solutions for the challenges at the AWWU King Street Facility. Mark emphasized that the goal for long term (20 year) planning is to make sure that near term plans do not interfere with potential long term plans on the campus.

Topics of Note:

- CEA Property Use:
 - Paul, who was not able to attend day 1 indicated that CEA is willing to sell the property east of the railroad.
 - Potential CEA property uses:
 - 5 year - High production well, clean spoils storage
 - 20 year - septage and grit facility(?)
- Charlie's Produce:
 - As of Dec. 2016, Charlie's produce is not interested in selling their property south of 94th Court.
- Additional emphasis was placed on the importance of co-locating all personnel from each work group (superintendents, foremen, laborers)
- 95th Court needs to be paved/improved if it is to be used to access the grit facility and septage station.
- Property Lines/Re-platting
 - Alaska Railroad has indicated in writing that they would be willing to abandon the railroad easement when the King Street Facility land is re-platted.
 - MOA would need more ROW on 95th Avenue to upgrade the roadway
 - AWWU would like the Master Plan to discuss re-platting and benefits/complications with 95th Court
- Restoration Specialist (within the systems group)
 - Responsible for repaving and restoring front yards, etc.
 - Does not necessarily need to be co-located with other systems groups.

Discussion of Proposed Solutions (Alternatives)

Mark emphasized the need to include a "Do Nothing Alternative," which would not provide for future growth of the utility, would not provide response for emergency events, and would not allow the additional needed space for materials storage. Also, the problem statements within the Master Plan need to include rationale behind the issues.

- Archives building can be removed and relocated to free up space to expand the O&M building and the Warm Vehicle Storage (WVS) - Note that Brett Jokela wants to reuse the shelving in the archives building. Brett has also been in favor of tent structures in the past.
- Warehouse/O&M Building/Support:

- Install walls on the covered spaces on the east and west sides of the O&M building.
 - Moving the archives building would free up space for delivery on the east side of the O&M building.
 - Consider making space to store the portable backup generator in the warehouse building.
 - The mechanics area of the warehouse has plenty of space.
 - Building and Grounds could be relocated to the SW corner of the building, expanding the existing footprint to be square with the covered space further north.
 - A lunch/break room needed.
 - Admin needs to stay on the main floor to greet visitors.
 - Best to have one break room per building rather than small individual break rooms.
 - Support foremen and Maximo should be co-located.
 - 23 total people in the Lance's Group for Support/Admin (consider temporary work stations, or hotels as Mark calls them)
 - Buildings & Grounds Group = 4 people.
 - Warehouse Group = 4 people (2 warehouseman, 2 expeditors)
 - Fleet Services Group = 5 people (1 foreman, 4 mechanics)
 - Foremen office spaced could be located centrally in the shop areas.
 - HVAC will be upgraded with the proposed changes.
- Warm Vehicle Storage/Systems
 - Bathroom and locker space needed.
 - A multi-use area/conference room on the second floor will need to be sized for at least 100 people (consider breaking into thirds). This will maximize the value of the foundation and roofing systems.
 - Approximately 10 offices could be located along the western wall of the second floor.
 - The 16-ft tall doors in the warm storage building are sufficient.
 - Vehicle Storage:
 - Vehicle stalls should be oriented diagonally to allow for arrival/departure independent of parking order.
 - Prioritize which vehicles absolutely need to be in the warm environment.
 - Show a layout for mandatory, ideal, and future growth.
 - Water and sewer service vehicles should be separated.
 - The area north of the warm vehicle storage needs to be regraded for drainage.
 - Traffic Flow Considerations
 - Septage haulers
 - Material deliveries
 - Employee parking
 - Systems trucks
 - Per Mark, the general campus layout that makes sense is (West to East)
 - ICS
 - Support/Admin
 - Systems

Looking Forward

- Provide AWWU with preliminary site layouts and solicit feedback before publishing a draft report.
- Provide AWWU with a rough outline of the Master Plan before digging into details.
- Smaller scale meetings will serve the client best before the majority of the document is finished. After a draft is submitted, larger scale meetings can occur.
- Show the concepts behind the plan before developing detailed cost estimates.
- Keep the draft report loose so that people can still provide feedback without feeling pigeon holed.
- Lance will provide a vehicle list update (design team should provide him with inventory from last year).

- Looking out 20 years, where would the buildings expand and how will that impact site flow/traffic?
- Septage receiving station may be moved to CEA property.
 - The new septage facility will require improved screening if the Turpin facility is abandoned.
 - A separate meeting with Rebecca Venot should be scheduled to discuss the future grit and septage facility plans.
- If Pre-Treatment and Field Services personnel were to move to the King Street facility, they would likely be located in the Warm Vehicle Storage/Systems building
- SWPPP and SPCCC need to be updated with any site changes.
- Micah and Paul will meet to discuss platting and planning within the property.
- Include a work group flow chart (similar to that provided at the Charrette) with the Master Plan.

Schedule

Ideally, Mark would like to start design in Fall 2018 and construction in Summer 2018. Replatting needs to be considered in the schedule.



Client Meeting

Date: 2/21/2018 10:30 AM - 12:00 PM
Invitees: Pete Bellezza, John Rescober, Mark Corsentino, John McCool, Garrett Burtner, Lance Lampert, Andrew Gallagher, Robert Dundas
Attendees:
Reporter: Pete Bellezza – CRW Engineering Group, LLC
Location: King Street First Floor Conference Room
Project: King Street Facility Plan
Subject: 65% Comments Review

Comments:

Micah, Andrew, Garrett, JMcCool, and I met with JRescober, Mark, Lance, and Robert in the King Street first floor conference room to go over Mark's notes on the 65% draft submittal, including his notes on the proposed Admin Building layout figures.

Following are misc comments:

- 1) The Warehouse space will include storage for spare pumps and critical parts from capital projects. Mark noted that there is currently an issue where spare pumps may not be used for 4 years, but they only have a 2 year warranty. This issue will begin to be addressed through better inventory controls.
- 2) There are a number of locations that Building & Grounds can be moved to free up this space for the Warehouse. One option is to split the Mechanics space in two parts and put B&G in the south half including the current Maximo area. B&G could also use the space with the roll-up door at the SW corner of the Admin Building for their sand truck. The Archives Building is another option.
- 3) Lance suggested enclosing the roofed areas on the west side of the building and extending the roof on the southwest corner of the building so that the west side is generally square.
- 4) It was generally agreed that the Archives Building could be used for a number of different purposes and can be shown as Flexible Space (Mark also used the words Warm Storage for the description). In addition to archives storage, there is space for storing wood, paint, generators, pumps, or sand trucks. Mark also suggested a roll-up door on the east side, offset from the existing west side door. Moving the small trailered items like lights, pumps, and generators that are currently stored in Warm Vehicle Storage to the Archives building would free up space for small shops and parts storage in WVS building.
- 5) The vehicle maintenance pit has issues (electric/lighting problems, leaking sump) and AWWU plans to abandon it (ideally by filling it in with concrete) in favor of free-standing vehicle lifts (2 each?) similar to what PM&E is using - these lifts are capable of lifting fire trucks, and vactor trucks, and can be moved around the garage.
- 6) AWWU would like better circulation from the administration offices to the Mechanical Shop. We discussed opening a corridor through the Copy Room, but a better alternative appeared to be through the front reception desk office to the proposed elevator, then wrapping around to the Mechanical Shop. The new corridor would move at least two walls (front reception desk office and WH Office Admin). The Copy Room should be moved to a better location (ie the Open Office room).
- 7) Mark suggested that the storage connexes could be moved to the covered northeast corner of the Admin Building to help with east west flow on the site.
- 8) The Open Office space on the 1st floor should be configured for 2 foremen and space for 6 to 10 mobile workstations.

King Street Facility Plan

- 9) AWWU was generally OK with the 2nd floor space as proposed, including the bathroom. They are not opposed to keeping the High Backs Conference Room in place, but JMcCool noted that it is not good use of the space.
- 10) The Crows Nest may be used for the CCTV lab.
- 11) Mark and Lance discussed options for the stairs in the northeast corner of the Admin Building - Garrett and John to follow up with a site visit to evaluate options.
- 12) The forthcoming design should take a reasonable approach to increasing the Energy Star ratings. Energy efficient lighting and HVAC systems are low hanging fruit.
- 13) Charlie's Produce needs additional space. Mark would consider leasing AWWU property to create a revenue stream. A new Site Plan to represent this lease lot on the 20-year timeline.
- 14) Mark is very interested in procuring the CEA property to use as a material disposal site for the 10,000 CY of Type IV material O&M creates every year. He would like CRW to calculate the volume of material that could be disposed of at the site, with the idea that the property could be sold off in the future. The Fill and Grade Permit for the 92nd Avenue PRV Project will indicate the potential for using this site for fill disposal.
- 15) We discussed the future road on 92nd Avenue from Old Seward to King Street - AWWU is not too concerned at this time since it is at least 10 years out.
- 16) Mark would like to have a list of proposed projects, with the estimated costs. His priorities are: Warm Storage Building/Offices; Land Acquisition for materials disposal; Admin Building Upgrades; Fuel Island; Outside Materials storage.
- 17) Show existing walls to remain within the Mechanics space (under the 5-year plan)
- 18) Space for front entry 'lobby' or 'waiting room' was generally not desired as this function is not needed.
- 19) Discussion of foreman offices to utilize the existing office space or shift office space to Wood Shop. No final determination was made, only that there are several locations available - each with benefits and drawbacks. Report and drawings should reflect some of these options. Lance mentioned 2 more offices for the mechanics. Lance also mentioned the mechanics needed a central location for their library, that would contain the computer and their manuals.
- 20) Mark and Lance discussed the need for transient computer space for all employees, not just the foreman.
- 21) Desire to have one more long bay for Fleet (total of 2 long bays). Didn't matter which bay would be the new long bay (either west side or east side of existing long bay).
- 22) Regarding second floor warehouse space - discussion of opening up circulation between the current warehouse space and the adjacent office/break room (directly to the north). The existing stairwell could be covered up, as opposed to removing it.
- 23) The area in the existing WVS storage building currently used for shop work (tap daddy) should be shown on the WVS layout drawings and labeled.

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APPENDIX B
ROM COST ESTIMATES



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ROM DESIGN SUBMITTAL
CONSTRUCTION COST ESTIMATE

AWWU KING STREET M AND O FACILITY
MASTER PLAN (7 BUILDINGS)
ANCHORAGE, ALASKA

PREPARED FOR:

CRW Engineering Group, LLC
808 S. Bailey Street, Suite 104
Palmer, AK 99645

April 19, 2018



4103 Minnesota Drive • Anchorage, Alaska 99503 p: 907.561.1653 • f: 907.562.0420 • e: mail@hmsalaska.com

NOTES REGARDING THE PREPARATION OF THIS ESTIMATE

DRAWINGS AND DOCUMENTS

Level of Documents: (15) site drawings and system narrative
Date: April 6, 2018
Provided By: CRW Engineering Group LLC of Palmer, Alaska and McCool Carlson Green of Anchorage, Alaska

RATES

Pricing is based on current material, equipment and freight costs.

Labor Rates: A.S. Title 36 working 60 hours per week
Premium Time: 16.70% (included with unit rates)

BIDDING ASSUMPTIONS

Contract: Standard construction contract without restrictive bidding clauses
Bidding Situation: Competitive bid assumed
Bid Date: Assume spring 2020
Start of Construction: Summer 2020
Months to Complete: Varies with each facility type

EXCLUDED COSTS

1. A/E design fees
2. AWWU administrative and management costs
3. Furniture, furnishings and equipment (except those specifically included)

GENERAL

When included in HMS Inc.'s scope of services, opinions or estimates of probable construction costs are prepared on the basis of HMS Inc.'s experience and qualifications and represent HMS Inc.'s judgment as a professional generally familiar with the industry. However, since HMS Inc. has no control over the cost of labor, materials, equipment or services furnished by others, over contractor's methods of determining prices, or over competitive bidding or market conditions, HMS Inc. cannot and does not guarantee that proposals, bids, or actual construction cost will not vary from HMS Inc.'s opinions or estimates of probable construction cost.

This estimate assumes normal escalation based on the current economic climate. While the global economic downturn appears to be moderating, it remains unclear how its effects and subsequent economic recovery will affect construction costs. HMS Inc. will continue to monitor this, as well as other international, domestic and local events, and the resulting construction climate, and will adjust costs and contingencies as deemed appropriate.

HMS Project No.: 18031

GROSS FLOOR AREA

Included with each facility summary sheet.

HMS Project No.: 18031

GENERAL ROM DESIGN COST SUMMARY

PROJECT 1 - NEW WARM STORAGE FACILITY	\$ 9,807,390
PROJECT 2 - REMODEL AND EXPAND ADMINISTRATION BUILDING	6,707,524
PROJECT 3 - PURCHASE CHUGACH ELECTRIC PROPERTY AND DEVELOP	291,451
PROJECT 4 - SITE DEVELOPMENT, FENCING, AC PAVEMENT, AND	2,687,612
PROJECT 5 - COVERED CLASSIFIED SOIL SHELTER	412,458
PROJECT 6 - COVERED MATERIALS SHELTER FOR PARTS AND COMPONENTS	1,792,254
PROJECT 7 - SEPTAGE, FOG AND GRIT FACILITIES	
7A - SEPTAGE FACILITY	958,245
7B - FOG FACILITY	627,266
7C - GRIT FACILITY (Mechanical Processing Equipment 5 and 20 year plan)	150,000
TOTAL ESTIMATED CONSTRUCTION COST (2020 CONSTRUCTION):	\$ 23,434,200
7C - OPTION - CHEMICAL PROCESSING EQUIPMENT	\$ 135,000

Note: For estimating purpose all construction costs are projected to 2020 construction. Actual construction costs will change depending on facility construction under 5-year or 20-year plan.

HMS Project No.: 18031

**PROJECT 1 - NEW WARM STORAGE FACILITY
 ROM DESIGN COST SUMMARY**

A. RECONFIGURATION OF EXISTING WARM STORAGE FACILIT		\$ 192,581
B.	01 - SITE WORK	
	Site Preparation and Improvements	\$ 173,549
	Site Mechanical	36,546
	Site Electrical	192,810
	02 - SUBSTRUCTURE	332,399
	03 - SUPERSTRUCTURE	1,254,056
	04 - EXTERIOR CLOSURE	171,180
	05 - ROOFING	485,531
	06 - INTERIOR CONSTRUCTION	484,638
	07 - CONVEYING SYSTEMS	82,200
	08 - MECHANICAL	1,945,226
	09 - ELECTRICAL	1,081,024
	10 - EQUIPMENT AND FURNISHINGS	68,780
	11 - SPECIAL CONSTRUCTION	0
	SUBTOTAL:	\$ 6,307,939
	12 - GENERAL REQUIREMENTS	1,330,215
	SUBTOTAL:	\$ 7,638,154
	13 - CONTINGENCIES	2,169,236
	TOTAL ESTIMATED CONSTRUCTION COST:	\$ 9,807,390
	COST PER SQUARE FOOT:	\$ 294.47 /SF
	GROSS FLOOR AREA:	33,305 SF
C. ADDITIONAL WEST TO EAST EXTENSION		1,082,013
	SUBTOTAL:	1,082,013
	12 - GENERAL REQUIREMENTS	168,538
	SUBTOTAL:	1,250,551
	13 - CONTINGENCIES	168,538
	TOTAL ESTIMATED CONSTRUCTION COST:	\$ 1,419,089

HMS Project No.: 18031

PROJECT 1 - NEW WARM STORAGE FACILITY A. RECONFIGURATION OF EXISTING WARM STORAGE FACILITY	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
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DEMOLITION

Scaffolding	3,630	SF	1.80	6,534
Remove man doors on north side	2	EA	75.00	150
Remove 12'0"x16'0" overhead doors	4	EA	400.00	1,600
Remove 14'0"x16'0" overhead doors	2	EA	475.00	950
Remove 16'0"x16'0" overhead doors	2	EA	530.00	1,060
Demolish north wall insulated siding panels	1,860	SF	2.15	3,999

NEW WORK

New insulated siding panels	1,860	SF	23.75	44,175
New 3'0"x7'0" insulated hollow metal single doors	2	EA	1250.00	2,500
New 12'0"x16'0" insulated metal overhead doors, gear and power operators	4	EA	6750.00	27,000
New 14'0"x16'0" insulated metal overhead doors, gear and power operators	2	EA	7875.00	15,750
New 16'0"x16'0" insulated metal overhead doors, gear and power operators	2	EA	9350.00	18,700
Overhead door numbers	8	EA	150.00	1,200
Power and connections to door operators	8	LOTS	750.00	6,000
Remove existing floor striping	1,287	LF	0.30	386
Mark 4" wide vehicle parking lines (8)	1,144	LF	1.50	1,716

SUBTOTAL:				\$ 131,720
General Requirements, Overhead, and Profit	22.00%			28,978
Contingencies - Design Unknowns	12.00%			19,284

HMS Project No.: 18031

PROJECT 1 - NEW WARM STORAGE FACILITY A. RECONFIGURATION OF EXISTING WARM STORAGE FACILITY	<i>QUANTITY</i>	<i>UNIT</i>	<i>UNIT RATE</i> \$	<i>TOTAL</i> \$
Escalation to 2020 Construction			7.00%	12,599

TOTAL ESTIMATED COST: **\$ 192,581**

HMS Project No.: 18031

PROJECT 1 - NEW WARM STORAGE FACILITY B. NEW WEST EXPANSION 01 - SITE WORK Site Preparation and Improvements	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
Site survey and staking	0.73	AC	6000.00	4,380
Temporary 6'0" construction fencing	536	LF	5.50	2,948
Traffic control	1	LOT	1500.00	1,500
Remove petroleum contaminated soils near northwest corner of WVS building and dispose per ADEC requirements (assume average 24" deep)	60	CY	275.00	16,500
Excavate and dispose average 30" deep for new building pad and AC pavements	2,952	CY	8.25	24,354
24" deep NFS compacted fill at building pad and AC pavement	2,834	CY	22.50	63,765
4" leveling course at AC paving	152	CY	28.00	4,256
Soil compaction tests (1/500 CY)	6	EA	225.00	1,350
2" AC pavement at parking (130 tons)	9,923	SF	2.45	24,311
Pavement test	2	EA	200.00	400
Mark parking stalls for covered dump truck parking	9	EA	40.00	360
Miscellaneous signage	1	LOT	500.00	500
SUBTOTAL:				\$ 144,624
Subcontractor's Overhead and Profit for Materials and Labor	20.00%			28,925

TOTAL ESTIMATED COST:	\$ 173,549
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HMS Project No.: 18031

PROJECT 1 - NEW WARM STORAGE FACILITY B. NEW WEST EXPANSION 01 - SITE WORK Site Mechanical	QUANTITY	UNIT	UNIT RATE	TOTAL
			\$	\$

WATER SERVICE

4" buried D1 water main including trenching	150	LF	55.00	8,250
4" valve and box	1	EA	750.00	750
4" tee and connection to existing	1	LOT	1200.00	1,200
4" building connection and sleeve	1	EA	225.00	225
Testing	1	LOT	200.00	200

SEWER

6" buried D1 sewer main including trenching	150	LF	63.00	9,450
4" yard cleanout and box	1	EA	550.00	550
6" connection to existing	1	EA	800.00	800
6" building connection and sleeve	1	EA	250.00	250
Testing	1	LOT	200.00	200

NATURAL GAS

3" buried gas main including trenching	170	LF	24.00	4,080
3" gas meter and regulator	1	EA	1500.00	1,500
4"x48" protective pipe bollards and bases	2	EA	525.00	1,050
3" connection to existing including Enstar fee	1	LOT	1500.00	1,500
3" building connections and sleeve	1	EA	150.00	150
Testing	1	LOT	300.00	300

SUBTOTAL: \$ 30,455

Subcontractor's Overhead and Profit for Materials and Labor 20.00% 6,091

TOTAL ESTIMATED COST: \$ 36,546

HMS Project No.: 18031

PROJECT 1 - NEW WARM STORAGE FACILITY B. NEW WEST EXPANSION 01 - SITE WORK Site Electrical	<i>QUANTITY</i>	<i>UNIT</i>	<i>UNIT RATE</i> \$	<i>TOTAL</i> \$
500 KVA pad mounted utility transformer	1	EA	37000.00	37,000
Transformer grounding	1	LOT	1250.00	1,250
4"x48" protective pipe bollards and bases	4	EA	525.00	2,100
Buried power to building including 4" conduit and trenching (2)	400	LF	55.00	22,000
2" data/comm empty conduit including trenching (2)	400	LF	23.00	9,200
Note: Cables by utility company. All exterior lighting is building mounted.				
300 KW diesel engine arctic package generator module including integral fuel tank set over concrete pad	1	EA	75000.00	75,000
Conduit and cables to building (2)	50	LF	22.50	1,125
400 amp automatic transfer switch	1	EA	9500.00	9,500
Emergency panel connected to building MDP	1	EA	2750.00	2,750
Test electrical system	1	LOT	750.00	750
SUBTOTAL:				\$ 160,675
Subcontractor's Overhead and Profit for Materials and Labor	20.00%			32,135

TOTAL ESTIMATED COST: \$ 192,810

HMS Project No.: 18031

PROJECT 1 - NEW WARM STORAGE FACILITY B. NEW WEST EXPANSION 02 - SUBSTRUCTURE	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
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Note: Building pad with site work.

36"x36"x18" thick reinforced concrete bases	28	EA	475.00	13,300
24"x12" thick reinforced concrete strip footings	768	LF	22.00	16,896
8" thick bar reinforced concrete foundation walls	2,688	SF	17.75	47,712
2" rigid insulation and dampproofing to perimeter foundation walls	2,279	SF	3.90	8,888
6" thick reinforced concrete slab	21,918	SF	8.55	187,399
6"x48" elevator pit concrete wall	128	SF	18.00	2,304
24"x48" pit ladder	1	EA	500.00	500
SUBTOTAL:				\$ 276,999
Subcontractor's Overhead and Profit for Materials and Labor	20.00%			55,400

TOTAL ESTIMATED COST:	\$ 332,399
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HMS Project No.: 18031

PROJECT 1 - NEW WARM STORAGE FACILITY B. NEW WEST EXPANSION 03 - SUPERSTRUCTURE	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
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SECOND FLOOR CONSTRUCTION

Steel frame structure	154,380	LBS	2.40	370,512
1 1/2" deep concrete filled metal floor decking	11,024	SF	5.80	63,939
1 1/2" deep concrete filled metal decking at grille	400	SF	5.80	2,320
Concrete filled pan, stairs, landing, and railings (2)	360	SF	68.00	24,480
42" high railings	60	LF	55.00	3,300

ROOF CONSTRUCTION

24"x12'0" roof access ladder	1	EA	1500.00	1,500
Pre-engineered steel roof frames, joist, girts, purlins, etc.	263,180	LBS	2.20	578,996
1 1/2" deep roof decking	26,318	SF		Not Required

SUBTOTAL:

\$ 1,045,047

Subcontractor's Overhead and Profit for Materials and Labor

20.00%

209,009

TOTAL ESTIMATED COST:

\$ 1,254,056

HMS Project No.: 18031

PROJECT 1 - NEW WARM STORAGE FACILITY B. NEW WEST EXPANSION 04 - EXTERIOR CLOSURE	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
4" pre-insulated Kynar finished metal panels, fixed to girts	1,227	SF	23.75	29,141
4" CMU wainscot at perimeter	2,560	SF	17.50	44,800
3'0"x7'0" insulated hollow metal single doors	3	EA	1250.00	3,750
3'0"x7'0" insulated hollow metal double doors	1	PR	1975.00	1,975
14'0"x16'0" insulated overhead metal doors, gears and operators	4	EA	7875.00	31,500
Door numbers	4	EA	50.00	200
5'0"x4'0" insulated glazed double pane PVC frame windows with (1) 2'0"x4'0" operable pane and bug screens	18	EA	1135.00	20,430
Caulking and sealants to siding, doors, and windows	13,568	SF	0.80	10,854
SUBTOTAL:				\$ 142,650
Subcontractor's Overhead and Profit for Materials and Labor	20.00%			28,530

TOTAL ESTIMATED COST: \$ 171,180

HMS Project No.: 18031

PROJECT 1 - NEW WARM STORAGE FACILITY B. NEW WEST EXPANSION 05 - ROOFING	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
5" thick insulated roofing metal panels fixed to purlins	21,918	SF	16.50	361,647
Metal roofing at covered parking	4,400	SF	7.50	33,000
Ridge cap	142	LF	8.70	1,235
Eave gable flashing	512	LF	5.40	2,765
Roof penetration flashing	1	LOT	500.00	500
24"x36" roof access hatch	1	EA	2800.00	2,800
Temporary fall protection railings	512	LF	5.20	2,662
SUBTOTAL:				\$ 404,609
Subcontractor's Overhead and Profit for Materials and Labor	20.00%			80,922

TOTAL ESTIMATED COST: \$ 485,531

HMS Project No.: 18031

PROJECT 1 - NEW WARM STORAGE FACILITY B. NEW WEST EXPANSION 06 - INTERIOR CONSTRUCTION	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
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PARTITIONS AND DOORS

Elevator shaft wall system	720	SF	7.75	5,580
5/8" gypboard at second floor exterior wall	3,804	SF	2.15	8,179
6" metal stud partitions with 5/8" gypboard each side at first floor	2,944	SF	5.65	16,634
6" metal stud partitions with sound batts at second floor	9,436	SF	6.20	58,503
3'0"x7'0" hollow metal single door	7	EA	775.00	5,425
3'0"x7'0" solid core wood single door in hollow metal frames	16	EA	830.00	13,280
3'0"x7'0" glazed single doors at meeting room	3	EA	1530.00	4,590
2'0"x7'0" glazed relites at meeting room	2	EA	580.00	1,160
3'0"x7'0" closet bifold double doors	4	PRS	535.00	2,140
2'0"x4'0" glazed relites at offices	12	EA	375.00	4,500
32'0"x9'0" operable partitions at meeting room	1	EA	15750.00	15,750

FINISHES

Heavy duty concrete floor sealer and hardener at first floor	21,918	SF	1.35	29,589
Rubber tread tiles in stairways and lobby	447	SF	7.80	3,487
Sheet vinyl flooring in kitchen, toilets, etc.	2,562	SF	4.30	11,017
Carpet tiles in offices, meeting rooms, etc.	8,378	SF	5.15	43,147
4" rubber base	2,766	SF	2.80	7,745
Paint first floor parking stalls	39	EA	50.00	1,950
FRP wainscot at toilets and kitchen	1,344	SF	6.50	8,736
Paint gypboard walls/doors, etc.	23,550	SF	1.80	42,390

HMS Project No.: 18031

PROJECT 1 - NEW WARM STORAGE FACILITY B. NEW WEST EXPANSION 06 - INTERIOR CONSTRUCTION	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
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FINISHES (Continued)

5/8" painted gypboard ceiling and framing underside second floor	11,020	SF	4.80	52,896
5/8" painted gypboard ceiling and framing at kitchen, mechanical, toilets, etc.	2,562	SF	4.80	12,298
Acoustic tile suspended ceiling system at second floor	7,438	SF	5.75	42,769

SPECIALTIES

Toilet room specialties	2	RMS	1800.00	3,600
Miscellaneous specialties at first floor	1	LOT	5000.00	5,000
Miscellaneous specialties at second floor	1	LOT	3500.00	3,500

SUBTOTAL: \$ 403,865

Subcontractor's Overhead and Profit for Materials and Labor 20.00% 80,773

TOTAL ESTIMATED COST: **\$ 484,638**

HMS Project No.: 18031

PROJECT 1 - NEW WARM STORAGE FACILITY B. NEW WEST EXPANSION 07 - CONVEYING SYSTEMS	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
Two stop hydraulic elevator and equipment	1	EA	68500.00	68,500
<i>SUBTOTAL:</i>				<u>\$ 68,500</u>
Subcontractor's Overhead and Profit for Materials and Labor	20.00%			13,700

TOTAL ESTIMATED COST: **\$ 82,200**

HMS Project No.: 18031

PROJECT 1 - NEW WARM STORAGE FACILITY B. NEW WEST EXPANSION 08 - MECHANICAL	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
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PLUMBING

Elevator sump pump and rough-in	1	EA	850.00	850
First floor heavy duty trench drains and cover	420	LF	135.00	56,700
Mechanical room floor drain	1	EA	350.00	350
4" under floor piping	560	LF	43.00	24,080
Trench drain connections	12	EA	80.00	960
50 gallon indirect fired hot water generator and valves	1	EA	2750.00	2,750
Janitor sink	1	EA	950.00	950
(3) bowl kitchen sink	1	EA	1375.00	1,375
Toilet rooms plumbing fixtures	12	EA	875.00	10,500
Plumbing fixtures rough-ins	15	EA	770.00	11,550
Exterior non-frost hose bibs and piping	4	EA	450.00	1,800
Interior hose bibs and piping at first floor	4	EA	280.00	1,120

HVAC

Gas fired boiler and hydronic heating system for entire facility	33,305	GFA	18.50	616,143
Air handlers, exhaust fans, grilles, and ducts	33,305	GFA	15.00	499,575
New DDC system	1	LOT	175000.00	175,000
Test and balance system	72	HRS	150.00	10,800

FIRE PROTECTION

Wet pipe sprinkler system	33,305	GFA	4.75	158,199
Pre-action heads at heat storage	4,400	SF	5.30	23,320

HMS Project No.: 18031

PROJECT 1 - NEW WARM STORAGE FACILITY B. NEW WEST EXPANSION 08 - MECHANICAL	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
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FIRE PROTECTION (Continued)

Compressed air system at first floor	1	LOT	25000.00	25,000
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SUBTOTAL:				<u>\$ 1,621,022</u>
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Subcontractor's Overhead and Profit for Materials and Labor	20.00%			324,204
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TOTAL ESTIMATED COST:	\$ 1,945,226
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HMS Project No.: 18031

PROJECT 1 - NEW WARM STORAGE FACILITY B. NEW WEST EXPANSION 09 - ELECTRICAL	<i>QUANTITY</i>	<i>UNIT</i>	<i>UNIT RATE</i> \$	<i>TOTAL</i> \$
Service and distribution equipment including grounding	33,305	SF	4.50	149,873
Exterior soffit mounted LED fixtures at covered parking	9	EA	460.00	4,140
Exterior building mounted LED fixtures at overhead doors	6	EA	535.00	3,210
Photocell and contactor	2	EA	420.00	840
Interior LED high bay fixtures at first floor	164	EA	435.00	71,340
LED stairwell/lobby fixtures	12	EA	390.00	4,680
LED mechanical, kitchen, etc. fixtures	20	EA	275.00	5,500
Wet label LED fixtures at toilets	8	EA	330.00	2,640
Mirror fixtures	6	EA	180.00	1,080
LED offices and meeting room fixtures	100	EA	335.00	33,500
LED hallway fixtures	300	EA	310.00	93,000
LED exit signs	8	EA	280.00	2,240
LED emergency battery packs	16	EA	335.00	5,360
HVAC equipment, elevator power and connections	1	LOT	5000.00	5,000
Switches, devices, conduit, and wiring	33,305	SF	4.35	144,877
Plug-in block heaters at covered parking	9	EA	830.00	7,470
Data/comm system for second floor offices	9,300	SF	5.70	53,010
Supervised fire alarm system	33,305	SF	4.80	159,864
PA system	33,305	SF	3.70	123,229
Conference rooms AV/TV systems	2	LOTS	15000.00	30,000
SUBTOTAL:				\$ 900,853

HMS Project No.: 18031

PROJECT 1 - NEW WARM STORAGE FACILITY B. NEW WEST EXPANSION 09 - ELECTRICAL	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
Subcontractor's Overhead and Profit for Materials and Labor	20.00%			180,171

TOTAL ESTIMATED COST: **\$ 1,081,024**

HMS Project No.: 18031

PROJECT 1 - NEW WARM STORAGE FACILITY B. NEW WEST EXPANSION 10 - EQUIPMENT AND FURNISHINGS	<i>QUANTITY</i>	<i>UNIT</i>	<i>UNIT RATE</i> \$	<i>TOTAL</i> \$
Warm-up kitchen equipment (668 SF)	1	LOT	65000.00	65,000
Loose furniture and furnishings	1	LOT		FFE Budget
Window blinds	360	SF	10.50	3,780

TOTAL ESTIMATED COST: **\$ 68,780**

HMS Project No.: 18031

PROJECT 1 - NEW WARM STORAGE FACILITY B. NEW WEST EXPANSION 12 - GENERAL REQUIREMENTS	<i>QUANTITY</i>	<i>UNIT</i>	<i>UNIT RATE</i> \$	<i>TOTAL</i> \$
Mobilization/demobilization	1	LOT	5000.00	5,000
Operation costs for personnel	12	MOS	13750.00	165,000
Operation costs for equipment	12	MOS	10000.00	120,000
Miscellaneous construction aids	12	MOS	7500.00	90,000
Fuel for equipment (300 gallons/month)	12	MOS	950.00	11,400
Temporary facilities, lighting, power, and maintenance	12	MOS	2700.00	32,400
<i>SUBTOTAL:</i>				<i>\$ 423,800</i>
Home Office	3.00%			201,952
General Requirements, Overhead, and Profit	8.00%			554,695
Bonds and Insurances	2.00%			149,768
<i>TOTAL ESTIMATED COST:</i>				<i>\$ 1,330,215</i>

HMS Project No.: 18031

PROJECT 1 - NEW WARM STORAGE FACILITY B. NEW WEST EXPANSION 13 - CONTINGENCIES	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
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ESTIMATOR'S CONTINGENCY

The estimator's allowance for architectural and engineering requirements that are not apparent at an early level of design documentation

20.00%

1,527,631

ESCALATION CONTINGENCY

The allowance for escalation from the date of estimate to the proposed bid date of 2020 at the rate of 5.00% per annum

7.00%

641,605

TOTAL ESTIMATED COST: **\$ 2,169,236**

HMS Project No.: 18031

PROJECT 1 - NEW WARM STORAGE FACILITY C. ADDITIONAL WEST TO EAST EXTENSION (20 YEAR PLAN)	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
Site preparation	6,390	SF	3.50	22,365
Demolish existing wall	284	SF	5.00	1,420
Temporary shoring	142	LF	12.00	1,704
Substructure	6,390	SF	12.70	81,153
Superstructure	6,390	SF	22.00	140,580
Exterior closure	3,744	SF	12.60	47,174
14'0"x16'0" overhead doors	4	EA	7875.00	31,500
roofing	6,390	SF	20.00	127,800
Concrete sealer, hardener and parking lanes	6,390	SF	1.50	9,585
Mechanical system extensions	6,390	SF	18.00	115,020
Electrical system extensions	6,390	SF	15.00	95,850
SUBTOTAL:				674,151
General Requirements, Overhead, and Profit	25.00%			168,538
Contingencies - Design Unknowns	20.00%			168,538
Escalation to 2020 Construction	7.00%			70,786

TOTAL ESTIMATED COST: \$ 1,082,013

HMS Project No.: 18031

PROJECT 2 - REMODEL AND EXPAND ADMINISTRATION BUILDING
ROM DESIGN COST SUMMARY

01 - SITE WORK	
Site Prep and Improvements	\$ 260,550
Site Mechanical	50,917
Site Electrical	101,400
02 - SUBSTRUCTURE	135,259
03 - SUPERSTRUCTURE	339,305
04 - EXTERIOR CLOSURE	385,703
05 - ROOF SYSTEMS	140,622
06 - INTERIOR CONSTRUCTION	121,364
07 - CONVEYING SYSTEMS	82,200
08 - MECHANICAL	1,634,352
09 - ELECTRICAL	719,736
10 - EQUIPMENT	77,500
11 - SPECIAL CONSTRUCTION	0
 SUBTOTAL:	\$ 4,048,908
12 - GENERAL REQUIREMENTS	1,175,020
 SUBTOTAL:	\$ 5,223,928
13 - CONTINGENCIES	1,483,596
TOTAL ESTIMATED CONSTRUCTION COST (2020 BID):	\$ 6,707,524
COST PER SQUARE FOOT:	\$ 149.23 /SF
GROSS FLOOR AREA (REMODEL/ADDITION):	44,948 SF

HMS Project No.: 18031

PROJECT 2 - REMODEL AND EXPAND ADMINISTRATIVE BUILDING 01 - SITE WORK Site Preparation and Improvements	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
Site survey and staking	0.78	AC	6000.00	4,680
Temporary 6'0" construction fencing	474	LF	5.50	2,607
Traffic control	1	LOT	1500.00	1,500
Demolish concrete sidewalks and dispose	4,416	SF	2.15	9,494
Demolish AC pavement for additions and dispose	9,664	SF	0.40	3,866
Demolish AC pavement at parking and dispose	20,000	SF	0.40	8,000
Excavate and dispose 30" deep fill at parking/sidewalks	2,261	CY	8.25	18,653
30" deep NFS compacted fill at building additions	1,074	CY	22.50	24,165
24" deep NFS compacted fill at parking sidewalks	2,171	CY	22.00	47,762
Soil compaction test (one per 500 CY)	6	EA	225.00	1,350
4" leveling course, compacted	306	CY	28.00	8,568
2" AC pavement (263 tons)	20,000	SF	2.45	49,000
Pavement test	4	EA	200.00	800
Match existing pavement	100	LF	5.50	550
Mark parking stalls	57	EA	40.00	2,280
Traffic signs	2	EA	350.00	700
4" heated concrete walks (also refer to site mechanical)	4,420	SF	7.50	33,150
SUBTOTAL:				\$ 217,125
Subcontractor's Overhead and Profit for Materials and Labor	20.00%			43,425
TOTAL ESTIMATED COST:				\$ 260,550

HMS Project No.: 18031

PROJECT 2 - REMODEL AND EXPAND ADMINISTRATIVE BUILDING 01 - SITE WORK Site Mechanical	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
2" rigid insulation under heated sidewalk	4,420	SF	1.30	5,746
1 1/4" to 1 1/2" PEX headers	320	LF	23.00	7,360
5/8" PEX tubing, 9" o/c	5,965	LF	3.15	18,790
Heating zone manifolds	2	EA	1350.00	2,700
Snow sensors	2	EA	280.00	560
___ GPM hydronic pump inside building	1	EA	1850.00	1,850
___ MBH heat exchanger inside building	1	EA	3200.00	3,200
50/50 glycol/water mix fluid inside building	125	GAL	15.00	1,875
Testing	1	LOT	350.00	350
Note: No other mechanical systems.				
SUBTOTAL:				\$ 42,431
Subcontractor's Overhead and Profit for Materials and Labor	20.00%			8,486

TOTAL ESTIMATED COST: \$ 50,917

HMS Project No.: 18031

PROJECT 2 - REMODEL AND EXPAND ADMINISTRATIVE BUILDING 01 - SITE WORK Site Electrical	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
300 KW genset with integral fuel tank set over existing pad	1	EA	75000.00	75,000
400 amp ATS connected to existing power	1	LOT	9500.00	9,500
SUBTOTAL:				\$ 84,500
Subcontractor's Overhead and Profit for Materials and Labor	20.00%			16,900

TOTAL ESTIMATED COST: \$ 101,400

HMS Project No.: 18031

PROJECT 2 - REMODEL AND EXPAND ADMINISTRATIVE BUILDING 02 - SUBSTRUCTURE	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
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EXISTING BUILDING

Remove lighting/mechanical systems from grease pit	160	SF	5.50	880
Infill 5'0" deep pit with concrete	30	CY	315.00	9,450
Cure and finish slab	160	SF	1.70	272
Cut and remove slab for new elevator pit	144	SF	3.50	504
Excavate and dispose	27	CY	10.00	270
NFS backfill	18	CY	22.00	396
8" reinforced concrete slab and walls	241	SF	18.00	4,338
24"x60" pit ladder	1	EA	700.00	700
Saw cut and patch for under floor plumbing, etc. (allowance)	250	SF	13.50	3,375

NEW ADDITIONS

36"x36"x18" thick reinforced concrete bases	14	EA	475.00	6,650
24"x12" thick reinforced concrete strip footings	380	LF	22.00	8,360
8" thick bar reinforced concrete foundation walls	1,330	SF	17.75	23,608
2" rigid insulation and dampproofing to perimeter foundation walls	1,520	SF	3.90	5,928
5" thick reinforced concrete slab	8,816	SF	8.00	70,528

TOTAL ESTIMATED COST:	\$ 135,259
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HMS Project No.: 18031

PROJECT 2 - REMODEL AND EXPAND ADMINISTRATIVE BUILDING 03 - SUPERSTRUCTURE	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
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ROOF STRUCTURE AT ADDITIONS

Main entry and loading dock structure	12,525	LBS	2.40	30,060
1 1/2" deep metal decking	1,252	SF	4.10	5,133
Additions roof structure	88,100	LBS	2.40	211,440
1 1/2" deep metal decking	8,810	SF	4.10	36,121
SUBTOTAL:				\$ 282,754
Subcontractor's Overhead and Profit for Materials and Labor	20.00%			56,551

TOTAL ESTIMATED COST:	\$ 339,305
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HMS Project No.: 18031

PROJECT 2 - REMODEL AND EXPAND ADMINISTRATIVE BUILDING 04 - EXTERIOR CLOSURE	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
Demolish exterior walls at additions interface	3,190	SF	2.70	8,613
Temporary shoring	220	LF	8.50	1,870
<u>WALLS</u>				
6" metal studs 24" o/c, 6" batt insulation, vapor retarder, 5/8" Type X gypboard to inner face, and 5/8" gypboard to exterior face	9,424	SF	7.80	73,507
Weather barrier	9,424	SF	1.10	10,366
4"x16" concrete base	532	SF	14.50	7,714
2" rigid insulation at fiber cement panels	3,800	SF	1.10	4,180
Prefinished fiber cement panel over steel furrings at first floor	3,800	SF	14.75	56,050
2" insulated prefinished metal siding panels and trims over steel furrings at second floor	4,484	SF	18.00	80,712
<u>CANOPY FASCIAS AND SOFFITS</u>				
Prefinished metal fascia over framing and 2" rigid insulation	1,140	SF	12.30	14,022
Prefinished metal soffit panels over framing	1,252	SF	9.75	12,207
<u>DOORS</u>				
3'0"x7'0" insulated hollow metal single door assembly	1	EA	1250.00	1,250
3'0"x7'0" insulated hollow metal fully glazed single door with panic hardware at entry	1	EA	1850.00	1,850
14'0"x16'0" insulated overhead metal doors, gears and operators	5	EA	7875.00	39,375
Door numbers	5	EA	50.00	250
Caulking and sealants	11,816	SF	0.80	9,453
SUBTOTAL:				\$ 321,419

HMS Project No.: 18031

PROJECT 2 - REMODEL AND EXPAND ADMINISTRATIVE BUILDING 04 - EXTERIOR CLOSURE	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
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Subcontractor's Overhead and Profit for Materials and Labor	20.00%		64,284
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TOTAL ESTIMATED COST:	\$ 385,703
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HMS Project No.: 18031

PROJECT 2 - REMODEL AND EXPAND ADMINISTRATIVE BUILDING 05 - ROOF SYSTEMS	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
5/8" gypsum fire sheathing fixed to roof decks	8,810	SF	1.85	16,299
Self sealing vapor retarder up walls	9,380	SF	0.35	3,283
4" screwed-in rigid insulation	8,810	SF	1.75	15,418
4" adhered rigid insulation	8,810	SF	1.60	14,096
2" tapered insulation (30% of area)	2,643	SF	1.20	3,172
5/8" cover board	8,810	SF	1.45	12,775
60 mil EPDM roofing, up walls	9,380	SF	4.35	40,803
Seismic joint cover, batt insulation and framing at existing roofs	215	LF	37.50	8,063
Roof drain flashing	10	EA	130.00	1,300
Temporary fall protection railings	380	LF	5.20	1,976
SUBTOTAL:				\$ 117,185
Subcontractor's Overhead and Profit for Materials and Labor	20.00%			23,437

TOTAL ESTIMATED COST: \$ 140,622

HMS Project No.: 18031

PROJECT 2 - REMODEL AND EXPAND ADMINISTRATIVE BUILDING 06 - INTERIOR CONSTRUCTION	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
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PARTITIONS AND DOORS

6" metal stud partitions with 5/8" gypboard each side, including sound batts	3,130	SF	6.20	19,406
3'0"x7'0" hollow metal single door assemblies	4	EA	830.00	3,320
3'0"x7'0" hollow metal double door assemblies	1	PR	1850.00	1,850

FINISHES

Heavy duty concrete sealer at first floor additions	9,664	SF	1.35	13,046
Miscellaneous cut and patch to existing floor finishes at first and second floor offices (20%)	3,168	SF	5.50	17,424
Rubber flooring at new main entry	240	SF	7.80	1,872
Paint exposed roof sheathing at additions	8,810	SF	1.80	15,858
Cut and patch ceilings at reheated areas	3,168	SF	4.50	14,256
Paint new walls/doors	10,740	SF	1.80	19,332
Specialties allowance	1	LOT	15000.00	15,000

TOTAL ESTIMATED COST:	\$ 121,364
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HMS Project No.: 18031

PROJECT 2 - REMODEL AND EXPAND ADMINISTRATIVE BUILDING 07 - CONVEYING SYSTEMS	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
Two stops hydraulic elevator and equipment	1	EA	68500.00	68,500
SUBTOTAL:				<hr/> \$ 68,500
Subcontractor's Overhead and Profit for Materials and Labor	20.00%			13,700

TOTAL ESTIMATED COST: **\$ 82,200**

HMS Project No.: 18031

PROJECT 2 - REMODEL AND EXPAND ADMINISTRATIVE BUILDING 08 - MECHANICAL	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
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PLUMBING

Roof drains and leaders at additions and canopies, connected to existing system	12	EA	1370.00	16,440
Floor drains and piping at additions	4	EA	750.00	3,000

HVAC

Demolish existing building HVAC system	36,178	SF	0.70	25,325
New HVAC system with minor modifications to ducts at existing building	36,178	SF	22.50	814,005
Extend HVAC system to addition	8,810	SF	18.00	158,580
New DDC system at existing and additions	44,948	SF	5.80	260,698
Minor modifications to existing sprinkler system (10%)	4,495	SF	3.50	15,733
Extend sprinkler system to additions	8,810	SF	4.45	39,205
New preaction heads at canopies	1,252	SF	5.85	7,324
1,000 CFM welding room exhaust fan and ducts	1	EA	3150.00	3,150
New air compressor and piping at service bay (919 SF)	1	LOT	18500.00	18,500

SUBTOTAL:				\$ 1,361,960
Subcontractor's Overhead and Profit for Materials and Labor	20.00%			272,392

TOTAL ESTIMATED COST:	\$ 1,634,352
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HMS Project No.: 18031

PROJECT 2 - REMODEL AND EXPAND ADMINISTRATIVE BUILDING 09 - ELECTRICAL	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
Modify and expand service and distribution for new equipment loads and additions	44,948	SF	3.70	166,308
Demolish existing lighting in first and second floor offices	16,138	SF	0.50	8,069
New building mounted LED fixtures at additions	5	EA	535.00	2,675
New LED soffit fixtures at canopies	12	EA	460.00	5,520
LED exit signs at addition	2	EA	280.00	560
LED battery packs at addition	6	EA	335.00	2,010
New LED fixtures at first and second floor offices	164	EA	335.00	54,940
LED exit signs	4	EA	280.00	1,120
LED battery packs	8	EA	335.00	2,680
HVAC, elevator, and shop equipment power and connections	1	LOT	7500.00	7,500
Switches, devices, conduits, and wiring at addition	8,810	SF	5.50	48,455
Switches, devices, conduits, and wiring at existing relocated offices	3,168	SF	4.70	14,890
Demolish existing and install new data/comm system at first and second floor offices	14,400	SF	7.50	108,000
Minimal data/comm system at additions	8,810	SF	4.20	37,002
Upgrade fire alarm panel for new loads	1	LOT	3000.00	
Extend fire alarm system to additions	8,810	SF	5.50	48,455
Modify fire alarm system in first and second floor offices	14,408	SF	3.30	47,546
Expand PA system for additions	8,810	SF	5.00	44,050
SUBTOTAL:				\$ 599,780

HMS Project No.: 18031

PROJECT 2 - REMODEL AND EXPAND ADMINISTRATIVE BUILDING 09 - ELECTRICAL	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
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Subcontractor's Overhead and Profit for Materials and Labor	20.00%		119,956
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TOTAL ESTIMATED COST: **\$ 719,736**

HMS Project No.: 18031

PROJECT 2 - REMODEL AND EXPAND ADMINISTRATIVE BUILDING 10 - EQUIPMENT	<i>QUANTITY</i>	<i>UNIT</i>	<i>UNIT RATE</i> \$	<i>TOTAL</i> \$
400 amp welding machine	1	EA	5500.00	5,500
Trucks tire changing equipment	1	EA	25000.00	25,000
Mobile vehicle lift	1	EA	12000.00	12,000
Miscellaneous mechanics shop equipment	1	LOT	35000.00	35,000
Loose furniture and furnishings	1	LOT		FFE Budget

TOTAL ESTIMATED COST: **\$ 77,500**

HMS Project No.: 18031

PROJECT 2 - REMODEL AND EXPAND ADMINISTRATIVE BUILDING 12 - GENERAL REQUIREMENTS	<i>QUANTITY</i>	<i>UNIT</i>	<i>UNIT RATE</i> \$	<i>TOTAL</i> \$
Mobilization/demobilization	1	LOT	7000.00	7,000
Operation costs for personnel	14	MOS	15000.00	210,000
Operation costs for equipment	14	MOS	13000.00	182,000
Miscellaneous construction aids	14	MOS	7500.00	105,000
Fuel for equipment (300 gallons/month)	14	MOS	950.00	13,300
Temporary facilities, lighting, power, and maintenance	14	MOS	2700.00	37,800
<i>SUBTOTAL:</i>				<i>\$ 555,100</i>
Home Office	3.00%			138,120
Overhead and Profit	8.00%			379,370
Bonds and Insurances	2.00%			102,430

TOTAL ESTIMATED COST: **\$ 1,175,020**

HMS Project No.: 18031

PROJECT 2 - REMODEL AND EXPAND ADMINISTRATIVE BUILDING 13 - CONTINGENCIES	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
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ESTIMATOR'S CONTINGENCY

The estimator's allowance for architectural and engineering requirements that are not apparent at an early level of design documentation

20.00%

1,044,786

ESCALATION CONTINGENCY

The allowance for escalation from the date of estimate to the proposed bid date of 2020 at the rate of 3.50% per annum

7.00%

438,810

TOTAL ESTIMATED COST: **\$ 1,483,596**

HMS Project No.: 18031

**PROJECT 3 - PURCHASE CHUGACH ELECTRIC PROPERTY AND DEVELOP
 ROM DESIGN COST SUMMARY**

01 - SITE WORK		
Site Preparation and Improvements		
Road Construction (500'0"x24'0" Wide)		\$ 186,055
SUBTOTAL:		\$ 186,055
General Requirements, Overhead, and Profit	22.00%	40,932
Contingency - Design Unknown	20.00%	45,397
Escalation to 2020 Construction	7.00%	19,067
TOTAL ESTIMATED CONSTRUCTION COST:		\$ 291,451
COST PER SQUARE FOOT:		\$ 24.29 /SF
GROSS ROAD AREA:		12,000 SF

HMS Project No.: 18031

PROJECT 3 - PURCHASE CHAGACH ELECTRIC PROPERTY AND DEVELOP 01 - SITE WORK Site Preparation and Improvements	QUANTITY	UNIT	UNIT RATE	TOTAL
			\$	\$
Develop planning documents and CEA property purchase sole conditions	1	LOT		By AWWU Real Estate Department
Site survey and staking	0.28	AC	6000.00	1,680
Temporary 36" nylon construction fencing	1,050	LF	4.50	4,725
Traffic control	1	LOT	1500.00	1,500
Clear site	0.28	AC	5000.00	1,400
Excavate and dispose 30" deep fill	1,112	CY	8.25	9,174
24" deep NFS compacted fill	1,067	CY	22.50	24,008
4" leveling course, compacted	184	CY	28.00	5,152
2" AC pavement (158 tons)	12,000	SF	2.45	29,400
Match existing pavement	24	LF	5.50	132
Mark 4" wide road divider double lines (2)	1,000	LF	1.45	1,450
Concrete curb and gutter at each side of road	1,000	LF	29.30	29,300
Landscaping	5,000	SF	2.50	12,500
15" to 17" CPEP storm drains including trenching	550	LF	37.50	20,625
48" diameter x 72" manholes	3	EA	4500.00	13,500
Connection line to existing storm drains	1	LOT	500.00	500
SUBTOTAL:				\$ 155,046
Subcontractor's Overhead and Profit for Materials and Labor	20.00%			31,009
TOTAL ESTIMATED COST:				\$ 186,055

HMS Project No.: 18031

**PROJECT 4 - SITE DEVELOPMENT, FENCING, AC PAVEMENT, AND
 FUELING SYSTEMS
 ROM DESIGN COST SUMMARY**

01 - SITE WORK	
Site Surveys	\$ 28,824
North, East, and South Property Fencing and Gates	419,932
Site Grading and Earthwork for Pavements	318,960
AC Pavement	237,693
Site Mechanical	373,254
Site Electrical	240,100
SUBTOTAL:	\$ 1,618,763
12 - GENERAL REQUIREMENTS	474,393
SUBTOTAL:	\$ 2,093,156
13 - CONTINGENCIES	594,456
TOTAL ESTIMATED CONSTRUCTION COST (2020):	\$ 2,687,612
COST PER SQUARE FOOT:	\$ 27.53 /SF
SITE DEVELOPMENT AREA:	97,625 SF

HMS Project No.: 18031

PROJECT 4 - SITE DEVELOPMENT, FENCING, AC PAVEMENTS AND FENCING SYSTEMS 01 - SITE WORK Site Surveys	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
Site survey and staking for site development, fencing, etc.	3.42	AC	6000.00	20,520
Temporary fencing	1	LOT		Use Existing
Traffic control and barriers	1	LOT	3500.00	3,500
SUBTOTAL:				\$ 24,020
Subcontractor's Overhead and Profit for Materials and Labor		20.00%		4,804

TOTAL ESTIMATED COST: \$ 28,824

HMS Project No.: 18031

PROJECT 4 -SITE DEVELOPMENT, FENCING, AC PAVEMENTS AND FENCING SYSTEMS 01 - SITE WORK North, East, and South Property Fencing and Gates	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
Demolish 8'0" high security fencing, barbed wires, posts and bases, and dispose	2,215	LF	7.50	16,613
Demolish 35'0"x8'0" sliding gates and rails, and dispose	3	EA	800.00	2,400
18" diameter x 42" deep concrete bases 10'0" o/c in augured holes	234	EA	120.00	28,080
3" diameter x 11'0" fence posts embedded 42" deep in concrete bases	224	EA	255.00	57,120
4" diameter x 11'0" corner/gate posts embedded 42" deep in concrete bases	10	EA	295.00	2,950
(3) strand barbed wire brackets mounted at top of fence posts, 10'0" o/c	234	EA	48.00	11,232
Pull and install barbed wire through brackets (3 strands)	7,020	LF	1.40	9,828
8'0" high chainlink fence fabric with tension cables fixed to posts	2,340	LF	29.50	69,030
Tie-in new fencing to existing posts	4	EA	55.00	220
2" diameter x 12'0" fence cross-bracings	224	EA	155.00	34,720
35'0"x8'0 automatic sliding gates, rails, and controls	3	EA	35500.00	106,500
Gate operator pedestals, access cards, enter/exit devices, and power connectors	3	LOT	3750.00	11,250
SUBTOTAL:				\$ 349,943
Subcontractor's Overhead and Profit for Materials and Labor	20.00%			69,989
TOTAL ESTIMATED COST:				\$ 419,932

HMS Project No.: 18031

PROJECT 4 -SITE DEVELOPMENT, FENCING, AC PAVEMENTS AND FENCING SYSTEMS 01 - SITE WORK Site Grading and Earthwork for Pavements	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
Remove petroleum contaminated soils at (2) fuel tanks and dispose per ADEC requirements (quantity assumed)	70	CY	275.00	19,250
Remove tarp from average 6'0" deep stockpile heap and salvage	12,250	SF	0.20	2,450
Excavate stockpile material and haul to CEA property	2,180	CY	8.50	18,530
Cover materials with salvaged tarp	12,250	SF	0.30	3,675
Excavate average 30" deep for new pavements and dispose	7,440	CY	8.25	61,380
24" deep NFS fill, compacted	6,994	CY	22.50	157,365
Soil compaction test (1/500 CY)	14	EA	225.00	3,150
SUBTOTAL:				\$ 265,800
Subcontractor's Overhead and Profit for Materials and Labor	20.00%			53,160
TOTAL ESTIMATED COST:				\$ 318,960

HMS Project No.: 18031

PROJECT 4 - SITE DEVELOPMENT, FENCING, AC PAVEMENTS AND FENCING SYSTEMS	<i>QUANTITY</i>	<i>UNIT</i>	<i>UNIT RATE</i>	<i>TOTAL</i>
01 - SITE WORK				
AC Pavement			\$	\$
4" leveling course, compacted	1,202	CY	28.00	33,656
2" AC pavement (1,033 tons)	78,675	SF	2.45	192,754
Match existing pavements	625	LF	4.50	2,813
Pavement tests (1/5,000 SF)	16	EA	200.00	3,200
Mark parking stalls	88	EA	40.00	3,520
Traffic and miscellaneous signs, posts, and bases	5	EA	350.00	1,750

TOTAL ESTIMATED COST: **\$ 237,693**

HMS Project No.: 18031

PROJECT 4 -SITE DEVELOPMENT, FENCING, AC PAVEMENTS AND FENCING SYSTEMS 01 - SITE WORK Site Mechanical	QUANTITY	UNIT	UNIT RATE	TOTAL
			\$	\$

DEMOLITION

Pump out 5,000 gallon diesel and gasoline from tanks into mobile containers	2	EA	1250.00	2,500
Inert and dispose 5,000 gallon empty tanks	2	EA	2500.00	5,000
Demolish and dispose fuel transfer pumps and piping	2	LOTS	850.00	1,700

NEW WORK

Fuel Island

12" thick reinforced concrete fuel island (65 CY)	1,650	SF	19.50	32,175
1/4"x12" high painted steel edge plates embedded to island concrete face	250	LF	28.00	7,000

Buried Fuel Tanks

Excavate and dispose for fuel tanks	445	CY	10.00	4,450
NFS backfill under and around tanks, compacted	312	CY	22.50	7,020
12" thick reinforced concrete ballast with tank holddowns (2)	600	SF	15.50	9,300
Install 10,000 gallon double compartment fuel tank anchored to ballast, complete with man holes, vents, fuel fill and dispenser ports, gauges, etc.	2	EA	43500.00	87,000
Fuel for testing diesel	500	GAL	3.20	1,600
Fuel for testing gasoline	500	GAL	3.10	1,550

Note: Tanks to be filled by owner.

Fuel Pumps, Dispensers, Piping, Etc.

Diesel and gasoline fuel dispensers and pumps with fuel draw access cards	4	EA	17500.00	70,000
Diesel and gasoline fuel metering and dispenser stations inside controls building	2	EA	6000.00	12,000

HMS Project No.: 18031

PROJECT 4 - SITE DEVELOPMENT, FENCING, AC PAVEMENTS AND FENCING SYSTEMS 01 - SITE WORK Site Mechanical	<i>QUANTITY</i>	<i>UNIT</i>	<i>UNIT RATE</i>	<i>TOTAL</i>
			\$	\$

NEW WORK (Continued)

Fuel Pumps, Dispensers, Piping, Etc. (Continued)

15'0"x10'0"x10'0" skid mounted prefabricated controls building complete with mechanical and electrical systems	1	EA	67500.00	67,500
Warning signs and labels	1	LOT	750.00	750
Test systems	1	LOT	1500.00	1,500
<i>SUBTOTAL:</i>				\$ 311,045
Subcontractor's Overhead and Profit for Materials and Labor	20.00%			62,209

TOTAL ESTIMATED COST:	\$ 373,254
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HMS Project No.: 18031

PROJECT 4 -SITE DEVELOPMENT, FENCING, AC PAVEMENTS AND FENCING SYSTEMS 01 - SITE WORK Site Electrical	QUANTITY	UNIT	UNIT RATE	TOTAL
			\$	\$

POWER TO FUEL PUMP AND DISPENSERS

225 amp, 120/240 volt, 3 phase, 4 wire, 12 circuit power panel mounted inside dispenser hut	1	EA	3500.00	3,500
Panel grounding	1	LOT	500.00	500
1" RGS buried conduits to fuel dispensers (4)	1,060	LF	21.00	22,260
Power and signal wiring (4)	4,250	LF	2.75	11,688
Power connections to pumps and dispensers	4	LOT	850.00	3,400
Test system	1	LOT	2500.00	2,500

AREA LIGHTING

225 amp, 120 volt, 3 phase, 4 wire, 24 circuits lighting panel mounted inside dispenser hut	1	EA	3200.00	3,200
20'0" pole mounted at fuel island	2	EA	2150.00	4,300
24'0" pole mounted at parking area	18	EA	1980.00	35,640
Pole mounted ___ lumens LED fixtures at fuel island	6	EA	1635.00	9,810
Pole mounted ___ lumens LED fixtures at parking area	36	EA	1470.00	52,920
Photocell and contactor for island fixtures	1	EA	750.00	750
Photocell and contactor for parking area lighting	2	EA	500.00	1,000
1 1/4" EMT conduit and wiring to power panels (2)	50	LF	22.50	1,125
1" PVC buried conduit and wiring to fixtures	2,300	LF	7.30	16,790
1" PVC conduit and wiring inside poles	900	LF	5.50	4,950
Test and tag system	1	LOT	750.00	750

HMS Project No.: 18031

PROJECT 4 -SITE DEVELOPMENT, FENCING, AC PAVEMENTS AND FENCING SYSTEMS 01 - SITE WORK Site Electrical	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
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CATHODIC PROTECTION TO TANKS

Cathodic protection system to 10,000 gallon fuel tanks and piping	2	LOT	12500.00	25,000
SUBTOTAL:				\$ 200,083
Subcontractor's Overhead and Profit for Materials and Labor	20.00%			40,017

TOTAL ESTIMATED COST: **\$ 240,100**

HMS Project No.: 18031

PROJECT 4 - SITE DEVELOPMENT, FENCING, AC PAVEMENTS AND FENCING SYSTEMS 12 - GENERAL REQUIREMENTS	<i>QUANTITY</i>	<i>UNIT</i>	<i>UNIT RATE</i> \$	<i>TOTAL</i> \$
Mobilization/demobilization	1	LOT	10000.00	10,000
Operation costs for personnel	4	MOS	17500.00	70,000
Operation costs for equipment	4	MOS	22500.00	90,000
Miscellaneous construction aides	4	MOS	5000.00	20,000
Fuel, oil, and grease for earthwork/paving equipment (2,000 gallons/month)	4	MOS	6500.00	26,000
Temporary facilities, power, lighting, maintenance, etc.	4	MOS	2500.00	10,000
<i>SUBTOTAL:</i>				\$ 226,000
Home Office	3.00%			55,343
Overhead and Profit	8.00%			152,008
Bonds and Insurance	2.00%			41,042
<i>TOTAL ESTIMATED COST:</i>				\$ 474,393

HMS Project No.: 18031

PROJECT 4 -SITE DEVELOPMENT, FENCING, AC PAVEMENTS AND FENCING SYSTEMS 13 - CONTINGENCIES	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
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ESTIMATOR'S CONTINGENCY

The estimator's allowance for architectural and engineering requirements that are not apparent at an early level of design documentation

20.00%

418,631

ESCALATION CONTINGENCY

The allowance for escalation from the date of estimate to the proposed bid date of 2020 at the rate of 3.50% per annum

7.00%

175,825

TOTAL ESTIMATED COST:

\$ 594,456

HMS Project No.: 18031

**PROJECT 5 - COVERED CLASSIFIED SOIL SHELTER
 ROM DESIGN COST SUMMARY**

A. 5 YEAR PLAN		
01 - SITE WORK		
Site Preparation and Improvements		\$ 18,313
Site Electrical		4,860
02 - SUBSTRUCTURE		
		39,648
03 - SUPERSTRUCTURE		
		77,896
04 - EXTERIOR CLOSURE		
		55,560
05 - ROOFING		
		55,860
09 - ELECTRICAL WORK		
		22,614
<i>SUBTOTAL:</i>		\$ 274,751
12 - GENERAL REQUIREMENTS		
		60,445
<i>SUBTOTAL:</i>		\$ 335,196
13 - CONTINGENCIES		
		77,262
TOTAL ESTIMATED CONSTRUCTION COST (2020):		\$ 412,458
COST PER SQUARE FOOT:		\$ 84.18 /SF
GROSS FLOOR AREA:		4,900 SF
B. 20 YEAR PLAN		
Direct Work Cost as per A		\$ 274,751
Delete Exterior Closure (1,484 SF x 12.50)		-18,550
<i>SUBTOTAL:</i>		\$ 256,201
General Requirements	22.00%	56,364
Contingencies	23.00%	71,890
TOTAL ESTIMATED CONSTRUCTION COST (2020):		\$ 384,455
COST PER SQUARE FOOT:		\$ 78.46 /SF
GROSS FLOOR AREA:		4,900 SF

Note: All costs are projected to 2020 construction. Adjustments should be made to subsequent year of construction at 3.50% escalation per year.

HMS Project No.: 18031

PROJECT 5 - COVERED CLASSIFIED SOIL SHELTER 01 - SITE WORK Site Preparation and Improvements	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
Site survey and staking	0.15	AC	6000.00	900
Excavate and dispose for building pad, average 24" deep	363	CY	8.25	2,995
18" deep NFS fill, compacted	327	CY	22.00	7,194
6" D1 gravel floor, compacted	114	CY	28.00	3,192
Finish grade	4,900	SF	0.20	980
SUBTOTAL:				\$ 15,261
Subcontractor's Overhead and Profit for Materials and Labor	20.00%			3,052

TOTAL ESTIMATED COST: \$ 18,313

HMS Project No.: 18031

PROJECT 5 - COVERED CLASSIFIED SOIL SHELTER 01 - SITE WORK Site Electrical	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
Buried power to shelter from warm storage building	180	LF	22.50	4,050
SUBTOTAL:				\$ 4,050
Subcontractor's Overhead and Profit for Materials and Labor	20.00%			810

TOTAL ESTIMATED COST: **\$ 4,860**

HMS Project No.: 18031

PROJECT 5 - COVERED CLASSIFIED SOIL SHELTER				
02 - SUBSTRUCTURE	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
36"x36"x18" thick reinforced concrete bases	8	EA	475.00	3,800
18"x30"x30" reinforced concrete pilasters	8	EA	410.00	3,280
8" thick x 60" reinforced concrete stockpile bin walls	1,180	SF	22.00	25,960
SUBTOTAL:				\$ 33,040
Subcontractor's Overhead and Profit for Materials and Labor	20.00%			6,608

TOTAL ESTIMATED COST: \$ 39,648

HMS Project No.: 18031

PROJECT 5 - COVERED CLASSIFIED SOIL SHELTER				
03 - SUPERSTRUCTURE				
	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
14'0"x65'0"x14'0" rigid steel portal frames and bases	3	EA	9300.00	27,900
16" W columns and bases	2	EA	1250.00	2,500
6" Z girts, 36" o/c	1,652	SF	5.50	9,086
6" Z purlins, 24" o/c	4,384	LF	5.80	25,427
SUBTOTAL:				\$ 64,913
Subcontractor's Overhead and Profit for Materials and Labor	20.00%			12,983

TOTAL ESTIMATED COST: \$ 77,896

HMS Project No.: 18031

PROJECT 5 - COVERED CLASSIFIED SOIL SHELTER				
04 - EXTERIOR CLOSURE	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
Galvanized steel corrugated metal siding fixed to girts	3,629	SF	12.40	45,000
Framing to 24'0"x14'0" opening	52	LF	25.00	1,300
<i>SUBTOTAL:</i>				<u>\$ 46,300</u>
Subcontractor's Overhead and Profit for Materials and Labor	20.00%			9,260

TOTAL ESTIMATED COST: **\$ 55,560**

HMS Project No.: 18031

PROJECT 5 - COVERED CLASSIFIED SOIL SHELTER				
05 - ROOFING	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
Prefinished metal roofing including flashings fixed to purlins	4,900	SF	9.50	46,550
SUBTOTAL:				\$ 46,550
Subcontractor's Overhead and Profit for Materials and Labor	20.00%			9,310

TOTAL ESTIMATED COST: **\$ 55,860**

HMS Project No.: 18031

PROJECT 5 - COVERED CLASSIFIED SOIL SHELTER				
09 - ELECTRICAL WORK	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
125 amp, 24 circuits building mounted panel	1	EA	2250.00	2,250
LED exterior light fixtures	4	EA	525.00	2,100
LED interior light fixtures	20	EA	380.00	7,600
Photocell and contactor	1	EA	500.00	500
Weatherproof GFCI receptacles	8	EA	95.00	760
Conduit and wiring	550	LF	9.70	5,335
Testing	1	LOT	300.00	300
SUBTOTAL:				\$ 18,845
Subcontractor's Overhead and Profit for Materials and Labor	20.00%			3,769

TOTAL ESTIMATED COST:	\$ 22,614
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HMS Project No.: 18031

PROJECT 5 - COVERED CLASSIFIED SOIL SHELTER 12 - GENERAL REQUIREMENTS	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
General Requirement, Overhead, and Profit	22.00%			60,445

TOTAL ESTIMATED COST: **\$ 60,445**

HMS Project No.: 18031

PROJECT 5 - COVERED CLASSIFIED SOIL SHELTER 13 - CONTINGENCIES	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
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ESTIMATOR'S CONTINGENCY

The estimator's allowance for architectural and engineering requirements that are not apparent at an early level of design documentation

15.00%

50,279

ESCALATION CONTINGENCY

The allowance for escalation from the date of estimate to the proposed bid date of 2020 at the rate of 3.50% per annum

7.00%

26,983

TOTAL ESTIMATED COST: **\$ 77,262**

HMS Project No.: 18031

PROJECT 6 - COVERED MATERIALS SHELTER FOR PARTS AND COMPONENTS
ROM DESIGN COST SUMMARY

01 - SITE WORK	
Site Preparation and Improvements	\$ 123,349
Site Electrical	30,840
02 - SUBSTRUCTURE	202,188
03 - SUPERSTRUCTURE	436,116
04 - EXTERIOR CLOSURE	111,274
05 - ROOFING	216,600
09 - ELECTRICAL WORK	73,506
<i>SUBTOTAL:</i>	<i>\$ 1,193,873</i>
12 - GENERAL REQUIREMENTS	262,652
<i>SUBTOTAL:</i>	<i>\$ 1,456,525</i>
13 - CONTINGENCIES	335,729
TOTAL ESTIMATED CONSTRUCTION COST (2020):	\$ 1,792,254
<i>COST PER SQUARE FOOT:</i>	<i>\$ 94.33 /SF</i>
<i>GROSS FLOOR AREA:</i>	<i>19,000 SF</i>

HMS Project No.: 18031

PROJECT 6 - COVERED MATERIAL SHELTER FOR PARTS AND COMPONENTS 01 - SITE WORK Site Preparation and Improvements	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
Site survey and staking	0.70	AC	6000.00	4,200
Excavate and dispose for building and site pad, average 24" deep	2,260	CY	8.25	18,645
18" deep NFS fill, compacted	2,034	CY	22.00	44,748
Fill compaction tests (1/500 CY)	4	EA	225.00	900
4" leveling course at access area	176	CY	28.00	4,928
2" AC pavement (15 tons)	11,500	SF	2.45	28,175
Match existing pavement	110	LF	4.50	495
Traffic signs	2	EA	350.00	700
SUBTOTAL:				\$ 102,791
Subcontractor's Overhead and Profit for Materials and Labor	20.00%			20,558

TOTAL ESTIMATED COST: \$ 123,349

HMS Project No.: 18031

PROJECT 6 - COVERED MATERIAL SHELTER FOR PARTS AND COMPONENTS 01 - SITE WORK Site Electrical	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
Buried power to shelter	200	LF	22.50	4,500
Area lighting poles, bases, fixtures, conduits, and wiring	6	EA	3450.00	20,700
Photocell and contactor	1	EA	500.00	500
SUBTOTAL:				\$ 25,700
Subcontractor's Overhead and Profit for Materials and Labor	20.00%			5,140

TOTAL ESTIMATED COST: \$ 30,840

HMS Project No.: 18031

PROJECT 6 - COVERED MATERIAL SHELTER FOR PARTS AND COMPONENTS 02 - SUBSTRUCTURE	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
36"x36"x18" thick reinforced concrete bases	24	EA	475.00	11,400
18"x30"x30" reinforced concrete pilasters	24	EA	410.00	9,840
4" reinforced concrete slab	19,000	SF	7.75	147,250
SUBTOTAL:				\$ 168,490
Subcontractor's Overhead and Profit for Materials and Labor	20.00%			33,698

TOTAL ESTIMATED COST: \$ 202,188

HMS Project No.: 18031

PROJECT 6 - COVERED MATERIAL SHELTER FOR PARTS AND COMPONENTS 03 - SUPERSTRUCTURE	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
14'0"x100'0"x14'0" rigid steel portal frames and bases	8	EA	14500.00	116,000
16'0" W columns and bases	8	EA	1200.00	9,600
6" Z girts, 36" o/c	3,840	LF	5.50	21,120
6" Z purlins, 24" o/c	8,700	LF	5.80	50,460
Materials storage steel framed racks (70% area)	13,300	SF	12.50	166,250
SUBTOTAL:				\$ 363,430
Subcontractor's Overhead and Profit for Materials and Labor	20.00%			72,686

TOTAL ESTIMATED COST: \$ 436,116

HMS Project No.: 18031

PROJECT 6 - COVERED MATERIAL SHELTER FOR PARTS AND COMPONENTS 04 - EXTERIOR CLOSURE	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
Galvanized steel corrugated metal siding fixed to girts	7,220	SF	12.40	89,528
Framing to 100'0"x14'0" opening	128	LF	25.00	3,200
<i>SUBTOTAL:</i>				<u>\$ 92,728</u>
Subcontractor's Overhead and Profit for Materials and Labor	20.00%			18,546

TOTAL ESTIMATED COST: **\$ 111,274**

HMS Project No.: 18031

PROJECT 6 - COVERED MATERIAL SHELTER FOR PARTS AND COMPONENTS 05 - ROOFING	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
Prefinished metal roofing including flashings fixed to purlins	19,000	SF	9.50	180,500
SUBTOTAL:				<u>\$ 180,500</u>
Subcontractor's Overhead and Profit for Materials and Labor	20.00%			36,100

TOTAL ESTIMATED COST: **\$ 216,600**

HMS Project No.: 18031

PROJECT 6 - COVERED MATERIAL SHELTER FOR PARTS AND COMPONENTS 09 - ELECTRICAL	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
225 amp, 24 circuits building mounted panel	1	EA	2700.00	2,700
LED exterior light fixtures	12	EA	525.00	6,300
LED interior light fixtures	76	EA	380.00	28,880
Photocell and contactor	1	EA	500.00	500
Weatherproof GFCI receptacles	16	EA	95.00	1,520
Conduit and wiring	2,150	LF	9.70	20,855
Testing	1	LOT	500.00	500
SUBTOTAL:				\$ 61,255
Subcontractor's Overhead and Profit for Materials and Labor	20.00%			12,251

TOTAL ESTIMATED COST: \$ 73,506

HMS Project No.: 18031

PROJECT 6 - COVERED MATERIAL SHELTER FOR PARTS AND COMPONENTS 12 - GENERAL REQUIREMENTS	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
General Requirement, Overhead, and Profit	22.00%			262,652

TOTAL ESTIMATED COST: **\$ 262,652**

HMS Project No.: 18031

PROJECT 6 - COVERED MATERIAL SHELTER FOR PARTS AND COMPONENTS 13 - CONTINGENCIES	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
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ESTIMATOR'S CONTINGENCY

The estimator's allowance for architectural and engineering requirements that are not apparent at an early level of design documentation

15.00%

218,479

ESCALATION CONTINGENCY

The allowance for escalation from the date of estimate to the proposed bid date of 2020 at the rate of 3.50% per annum

7.00%

117,250

TOTAL ESTIMATED COST:

\$ 335,729

HMS Project No.: 18031

**PROJECT 7 - SEPTAGE, FOG AND GRIT FACILITIES
 ROM DESIGN COST SUMMARY**

7a - SEPTAGE FACILITY (5 YEAR PLAN)	
01 - SITE WORK	
Site Preparation and Improvements	\$ 48,251
Site Mechanical	23,214
Site Electrical	11,160
SEPTAGE BUILDING	241,890
PROCESS EQUIPMENT	313,800
SUBTOTAL:	\$ 638,315
12 - GENERAL REQUIREMENTS	140,429
SUBTOTAL:	\$ 778,744
13 - CONTINGENCIES	179,501
TOTAL ESTIMATED CONSTRUCTION COST (2020):	\$ 958,245
COST PER SQUARE FOOT:	\$ 1,064.72 /SF
GROSS FLOOR AREA:	900 SF
7b - FOG FACILITY (5 YEAR PLAN)	
01 - SITE WORK	
Site Mechanical	\$ 7,200
Site Electrical	7,440
FOG BUILDING	241,200
FOG RECEIVING STATION	162,000
SUBTOTAL:	\$ 417,840
12 - GENERAL REQUIREMENTS	91,925
SUBTOTAL:	\$ 509,765
13 - CONTINGENCIES	117,501
TOTAL ESTIMATED CONSTRUCTION COST (2020):	\$ 627,266
COST PER SQUARE FOOT:	\$ 696.96 /SF
GROSS FLOOR AREA:	\$ 900 SF
7c. GRIT FACILITY (Note: Costs are place holders. Actual costs to be developed based on actual design.)	
5 YEAR PLAN	
VERTICAL MESH SCREENS	\$ 10,000
MULTIPLE CHECK DAMS	10,000
20 YEAR PLAN	
MECHANICAL GRIT RECEIVING AND PROCESSING SYSTEM	140,000
OPTION - CHEMICAL TREATMENT PROCESSING EQUIPMENT	125,000

HMS Project No.: 18031

PROJECT 7A - SEPTAGE FACILITY (5 YEAR PLAN) 01 - SITE WORK Site Preparation and Improvements	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
Site survey and staking for oval roadway and (2) buildings	0.35	AC	6000.00	2,100
Grade site for expanded road oval	2,400	SF	1.25	3,000
Excavate and dispose for buildings and roads expansion, 24" deep	311	CY	8.25	2,566
Average 18" deep NFS fill, compacted	280	CY	22.00	6,160
Fill compaction tests (1/500 CY)	1	EA	225.00	225
6" D1 surfacing at existing and expanded road oval	139	CY	30.00	4,170
Finish grade oval	10,990	SF	0.20	2,198
5" thick heated covered walks at trucks loading bay	600	SF	9.15	5,490
8'0" fence, posts, and bases	220	LF	65.00	14,300
SUBTOTAL:				\$ 40,209
Subcontractor's Overhead and Profit for Materials and Labor	20.00%			8,042

TOTAL ESTIMATED COST: \$ 48,251

HMS Project No.: 18031

PROJECT 7A - SEPTAGE FACILITY (5 YEAR PLAN) 01 - SITE WORK Site Mechanical	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
3" water line and trenching from warm storage	145	LF	35.00	5,075
3" valve and box	1	EA	750.00	750
3" connection to existing	1	EA	350.00	350
3" building connection and sleeve	1	EA	200.00	200
6" sewer line	150	LF	48.00	7,200
4" yard cleanout	1	EA	550.00	550
6" connection to existing	1	EA	400.00	400
6" building connection and sleeve	1	EA	250.00	250
2" gas line and trenching	140	LF	18.00	2,520
2" meter and regulator	1	EA	1300.00	1,300
2" connection to existing	1	EA	150.00	150
2" connection to building	1	EA	100.00	100
Testing	1	EA	500.00	500
SUBTOTAL:				\$ 19,345
Subcontractor's Overhead and Profit for Materials and Labor	20.00%			3,869

TOTAL ESTIMATED COST: \$ 23,214

HMS Project No.: 18031

PROJECT 7A - SEPTAGE FACILITY (5 YEAR PLAN) 01 - SITE WORK Site Electrical	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
Buried secondary service from storage building	150	LF	35.00	5,250
Data-comm	150	LF	27.00	4,050
SUBTOTAL:				\$ 9,300
Subcontractor's Overhead and Profit for Materials and Labor	20.00%			1,860

TOTAL ESTIMATED COST: **\$ 11,160**

HMS Project No.: 18031

PROJECT 7A - SEPTAGE FACILITY (5 YEAR PLAN)				
SEPTAGE BUILDING	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
Substructure	900	SF	18.00	16,200
Superstructure	900	SF	23.00	20,700
Covered canopy roof	600	SF	13.00	7,800
Exterior closure	1,342	SF	25.00	33,550
3'0"x7'0" single doors	2	EA	1400.00	2,800
12'0"x12'0" overhead doors	2	EA	6000.00	12,000
4'0"x4'0" windows	8	EA	830.00	6,640
Roofing	900	SF	13.00	11,700
Interior partitions, doors, finishes and specialties	900	SF	35.00	31,500
Building mechanical systems	900	SF	58.00	52,200
Building electrical systems	900	SF	52.00	46,800

TOTAL ESTIMATED COST: **\$ 241,890**

HMS Project No.: 18031

PROJECT 7A - SEPTAGE FACILITY (5 YEAR PLAN)				
PROCESS EQUIPMENT	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
Treatment equipment comprising rack trap, grinder pump, washing/screening units, flow meters and instrumentation	900	SF	285.00	256,500
Test and commission	1	LOT	5000.00	5,000
SUBTOTAL:				\$ 261,500
Subcontractor's Overhead and Profit for Materials and Labor	20.00%			52,300

TOTAL ESTIMATED COST:	\$ 313,800
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HMS Project No.: 18031

PROJECT 7A - SEPTAGE FACILITY (5 YEAR PLAN) 12 - GENERAL REQUIREMENTS	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
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General Requirements, Overhead, and Profit	22.00%			140,429
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TOTAL ESTIMATED COST:	\$ 140,429
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HMS Project No.: 18031

PROJECT 7A - SEPTAGE FACILITY (5 YEAR PLAN)				
13 - CONTINGENCIES	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$

ESTIMATOR'S CONTINGENCY

The estimator's allowance for architectural and engineering requirements that are not apparent at an early level of design documentation

15.00%

116,812

ESCALATION CONTINGENCY

The allowance for escalation from the date of estimate to the proposed bid date of 2020 at the rate of 3.50% per annum

7.00%

62,689

TOTAL ESTIMATED COST: **\$ 179,501**

HMS Project No.: 18031

PROJECT 7B - FOG FACILITY (5 YEAR PLAN) 01 - SITE WORK Site Mechanical	<i>QUANTITY</i>	<i>UNIT</i>	<i>UNIT RATE</i> \$	<i>TOTAL</i> \$
4" sewer line and trenching from FOG to septage building	100	LF	42.00	4,200
1" water line	100	LF	18.00	1,800
<i>SUBTOTAL:</i>				\$ 6,000
Subcontractor's Overhead and Profit for Materials and Labor	20.00%			1,200

TOTAL ESTIMATED COST: **\$ 7,200**

HMS Project No.: 18031

PROJECT 7B - FOG FACILITY (5 YEAR PLAN) 01 - SITE WORK Site Electrical	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
Buried power service from septage building	100	LF	35.00	3,500
Data/comm	100	LF	27.00	2,700
SUBTOTAL:				\$ 6,200
Subcontractor's Overhead and Profit for Materials and Labor	20.00%			1,240

TOTAL ESTIMATED COST: **\$ 7,440**

HMS Project No.: 18031

PROJECT 7B - FOG FACILITY (5 YEAR PLAN)				
FOG BUILDING	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
Building construction	900	SF	158.00	142,200
Mechanical systems	900	SF	58.00	52,200
Electrical systems	900	SF	52.00	46,800

TOTAL ESTIMATED COST: **\$ 241,200**

HMS Project No.: 18031

PROJECT 7B - FOG FACILITY (5 YEAR PLAN)				
FOG RECEIVING STATION	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
FOG receiving station complete with mechanical and electrical systems	1	LOT	135000.00	135,000
SUBTOTAL:				<u>\$ 135,000</u>
Subcontractor's Overhead and Profit for Materials and Labor	20.00%			27,000

TOTAL ESTIMATED COST: **\$ 162,000**

HMS Project No.: 18031

PROJECT 7B - FOG FACILITY (5 YEAR PLAN) 12 - GENERAL REQUIREMENTS	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
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General Requirements, Overhead, and Profit	22.00%			91,925
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TOTAL ESTIMATED COST:	\$ 91,925
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HMS Project No.: 18031

PROJECT 7B - FOG FACILITY (5 YEAR PLAN)				
13 - CONTINGENCIES	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$

ESTIMATOR'S CONTINGENCY

The estimator's allowance for architectural and engineering requirements that are not apparent at an early level of design documentation

15.00%

76,465

ESCALATION CONTINGENCY

The allowance for escalation from the date of estimate to the proposed bid date of 2020 at the rate of 3.50% per annum

7.00%

41,036

TOTAL ESTIMATED COST:

\$ 117,501

HMS Project No.: 18031

PROJECT 7C - GRIT FACILITY 5 YEAR PLAN	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
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Vertical mesh screen at existing weir and sluice gates	1	LOT	10000.00	10,000
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TOTAL ESTIMATED COST: **\$ 10,000**

HMS Project No.: 18031

PROJECT 7C - GRIT FACILITY 5 YEAR PLAN	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
Install multiple check dams at dewatering trough	1	LOT	10000.00	10,000

TOTAL ESTIMATED COST: **\$ 10,000**

HMS Project No.: 18031

PROJECT 7C - GRIT FACILITY 20 YEAR PLAN	QUANTITY	UNIT	UNIT RATE \$	TOTAL \$
Install mechanical grit removal processing station	1	LOT	100000.00	100,000
Electrical service and lighting	1	LOT	30000.00	30,000
Water service for wash down	1	LOT	10000.00	10,000

TOTAL ESTIMATED COST: **\$ 140,000**

HMS Project No.: 18031

PROJECT 7C - GRIT FACILITY				
OPTION	<i>QUANTITY</i>	<i>UNIT</i>	<i>UNIT RATE</i> \$	<i>TOTAL</i> \$
Chemical treatment processing equipment	1	LOT	85000.00	85,000
Electrical service and lighting	1	LOT	30000.00	30,000
Water service for washdown	1	LOT	10000.00	10,000

TOTAL ESTIMATED COST: **\$ 125,000**

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APPENDIX C

KING ST. MAIN BUILDING UPGRADES DRAWINGS

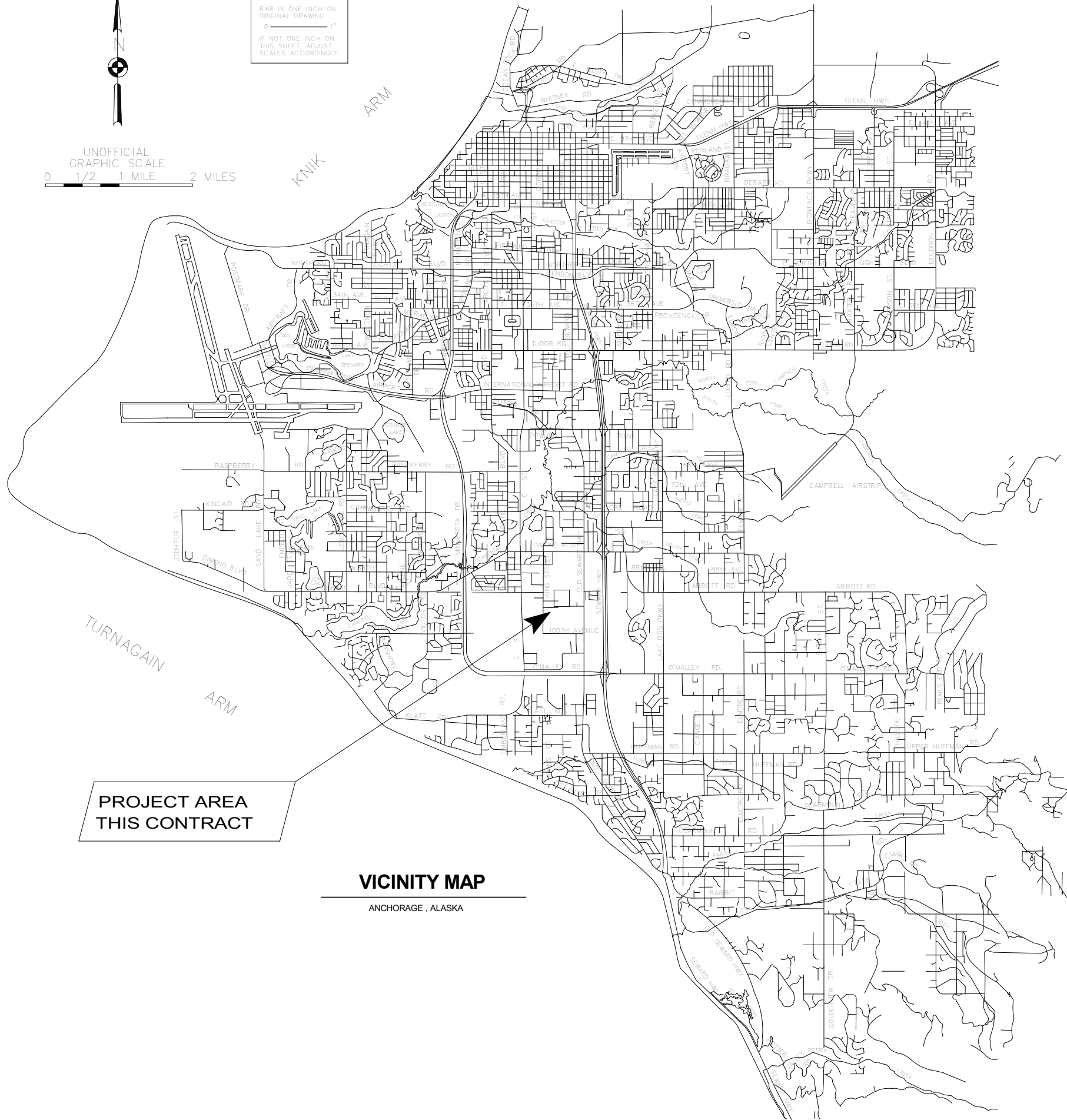


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VERIFY SCALES
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 0 1"
 IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

UNOFFICIAL GRAPHIC SCALE
 0 1/2 1 MILE 2 MILES



**PROJECT AREA
THIS CONTRACT**

VICINITY MAP
 ANCHORAGE, ALASKA



**MUNICIPALITY OF ANCHORAGE
WATER & WASTEWATER UTILITY**

**KING STREET
MAIN BUILDING UPGRADES**

**AWWU PROJECT ID. NO. XXXX
04/29/2016**

INDEX OF DRAWING

GENERAL

- G100 COVER SHEET
- G101 INDEX OF DRAWINGS
- G201 BUILDING CODE PLANS

CIVIL

- C1 KEY MAP, NOTES, LEGEND
- C2 EXISTING CONDITIONS
- C3 DEMOLITION PLAN
- C4 SITE PLAN
- C5 WEST GRADING AND DRAINAGE PLAN
- C6 EAST GRADING AND DRAINAGE PLAN
- C7 HORIZONTAL CONTROL
- C8 RAIN LEADER PLAN AND PROFILE
- C9 PROPOSED FLOOR DRAIN LOCATION - ADMINISTRATIVE BLDG.
- C10 SITE SECTIONS
- C11 CIVIL DETAILS AND SITE SECTIONS
- C12 CIVIL DETAILS
- C13 CIVIL DETAILS

ARCHITECTURAL

- A001 ARCHITECTURAL ABBREVIATIONS
- A100 REFERENCE PHOTOS
- A101 EXISTING DEMO FLOOR PLAN - LEVEL 1
- A102 EXISTING DEMO FLOOR PLAN - LEVEL 2
- A131 ENTRY PLAN AND PHOTOS
- A211 UPGRADE FLOOR PLAN - LEVEL 1
- A301 ENLARGED UPGRADE PLANS
- A302 ENTRY REFLECTED CEILING PLAN - CANOPY
- A303 ROOF PLAN AND DETAILS - CANOPY
- A401 EXTERIOR ELEVATIONS
- A501 CANOPY SECTIONS AND WALL SECTION
- A621 ROOF AND WALL DETAILS
- A622 WALL DETAILS
- A701 FINISH, DOOR SCHEDULES AND WINDOW TYPES

STRUCTURAL

- S101 GENERAL STRUCTURAL NOTES AND I.O.D.
- S102 GENERAL STRUCTURAL NOTES
- S103 SPECIAL INSPECTION TABLES
- S104 SPECIAL INSPECTION TABLES
- S105 TYPICAL DETAILS
- S106 TYPICAL DETAILS AND SCHEDULES
- S200 FOUNDATION AND CANOPY FRAMING PLANS
- S300 FOUNDATION AND FRAMING DETAILS

MECHANICAL

- M001 LEGEND AND ABBREVIATIONS
- M002 SCHEDULES
- M100 OVERALL DEMOLITION PLAN - LEVEL 1
- M102 ENLARGED DEMOLITION PLAN - LEVEL 1
- M103 OVERALL DEMOLITION PLAN - LEVEL 2
- M104 ENLARGED DEMOLITION PLANS - LEVEL 2
- M201 OVERALL PLAN - LEVEL 1
- M203 ENLARGED PLANS - LEVEL 1
- M204 OVERALL PLAN - LEVEL 2
- M205 ENLARGED PLANS - LEVEL 2
- M206 RADIANT SNOW MELT PLAN
- M301 MECHANICAL DETAILS

ELECTRICAL

- E001 LEGEND, ABBREVIATIONS AND NOTES
- E100 OVERALL SITE PLAN
- E101 DEMOLITION PLAN - LEVEL 1 NORTH
- E102 DEMOLITION PLAN - LEVEL 1 SOUTH
- E103 DEMOLITION PLAN - LEVEL 2 NORTH
- E104 DEMOLITION PLAN - LEVEL 2 SOUTH
- E201 LIGHTING PLAN - LEVEL 1 NORTH
- E202 LIGHTING PLAN - LEVEL 1 SOUTH
- E203 LIGHTING PLAN - LEVEL 2 NORTH
- E204 LIGHTING PLAN - LEVEL 2 SOUTH
- E301 POWER AND SIGNAL PLAN - LEVEL 1 NORTH
- E302 POWER AND SIGNAL PLAN - LEVEL 1 SOUTH
- E303 POWER AND SIGNAL PLAN - LEVEL 2 NORTH
- E304 POWER AND SIGNAL PLAN - LEVEL 2 SOUTH
- E401 ENLARGED PLANS
- E402 ENLARGED PLANS
- E403 ENLARGED PLANS
- E501 DETAILS AND DIAGRAMS
- E502 DETAILS AND DIAGRAMS
- E601 SCHEDULES
- E602 SCHEDULES
- E603 SCHEDULES
- E604 SCHEDULES

PLOT DATE: 4/30/2016 10:06:59 AM

Checker

PLOT SCALE:

FILE PATH AND NAME: \\MCOX\Redirection\Folders\zamoraa\My Documents\AWWU Main Bldg Upgrade--ARCH--zamoraa.rvt

AWWU PLAN SET NO. XXXX

DESIGN DEVELOPMENT

VERIFY SCALE		THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING.		0" 1"		IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.		FULL SIZE SCALE	
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BASE	---	---	TELEPHONE	---	---				
TOPOGRAPHY	---	---	ELECTRIC	---	---				
PROFILE	---	---	CABLE TV	---	---				
SANITARY SEWER	---	---	TRAFFIC SIGNAL	---	---				
STORM SEWER	---	---	DESIGN	---	---				
WATER	---	---	QUANTITIES	---	---				
GAS	---	---	MUN. FINAL CHECK	---	---				
PLAN CHECK					REVISIONS				

RECORD DRAWING

Note: To be filled out on original drawings upon project completion.

<p>1. DATA PROVIDED BY: _____</p> <p>This will serve to certify that these Record Drawings are a true and accurate representation of the project as constructed.</p> <p>CONTRACTOR: _____</p> <p>BY: _____ TITLE: _____</p> <p>DATE: _____</p> <p>2. DATA TRANSFERRED BY: _____</p> <p>COMPANY: _____</p> <p>DATE: _____</p>	<p>3. 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.</p> <p>DATA TRANSFER CHECKED BY: _____</p> <p>COMPANY: _____</p> <p>BY: _____ TITLE: _____</p> <p>DATE: _____</p>
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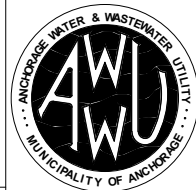
REUSE OF DOCUMENTS

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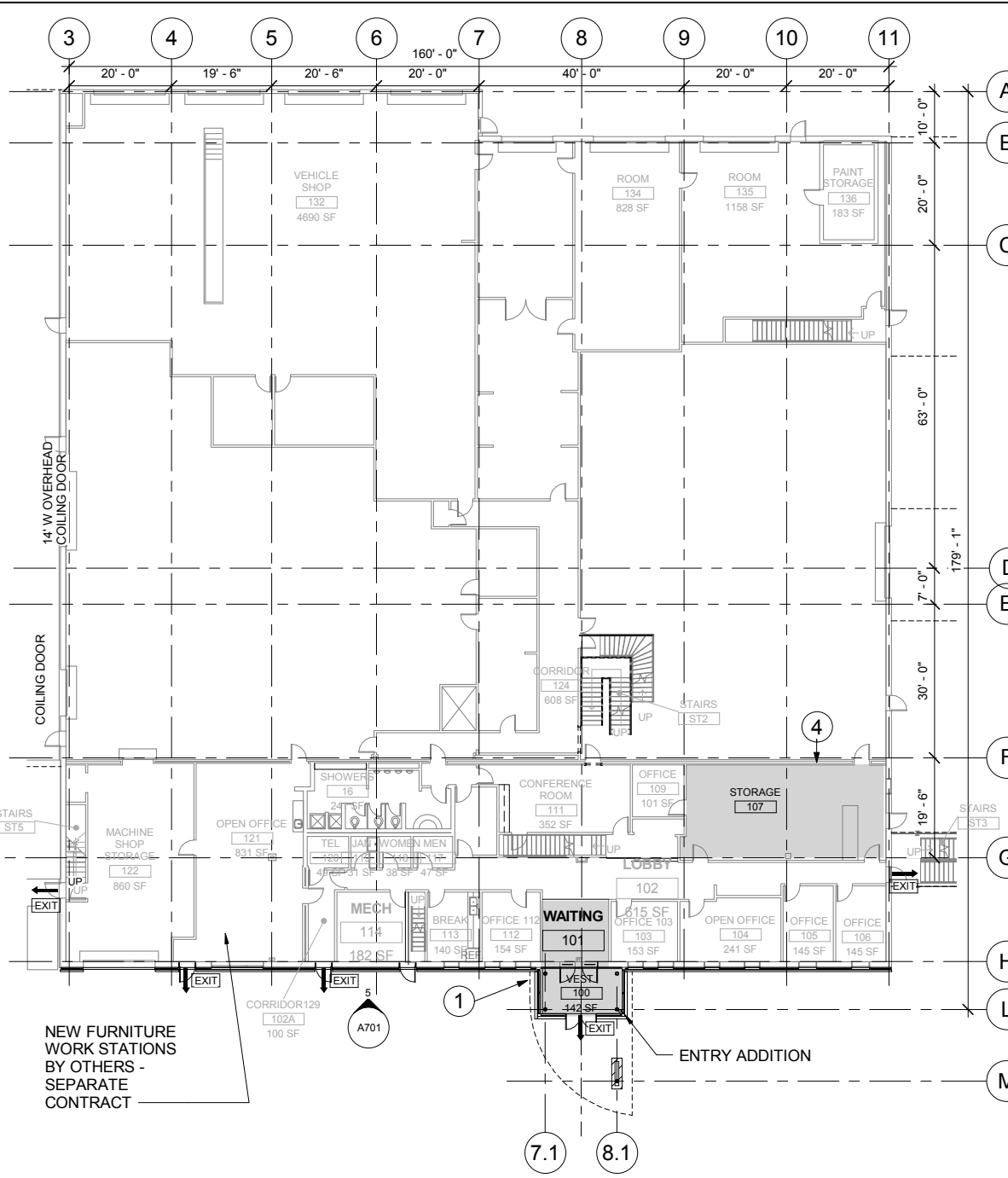


CONSULTANT

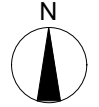
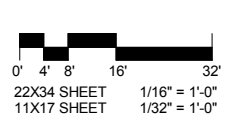
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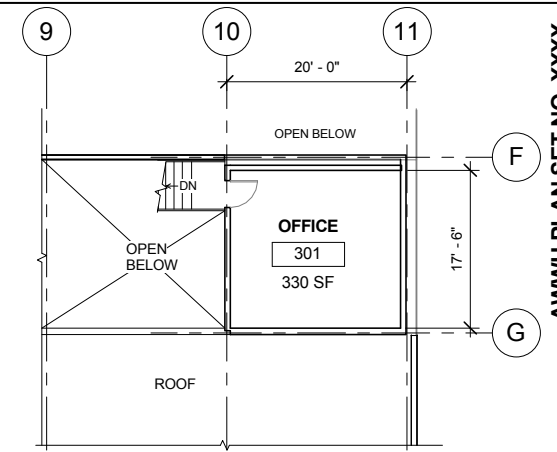
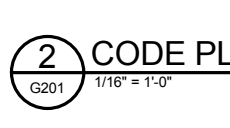
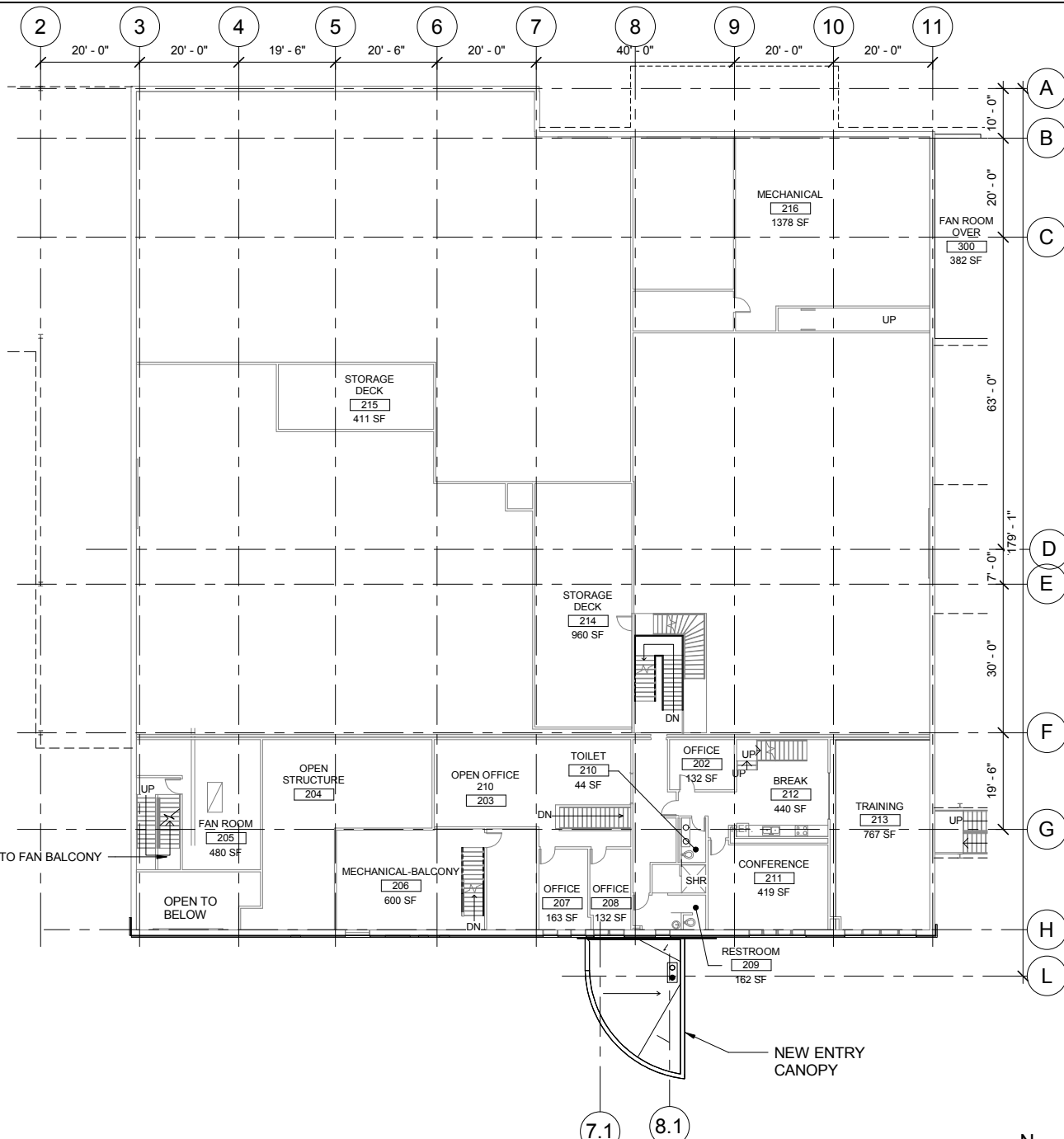
MUNICIPALITY OF ANCHORAGE WATER & WASTEWATER UTILITY			
KING STREET MAIN BUILDING UPGRADE ARCHITECTURAL			
KING STREET MAIN BUILDING UPGRADES			
SHEET INDEX			
HORZ SCALE: AS NOTED	04-29-2016	GRID: 2431	G101 of
PROJ. ID.: 2015022.05			SHEET



1 CODE PLAN - LEVEL 1
G201 1/16" = 1'-0"



2 CODE PLAN - LEVEL 2
G201 1/16" = 1'-0"



3 CODE PLAN - LEVEL 3
G201 3/32" = 1'-0"

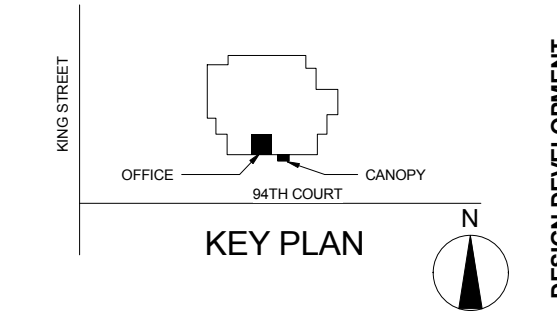
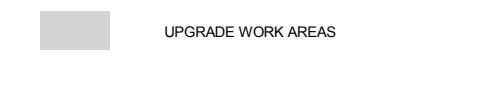
WORK DESCRIPTION

1. ADD ENTRY VESTIBULE WITH ROOF CANOPY. REPLACE EXISTING 3' W X 7' H ENTRY EXIT DOOR WITH TWO 3' W X 7' H DOOR.
2. REMOVE DIVIDER WALL IN LOBBY-WAITING TO ENLARGE ENTRY-LOBBY
3. REMOVE WALL BETWEEN OFFICES 107 & 108 TO PROVIDE SINGLE STORAGE ROOM 107
4. REPLACE SOUTH WALL SIDING
5. REPLACE PARKING PAVING
6. UPGRADE MECHANICAL AND ELECTRICAL SYSTEMS

CODE DESCRIPTION

2009 IBC
 WORK PROPOSED: EXISTING BUILDING; NO OCCUPANCY CHANGE.
 EXISTING OCCUPANCY: IBC 304 GROUP B BUSINESS AND 311 S-1. MOTOR VEHICLE GARAGE WITH LESS THAN MAX. HAZ MAT LISTED IN TABLE 307.1 (1). NO OCCUPANCY CHANGE PROPOSED.
 602 CONSTRUCTION TYPE: 11-B WITH SPRINKLERS.
 508.2.5.1 INCIDENTAL ACCESSORY OCCUPANCIES : FURNACE-BOILER ROOMS: SMOKE BARRIER SEPARATION, SPRINKLERS, SELF-CLOSING DOORS.
 602 FIRE RESISTANCE FOR EXTERIOR WALLS: NONE REQUIRED WITH 30' SITE DISTANCE

LEGEND



DATA	DATE	DESCRIPTION	BY
BASE	---	TELEPHONE	---
TOPOGRAPHY	---	ELECTRIC	---
PROFILE	---	CABLE TV	---
SANITARY SEWER	---	TRAFFIC SIGNAL	---
STORM SEWER	---	DESIGN	---
WATER	---	QUANTITIES	---
GAS	---	MUN. FINAL CHECK	---

RECORD DRAWING Note: To be filled out on original drawings upon project completion.

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: _____ TITLE: _____

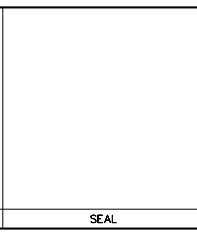
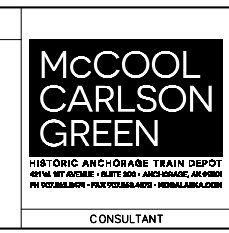
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2. DATA TRANSFERRED BY: _____ TITLE: _____

DATE: _____

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MUNICIPALITY OF ANCHORAGE
 WATER & WASTEWATER UTILITY
 KING STREET MAIN BUILDING UPGRADE ARCHITECTURAL
 KING STREET MAIN BUILDING UPGRADES
 BUILDING CODE PLANS

HORZ SCALE: AS NOTED
 VERT SCALE: AS NOTED
 PROJ. ID.: 2015022.05
 GRID: 2431
 SHEET G201 of

LEGEND

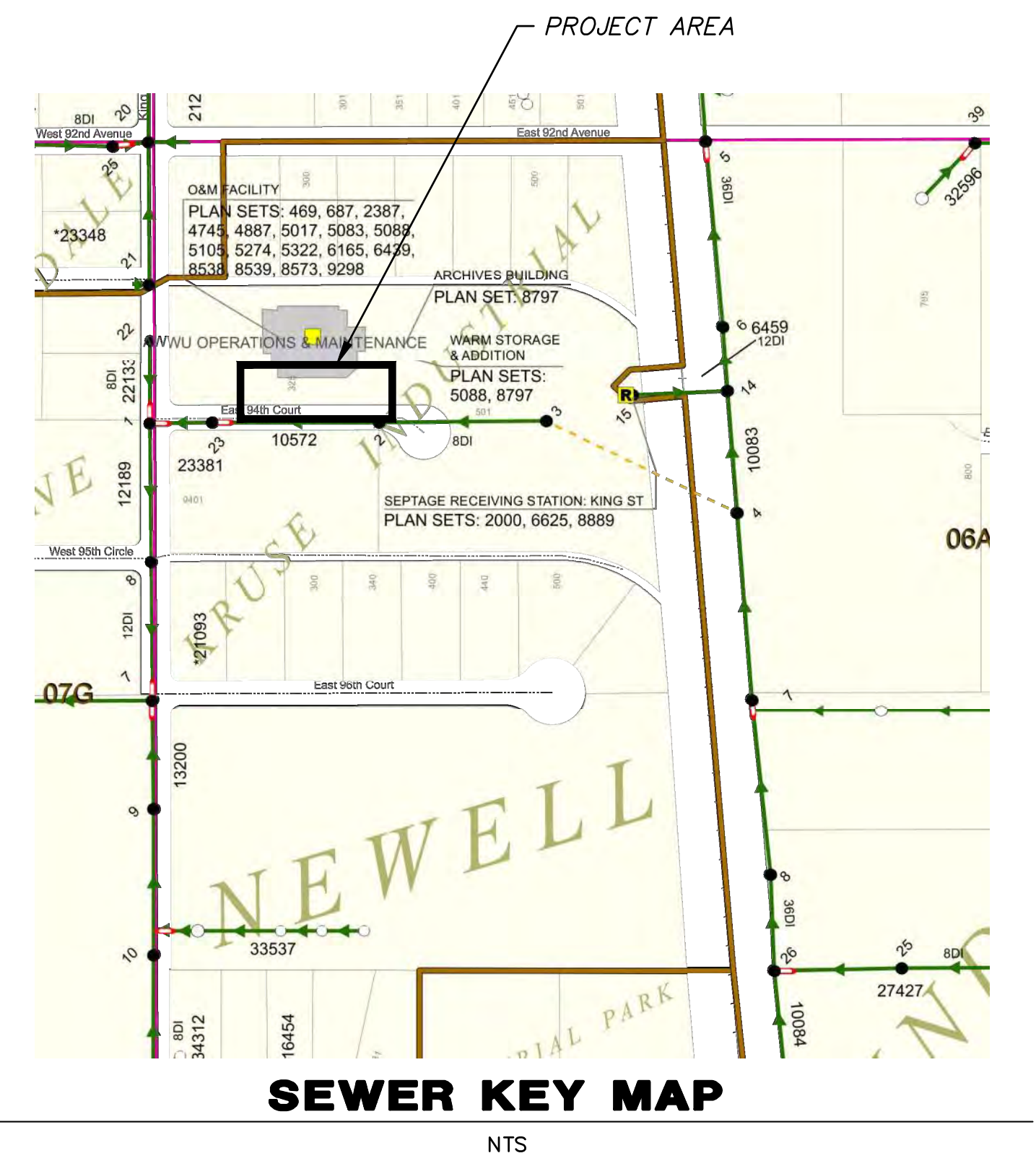
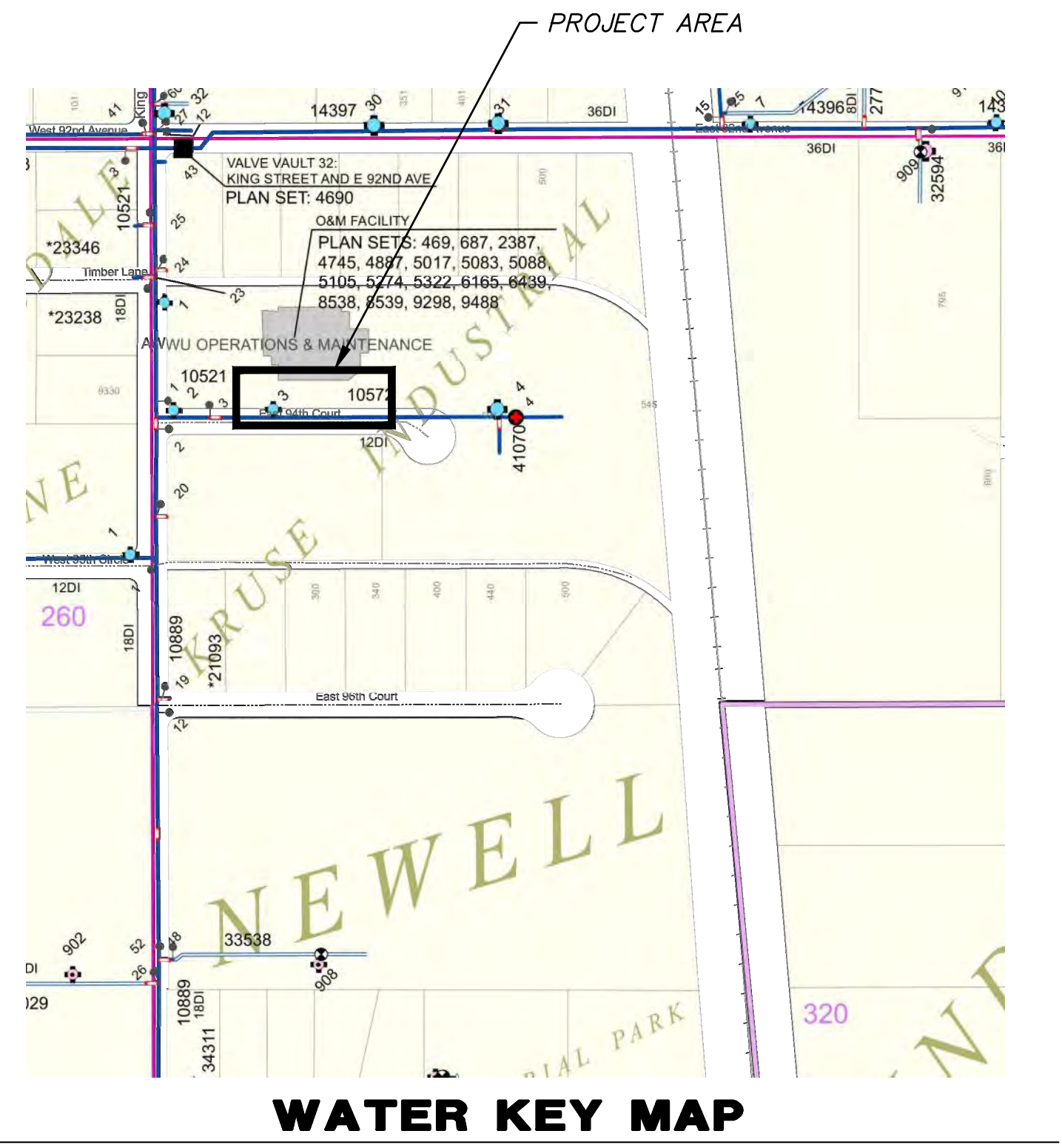
Table with columns: SYMBOL, PROPOSED (P), EXISTING (E), PLAN LEGEND. Lists various symbols for utilities, structures, and terrain.

ABBREVIATIONS

ACP = ASBESTOS CONCRETE PIPE
ACP = AC PAVEMENT
APPROX. = APPROXIMATE
ATI = AT TIME OF INVESTIGATION
B = BORING
BM = BENCH MARK
B.O.C. = BACK OF CURB
B.O.P. = BEGINNING OF PROFILE
B.O.P. = BOTTOM OF PIPE
C&G = CURB AND GUTTER
CI = CAST IRON
CL = CENTERLINE
CONT = CONTINUOUS
CMP = CORRUGATED METAL PIPE
C.O. = CLEAN OUT
CPEP = CORRUGATED POLYETHYLENE PIPE
D = DRAIN
DI = DUCTILE IRON
DIA = DIAMETER
DIP = DI PIPE
D&R = DISCONNECT & RECONNECT
DW = DETECTABLE WARNING PANEL
E = ELECTRICAL, EAST, EASTING
EG = EXISTING GRADE
ELEV = ELEVATION
EOA = EDGE OF ASPHALT
E.O.P. = END OF PROFILE
E.O.P. = END OF PAVEMENT
E.O.S. = END OF SHOULDER
ESMT = EASEMENT
EXC = EXCAVATION
FD = FOUNDATION DRAIN
FES = FLARED END SECTION
FG = FINISHED GRADE (ELEV.)
F.L. = FLOW LINE (ELEV.)
GAAB = GREATER ANCHORAGE AREA BOROUGH
GALV. = GALVANIZED
GB = GRADE BREAK
H, HORZ = HORIZONTAL
HDPE = HIGH DENSITY POLYETHYLENE
HT = HEIGHT
I = INCLUDED ANGLE
IE = INVERT ELEV.
INV. = INVERT
K = VERTICAL CURVE INDEX
L = LENGTH
LAT. = LATITUDE
LC = LIP OF CURB
LF = LINEAR FEET
LT. = LEFT
LONG. = LONGITUDINAL
MAX = MAXIMUM
M.A.S.S. = MOA STANDARD SPECIFICATIONS
ME = MATCH EXISTING
MFR = MANUFACTURER
MH = MANHOLE
MIN = MINIMUM
MOA = MUNICIPALITY OF ANCHORAGE
N = NORTHING, NORTH
NFS = NON-FROST SUSCEPTIBLE
NGS = NATIONAL GEODETIC SURVEY
N.I.C. = NOT IN CONTRACT
N.T.S. = NOT TO SCALE
O.C. = ON CENTER
OF = OUTFALL
OG = ORIGINAL GROUND (ELEV.)
OSHA = OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION
P.C. = POINT OF CURVATURE
PCC = PORTLAND CEMENT CONCRETE
PCMP = PRE-COATED CMP
P.I. = POINT OF INTERSECTION
PL = PROPERTY LINE
PP = POWER POLE
P.T. = POINT OF TANGENCY
R = RADIUS (LENGTH)
RC = REINFORCED CONCRETE
R.P. = RADIUS POINT
RT. = RIGHT
S = SEWER, SOUTH
SD = STORM DRAIN
S.I. = STREET INTERSECTION
SHLDR = SHOULDER
S.S. = STAINLESS STEEL
SS = SANITARY SEWER
STA = STATION
STD = STANDARD
T = TANGENT (LENGTH)
TBC = TOP BACK OF CURB
TBM = TEMPORARY BENCHMARK
T.O.C. = TOP OF CONCRETE CURB
TYP = TYPICAL
U/G = UNDER GROUND
UON = UNDER OTHERWISE NOTED
V = VENT
V. = VERTICAL
V.C. = VERTICAL CURVE
V.P.C. = VERTICAL P.C.
V.P.I. = VERTICAL P.I.
V.P.T. = VERTICAL P.T.
W = WATER, WEST
WWF = WELDED WIRE FABRIC
> = GREATER THAN
< = LESS THAN
≥ = GREATER THAN OR EQUAL TO
≤ = LESS THAN OR EQUAL TO

GENERAL NOTES

- 1. ALL CONSTRUCTION SHALL BE INSTALLED AS SPECIFIED IN THE MOST CURRENT EDITION OF THE MUNICIPALITY OF ANCHORAGE STANDARD SPECIFICATIONS FOR STREETS-DRAINAGE-UTILITIES-PARKS (MASS), THE AWWU DESIGN AND CONSTRUCTION PRACTICES MANUAL, AND THE SPECIAL PROVISIONS.
2. ALL PIPE INSULATION SHALL BE RIGID BOARD, HIGH DENSITY EXTRUDED POLYSTYRENE, MIN. 60 P.S.I., FOR UNDERGROUND INSTALLATIONS EQUIVALENT TO R-20 PER FOUR (4) INCH THICK INSULATION.
3. THE CONTRACTOR SHALL RESTORE ALL DISTURBED PROPERTY, INCLUDING DRAINAGE SWALES, DISTURBED BY CONTRACT ACTIVITIES TO PRECONSTRUCTION CONDITION. IN CASE OF CONFLICT BETWEEN STATIONING LOCATION OF PIPE OR FITTINGS, USE DIMENSIONED LOCATIONS RELATIVE TO THE CENTERLINE OR PROPERTY LINE, THE DIMENSIONED LOCATIONS SHALL GOVERN.
4. THE CONTRACTOR SHALL RECORD SURVEY NOTES FOR SUBMITTAL WITH RECORD DRAWING PLANS PRIOR TO CONTRACT FINAL PAYMENT.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR EROSION AND SEDIMENT CONTROLS AS NECESSARY TO COMPLY WITH FEDERAL, STATE, AND MUNICIPAL LAWS THAT PROHIBIT UNPERMITTED DISCHARGE OF POLLUTANTS, INCLUDING SEDIMENTS, THAT ARE A RESULT OF EROSION AND OTHER CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL CONDUCT ALL WORK SO SEDIMENT IS NOT TRANSPORTED ONTO THE ROADWAY OR ADJACENT PROPERTY. AT A MINIMUM, THE CONTRACTOR SHALL SWEEP UP ANY SEDIMENT TRACKED ONTO PAVED SURFACES IN PUBLIC RIGHT-OF-WAY WITHIN 24 HOURS OF THE TRACKING TO MINIMIZE THE WASH-OFF OF SEDIMENT INTO THE STORM DRAINS OR WATERWAYS.
6. WATER RESULTING FROM CONTRACTOR'S DEWATERING EFFORT MAY NOT BE PUMPED OR OTHERWISE DIVERTED INTO EXISTING STORM DRAINS UNLESS REQUIRED PERMITS, INCLUDING, BUT NOT LIMITED TO, THE ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION AND ENVIRONMENTAL PROTECTION AGENCY, ARE OBTAINED BY THE CONTRACTOR. UNDER NO CIRCUMSTANCES WILL THE CONTRACTOR BE ALLOWED TO DIVERT WATER FROM THE EXCAVATION ONTO THE ROADWAYS. CONTRACTOR SHALL PROVIDE DISPOSAL SITE FOR EXCESS WATER AND SHALL BE RESPONSIBLE FOR SECURING ALL NECESSARY PERMITS AND APPROVALS. THE LOCATION OF THE EXISTING FEATURES AND UTILITIES SHOWN IN THESE DRAWINGS ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF ALL UTILITIES ENCOUNTERED AND RECORD THEIR LOCATION ON THE CONTRACT RECORD DRAWINGS. DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ENGINEER.
7. ALL CLASSIFIED FILL AND BACKFILL MATERIAL SHALL BE PLACED IN LIFTS NOT EXCEEDING 12 INCHES PRIOR TO COMPACTION. ALL LEVELING COURSE SHALL BE PLACED IN LIFTS NOT EXCEEDING 6 INCHES PRIOR TO COMPACTION. ALL LEVELING COURSE AND CLASSIFIED FILL AND BACKFILL MATERIAL SHALL BE COMPACTED TO A MINIMUM OF 95% OF THE MODIFIED PROCTOR DENSITY.
8. THE CONTRACTOR SHALL SUBMIT FOR APPROVAL A HAUL ROUTE PLAN FOR ALL MATERIAL REMOVED OR IMPORTED TO THE PROJECT SITE PRIOR TO BEGINNING CONSTRUCTION. THE HAUL ROUTE PLAN SHALL MEET THE REQUIREMENTS OF ANCHORAGE MUNICIPAL CODE 9.46.410A.



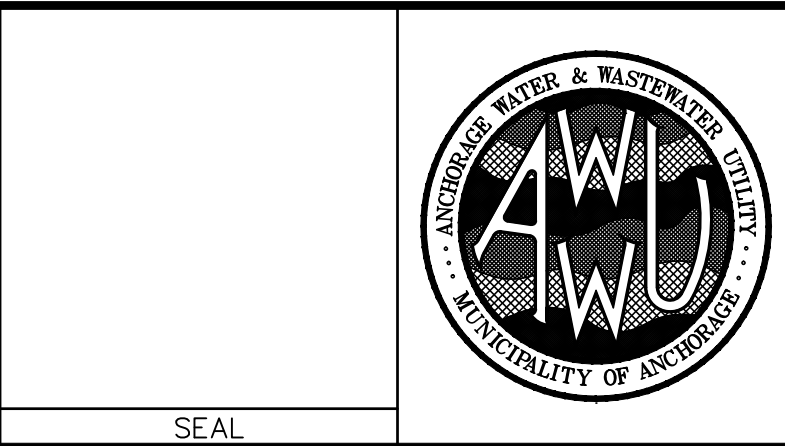
CALL BEFORE YOU DIG!!!
Locate Call Center of Alaska, Inc.
Anchorage Area 278-3121
Statewide 800-478-3121
Alaska Railroad 265-2520
Military Fuel Lines 552-3760
State Storm Drains 333-2411

VERIFY SCALE table with columns: DATA, DRAWN BY, CHECKED BY, REV, DATE, DESCRIPTION. Includes rows for TOPOGRAPHY, PROFILE, SANITARY SEWER, STORM SEWER, WATER, GAS.

RECORD DRAWING table with columns: DATA PROVIDED BY, DATE. Includes rows for DATA PROVIDED BY, DATE.

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CRW ENGINEERING GROUP LLC logo and contact information: 3940 ARCTIC BLVD, SUITE 300, ANCHORAGE, ALASKA 99503. PHONE: (907) 562-3252, FAX: (907) 561-2273.



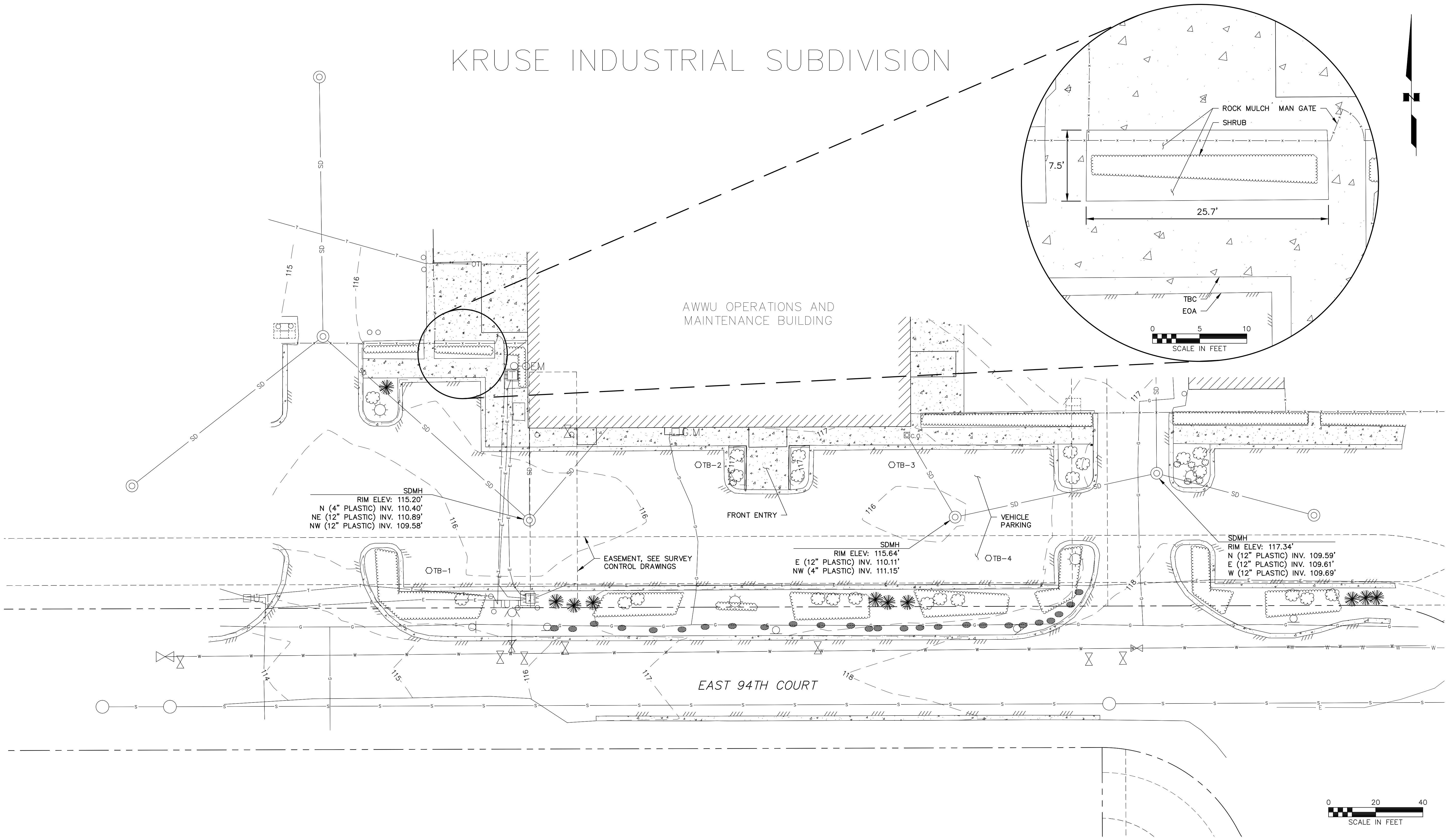
MUNICIPALITY OF ANCHORAGE WATER & WASTEWATER UTILITY
KING STREET MAIN BUILDING UPGRADE
KEY MAP, NOTES, LEGEND
HORZ SCALE: N/A
VERT SCALE: N/A
DATE: 29 APR 2016
GRID: 2431
PRJG. ID.: 0000007039
SHEET C1 of C12

PLOT DATE: 4/29/2016 4:08 PM

PLOT SCALE:

ACAD FILE: \\s2040\jobstuf\jobstuf\032208 King Street Admin Building\00 CAD\01 Working Set\01 Civil\032208 Existing Conditions.dwg

KRUSE INDUSTRIAL SUBDIVISION



AWWU PLAN SET NO. XXXX

95% DESIGN

VERIFY SCALE THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING.

0" 1"

IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.

FULL SIZE SCALE
HORZ SCALE: 1"=20'
VERT SCALE: N/A

DATA	DRAWN BY	CHECKED BY	DATA	DRAWN BY	CHECKED BY	REV	DATE	DESCRIPTION	BY
BASE			TELEPHONE						
TOPOGRAPHY			ELECTRIC						
PROFILE			CABLE TV						
SANITARY SEWER			TRAFFIC SIGNAL						
STORM SEWER			DESIGN						
WATER			QUANTITIES						
GAS			MUN. FINAL CHECK						
PLAN		CHECK						REVISIONS	

RECORD DRAWING Note: To be filled out on original drawings upon project completion.

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:
CONTRACTOR: _____
BY: _____ TITLE: _____
DATE: _____

3. 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.
DATA TRANSFER CHECKED BY: _____
COMPANY: _____
BY: _____ TITLE: _____
DATE: _____

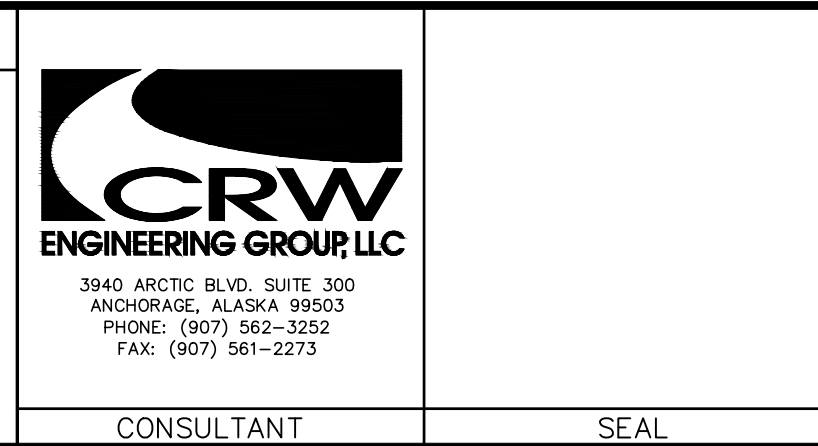
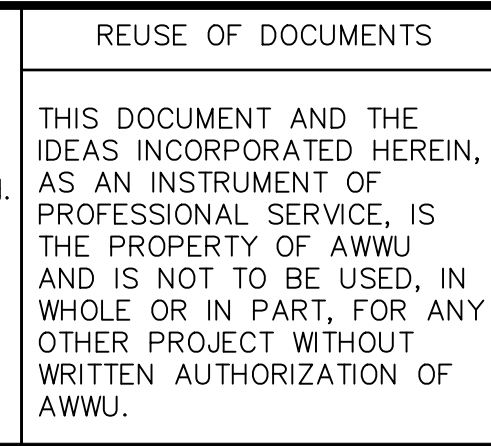
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ANCHORAGE, ALASKA 99503
PHONE: (907) 562-3252
FAX: (907) 561-2273

CONSULTANT

SEAL



MUNICIPALITY OF ANCHORAGE
WATER & WASTEWATER UTILITY

KING STREET MAIN BUILDING UPGRADE

EXISTING CONDITIONS

HORZ SCALE: 1"=20'
VERT SCALE: N/A

DATE: 29 APR 2016 GRID: 2431

PROJ. ID.: 0000007039

SHEET C2 of C12

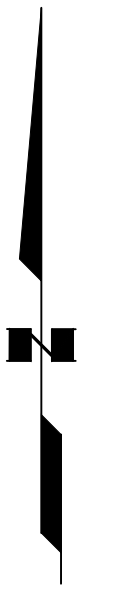
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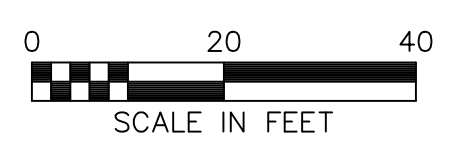
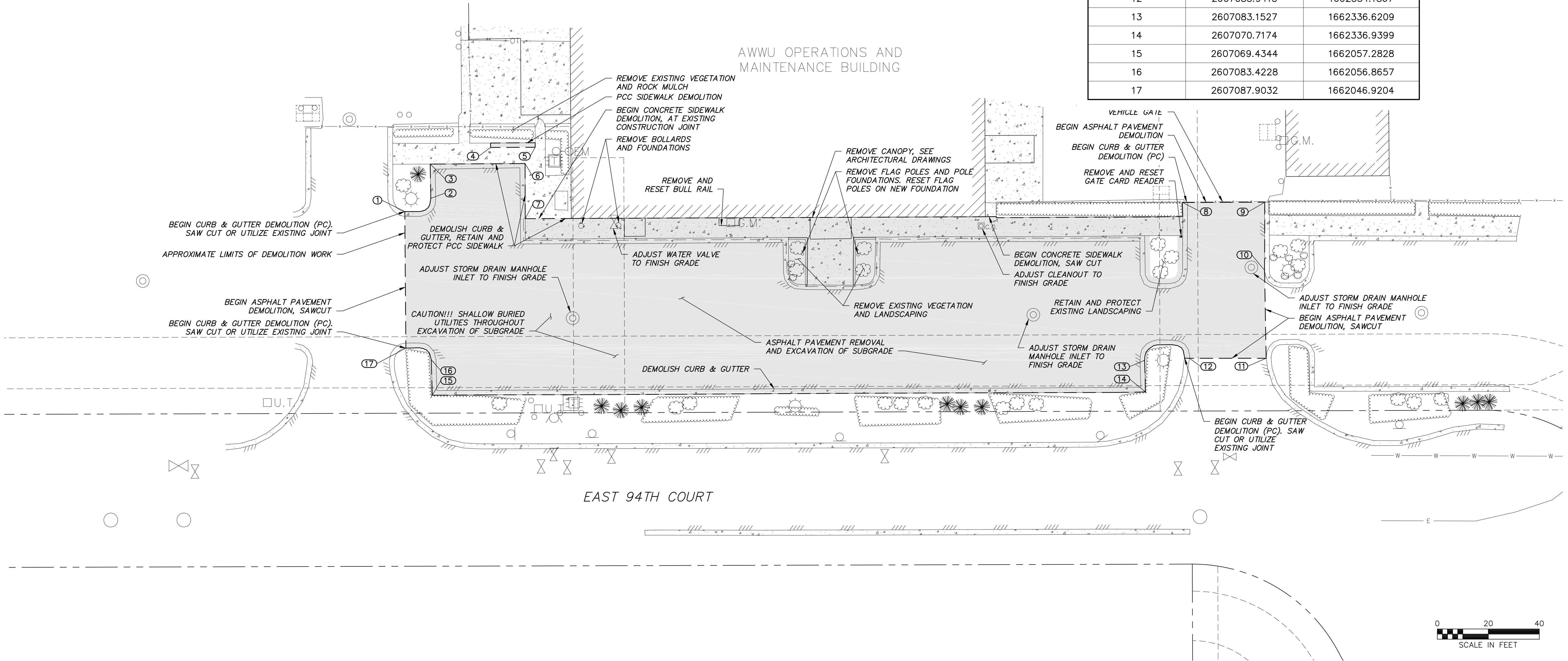
ACAD FILE: J:\sbsdata\10322.08 King Street Admin Building\00 CAD\01 Working Set\01 Civil\10322.08 Demolition Plan.dwg

KRUSE INDUSTRIAL SUBDIVISION

HORIZONTAL CONTROL POINTS FOR DEMOLITION		
POINT NO.	NORTHING	EASTING
1	2607141.4544	1662046.5016
2	2607146.6245	1662056.6988
3	2607160.0684	1662056.4543
4	2607166.5719	1662080.1385
5	2607166.6714	1662097.6382
6	2607160.2705	1662093.6722
7	2607138.6686	1662093.7160
8	2607145.0805	1662351.4021
9	2607145.1211	1662383.7542
10	2607118.4152	1662383.6441
11	2607083.9415	1662384.2695
12	2607083.9415	1662354.1867
13	2607083.1527	1662336.6209
14	2607070.7174	1662336.9399
15	2607069.4344	1662057.2828
16	2607083.4228	1662056.8657
17	2607087.9032	1662046.9204



AWWU PLAN SET NO. XXXX



95% DESIGN

VERIFY SCALE		THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING.		0" = 1"		IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.		FULL SIZE SCALE	
DATA	DRAWN BY	CHECKED BY	DATA	DRAWN BY	CHECKED BY	REV	DATE	DESCRIPTION	BY
BASE			TELEPHONE						
TOPOGRAPHY			ELECTRIC						
PROFILE			CABLE TV						
SANITARY SEWER			TRAFFIC SIGNAL						
STORM SEWER			DESIGN						
WATER			QUANTITIES						
GAS			MUN. FINAL CHECK						
PLAN		CHECK		REVISIONS					

RECORD DRAWING Note: To be filled out on original drawings upon project completion.

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 BY: _____ TITLE: _____
 DATE: _____

2. DATA TRANSFERRED BY: _____
 COMPANY: _____
 DATE: _____

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 DATA TRANSFER CHECKED BY: _____
 COMPANY: _____
 BY: _____ TITLE: _____
 DATE: _____

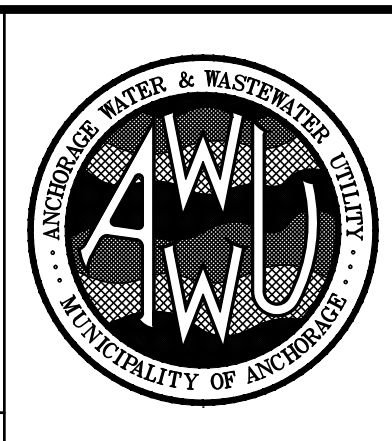
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 PHONE: (907) 562-3252
 FAX: (907) 561-2273

CONSULTANT

SEAL



MUNICIPALITY OF ANCHORAGE
 WATER & WASTEWATER UTILITY

KING STREET MAIN BUILDING UPGRADE

DEMOLITION PLAN

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

DATE: 29 APR 2016 GRID: 2431

PROJ. ID.: 0000007039

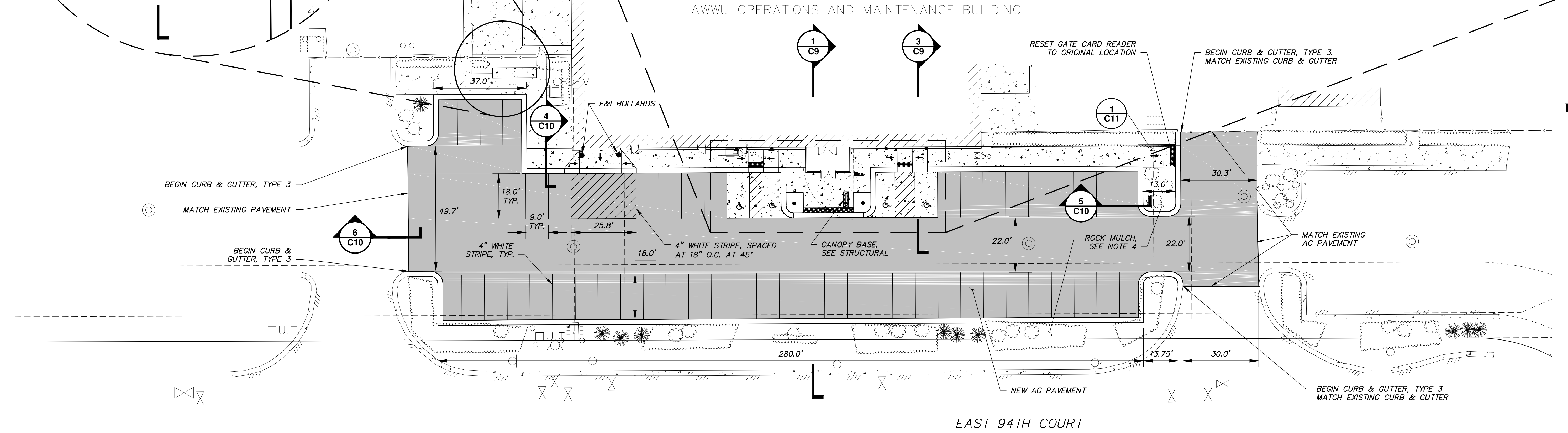
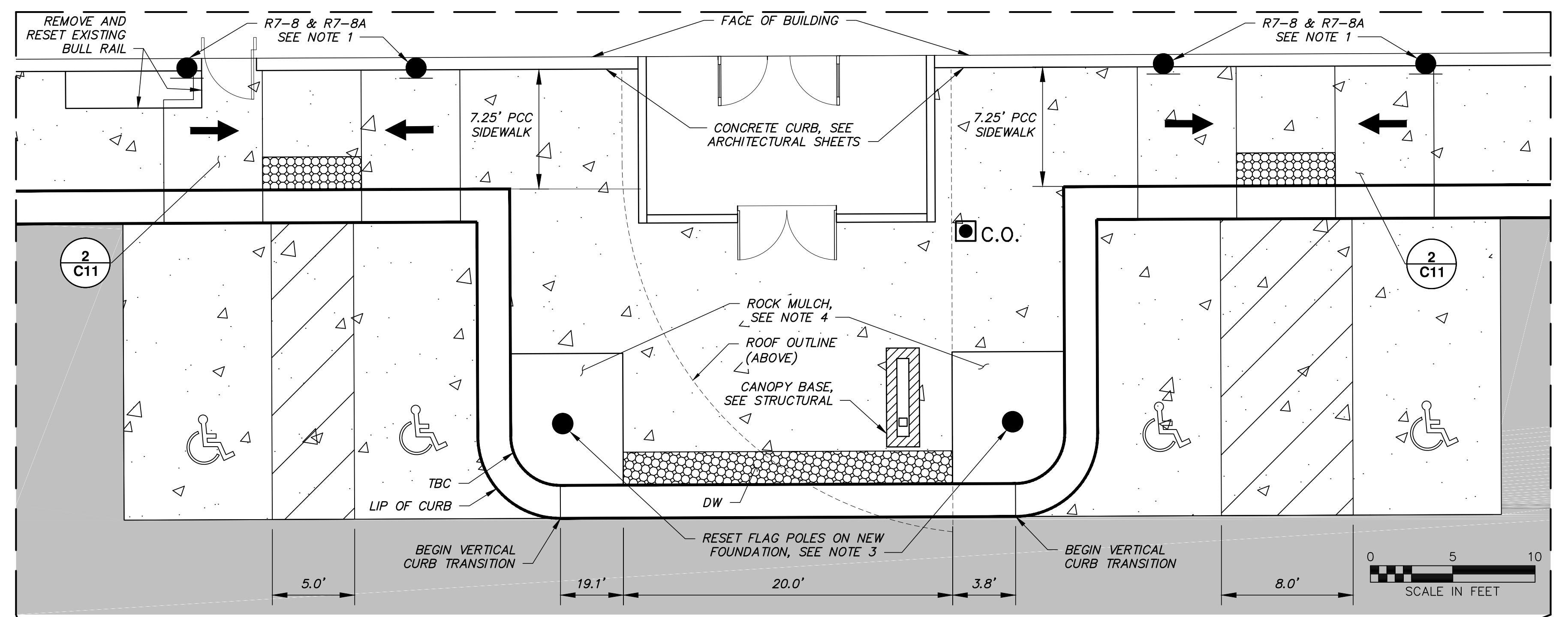
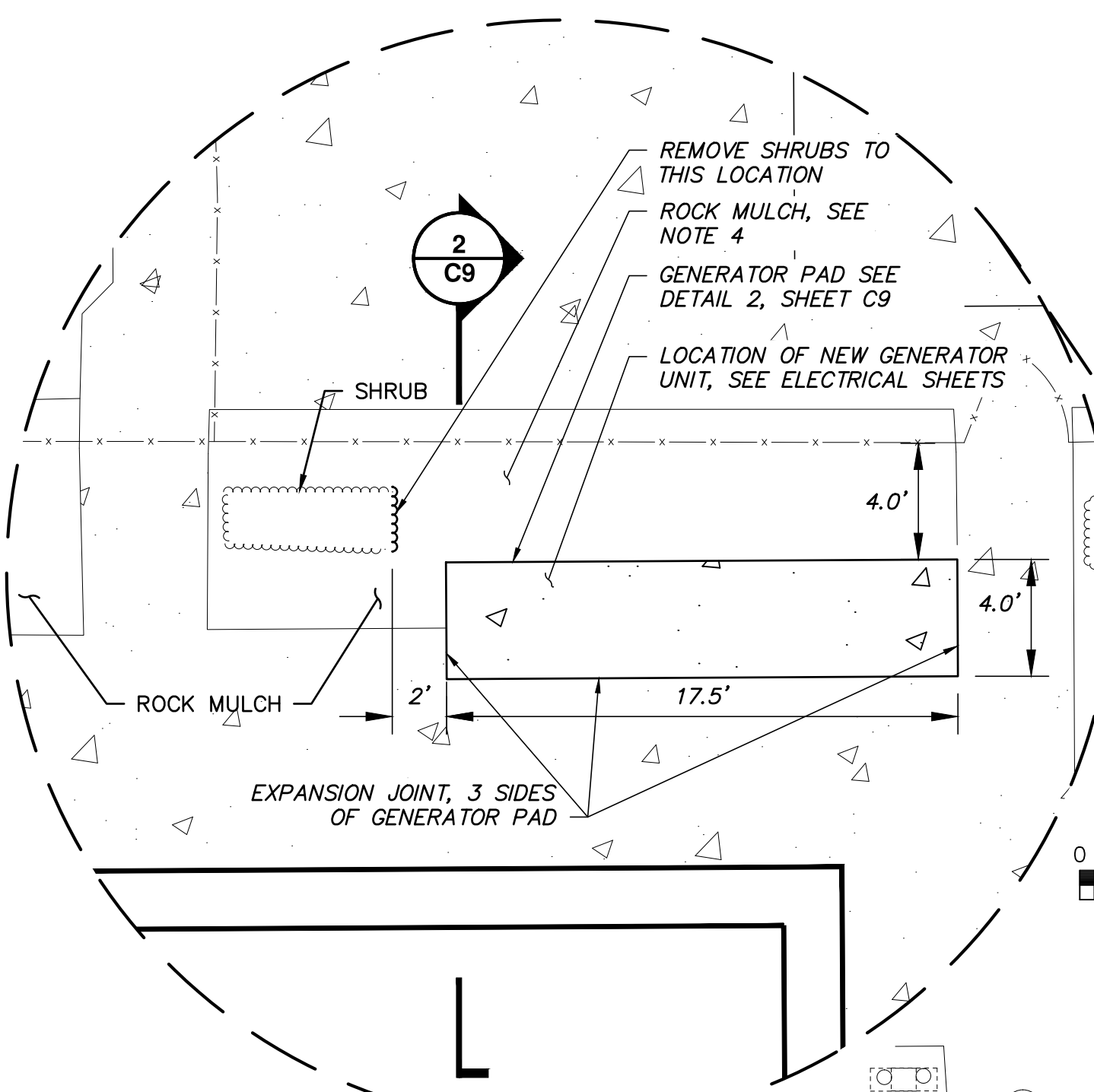
SHEET C3 of C12

KRUSE INDUSTRIAL SUBDIVISION

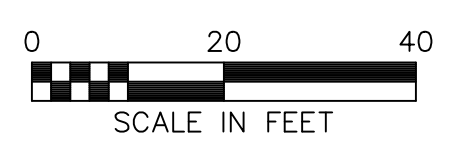
AWWU PLAN SET NO. XXXX

PLOT DATE: 4/29/2016 4:09 PM

ACAD FILE: \\s2040\jobstuf\jobstuf\0322\08 King Street Admin Building\00 CAD\01 Working Set\01 Civil\10322.08 Site Plan.dwg



- NOTES:**
- EXISTING SIGNS MAY BE RE-MOUNTED TO FACE OF BUILDING.
 - SEE GENERAL NOTES FOR TREATMENT OF LANDSCAPED AREAS.
 - INSTALL FLAG POLE ON MANUFACTURES APPROVED FOUNDATION.
 - INSTALL ROCK MULCH PER DETAIL 5 SHEET C10.



95% DESIGN

VERIFY SCALE		THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING.		0" = 1"		IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.		FULL SIZE SCALE	
DATA	DRAWN BY	CHECKED BY	DATE	REV	DATE	DESCRIPTION	BY	DATE	REVISIONS
BASE									
TOPOGRAPHY									
PROFILE									
SANITARY SEWER									
STORM SEWER									
WATER									
GAS									

RECORD DRAWING Note: To be filled out on original drawings upon project completion.

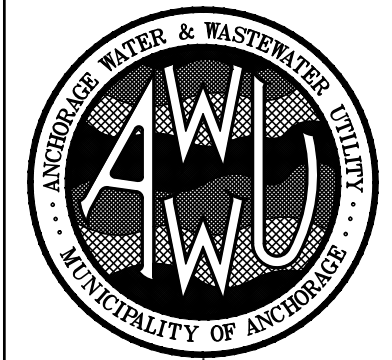
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 COMPANY: _____
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 COMPANY: _____
 BY: _____ TITLE: _____
 DATE: _____

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MUNICIPALITY OF ANCHORAGE WATER & WASTEWATER UTILITY	
KING STREET MAIN BUILDING UPGRADE	
SITE PLAN	
HORIZ SCALE: 1"=20'	DATE: 29 APR 2016 GRID: 2431
VERT SCALE: N/A	PROJ. ID.: 0000007039
CONSULTANT	SEAL
SHEET C4 of C12	

PLOT DATE: 4/29/2016 4:10 PM

PLOT SCALE:

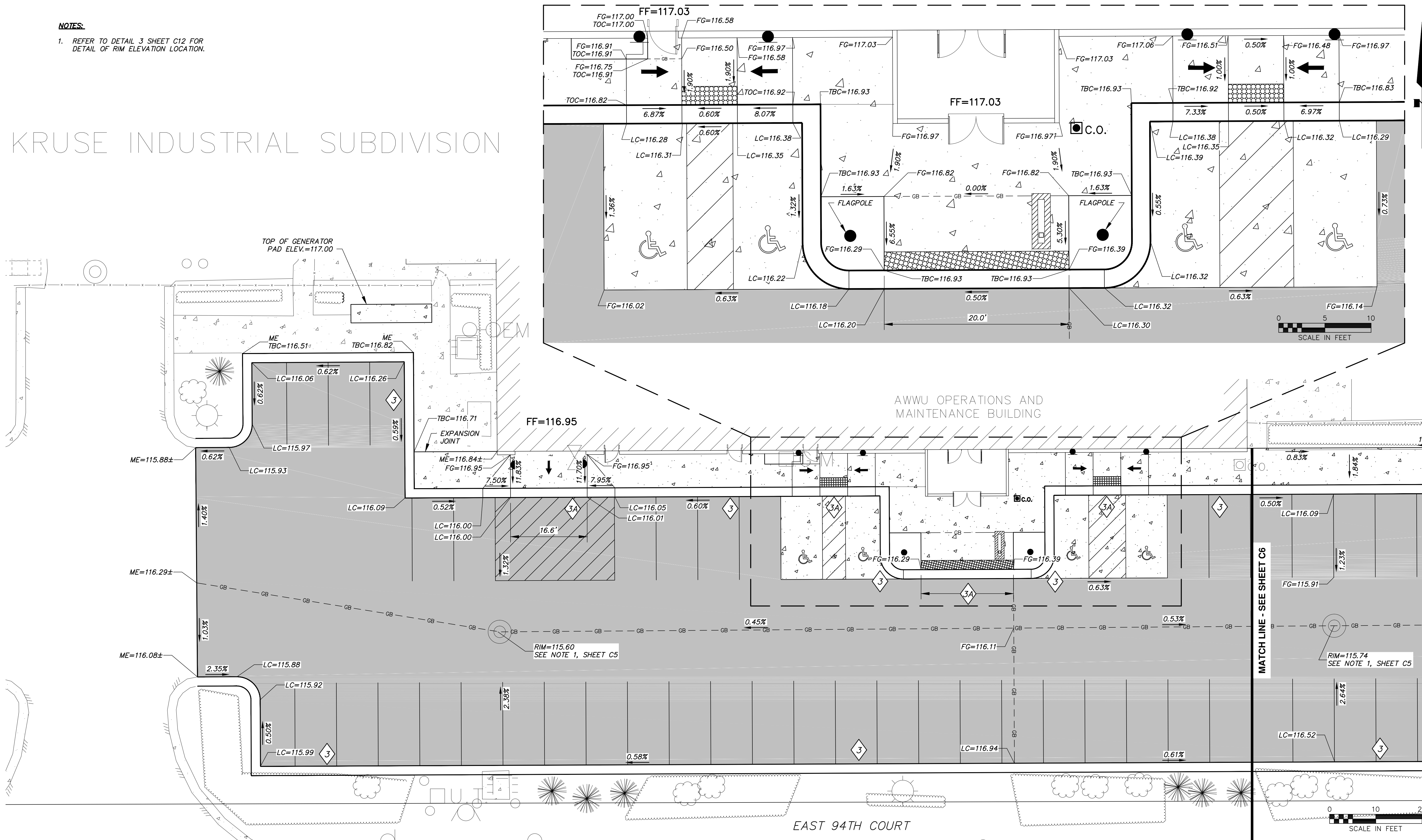
ACAD FILE: \\s2040\jobstuf\jobstuf\032208 King Street Admin Building\00 CAD\01 Working Set\01 Civil\032208 Grading Plan.dwg

NOTES:

- 1. REFER TO DETAIL 3 SHEET C12 FOR DETAIL OF RIM ELEVATION LOCATION.

KRUSE INDUSTRIAL SUBDIVISION

AWWU PLAN SET NO. XXXX



95% DESIGN

VERIFY SCALE

THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING.

0" = 1"

IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.

FULL SIZE SCALE
HORZ SCALE: NOTED
VERT SCALE: N/A

DATA	DRAWN BY	CHECKED BY	DATA	DRAWN BY	CHECKED BY	REV	DATE	DESCRIPTION	BY
BASE			TELEPHONE						
TOPOGRAPHY			ELECTRIC						
PROFILE			CABLE TV						
SANITARY SEWER			TRAFFIC SIGNAL						
STORM SEWER			DESIGN						
WATER			QUANTITIES						
GAS			MUN. FINAL CHECK						

PLAN CHECK

RECORD DRAWING Note: To be filled out on original drawings upon project completion.

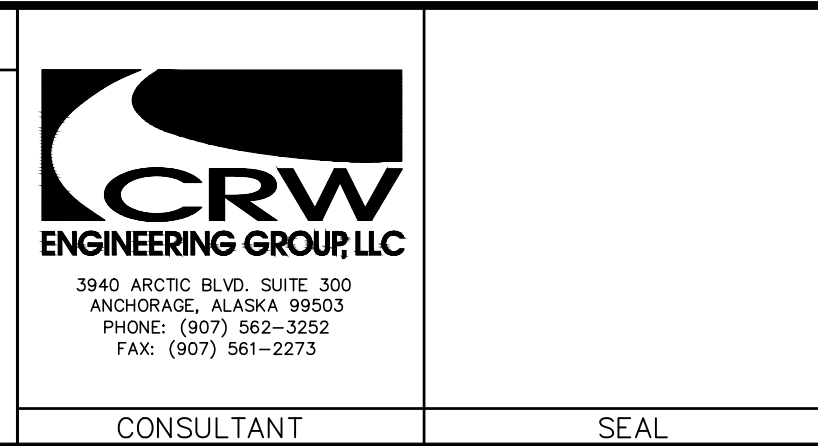
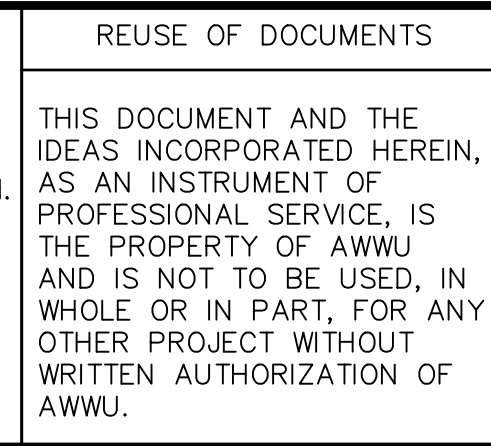
1. DATA PROVIDED BY:
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BY: _____ TITLE: _____
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COMPANY: _____
BY: _____ TITLE: _____
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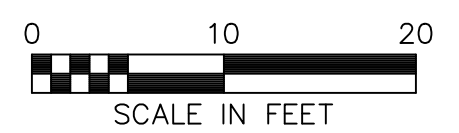
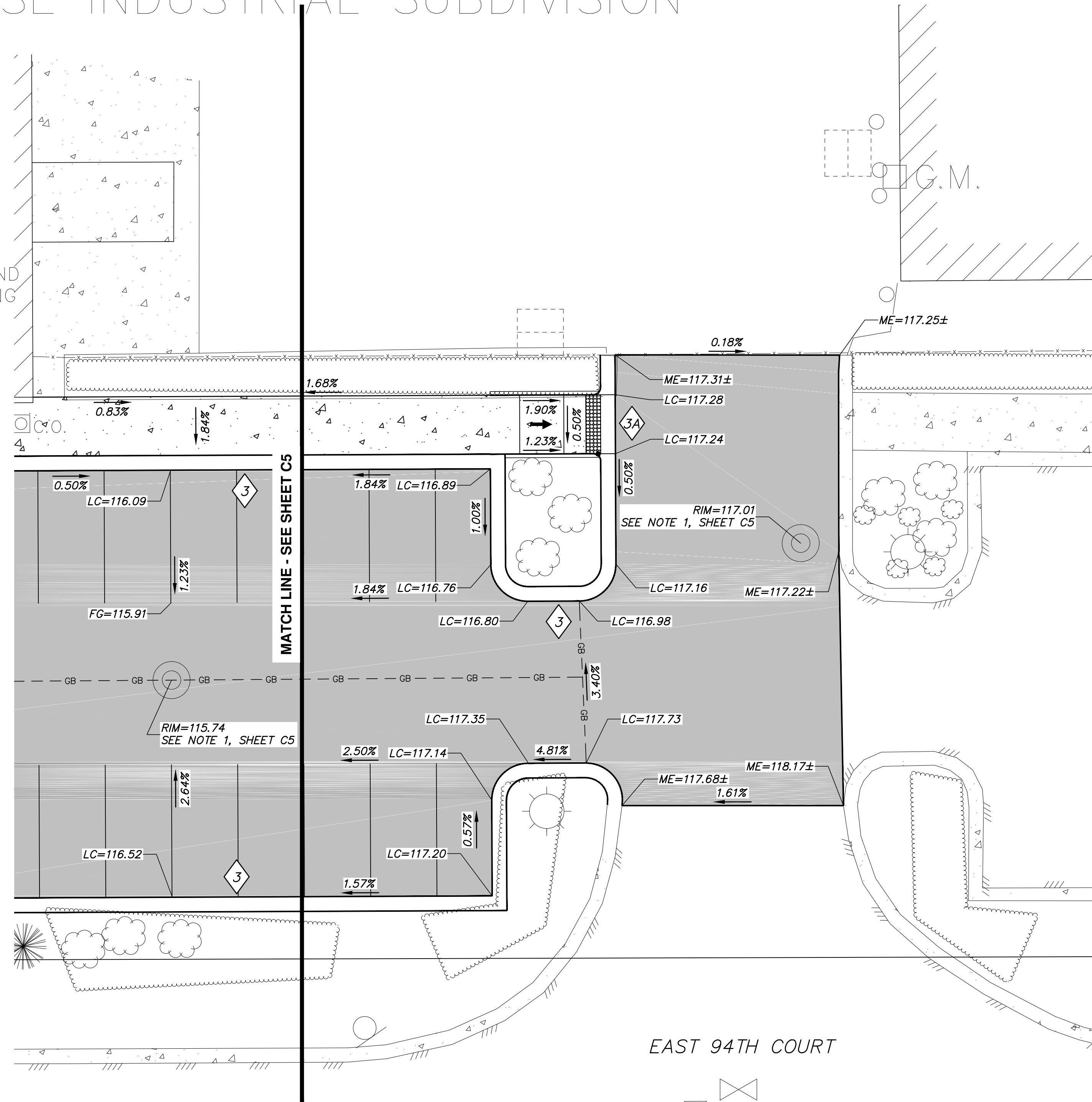
KING STREET MAIN BUILDING UPGRADE

WEST GRADING AND DRAINAGE PLAN

HORIZ SCALE: NOTED	DATE: 29 APR 2016	GRID: 2431	SHEET C5 of C12
VERT SCALE: N/A	PROJ. ID.: 0000007039		

KRUSE INDUSTRIAL SUBDIVISION

AWWU OPERATIONS AND MAINTENANCE BUILDING



VERIFY SCALE

THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING.



IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.

FULL SIZE SCALE
HORZ SCALE: NOTED
VERT SCALE: N/A

RECORD DRAWING

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CRW
ENGINEERING GROUP LLC
3940 ARCTIC BLVD, SUITE 300
ANCHORAGE, ALASKA 99503
PHONE: (907) 562-3252
FAX: (907) 561-2273

CONSULTANT

SEAL

MUNICIPALITY OF ANCHORAGE
WATER & WASTEWATER UTILITY

KING STREET MAIN BUILDING UPGRADE

EAST GRADING AND DRAINAGE PLAN

HORZ SCALE: NOTED
VERT SCALE: N/A
DATE: 29 APR 2016
GRID: 2431
PROJ. ID.: 0000007039

SHEET C6 of C12

95% DESIGN

AWWU PLAN SET NO. XXXX

KRUSE INDUSTRIAL SUBDIVISION

AWWU PLAN SET NO. XXXX

PLOT DATE: 4/29/2016 4:17 PM

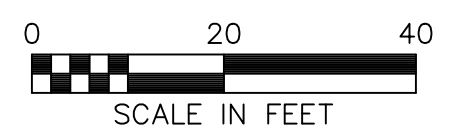
PLOT SCALE:

ACAD FILE: J:\vobasota\103222.08 King Street Admin Building\00 CAD\01 Working Set\01 Civil\103222.08 Horizontal Control.dwg

AWWU OPERATIONS AND MAINTENANCE BUILDING

EAST 94TH COURT

IN DEVELOPMENT



VERIFY SCALE

THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING.



IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.

FULL SIZE SCALE
HORZ SCALE: 1"=20'
VERT SCALE: N/A

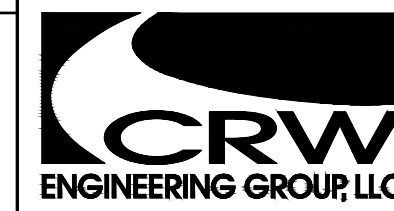
RECORD DRAWING

Note: To be filled out on original drawings upon project completion.

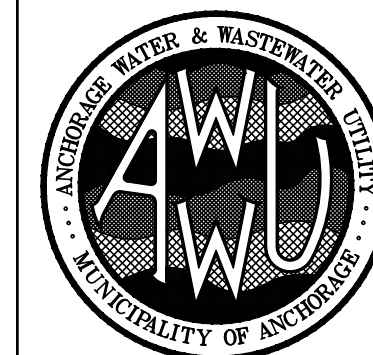
1. DATA PROVIDED BY: _____
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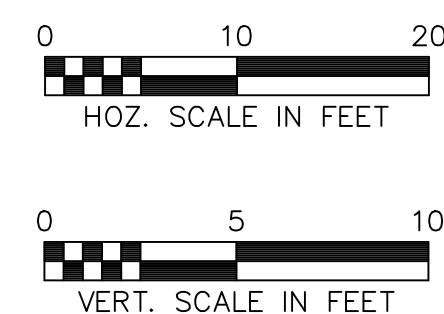
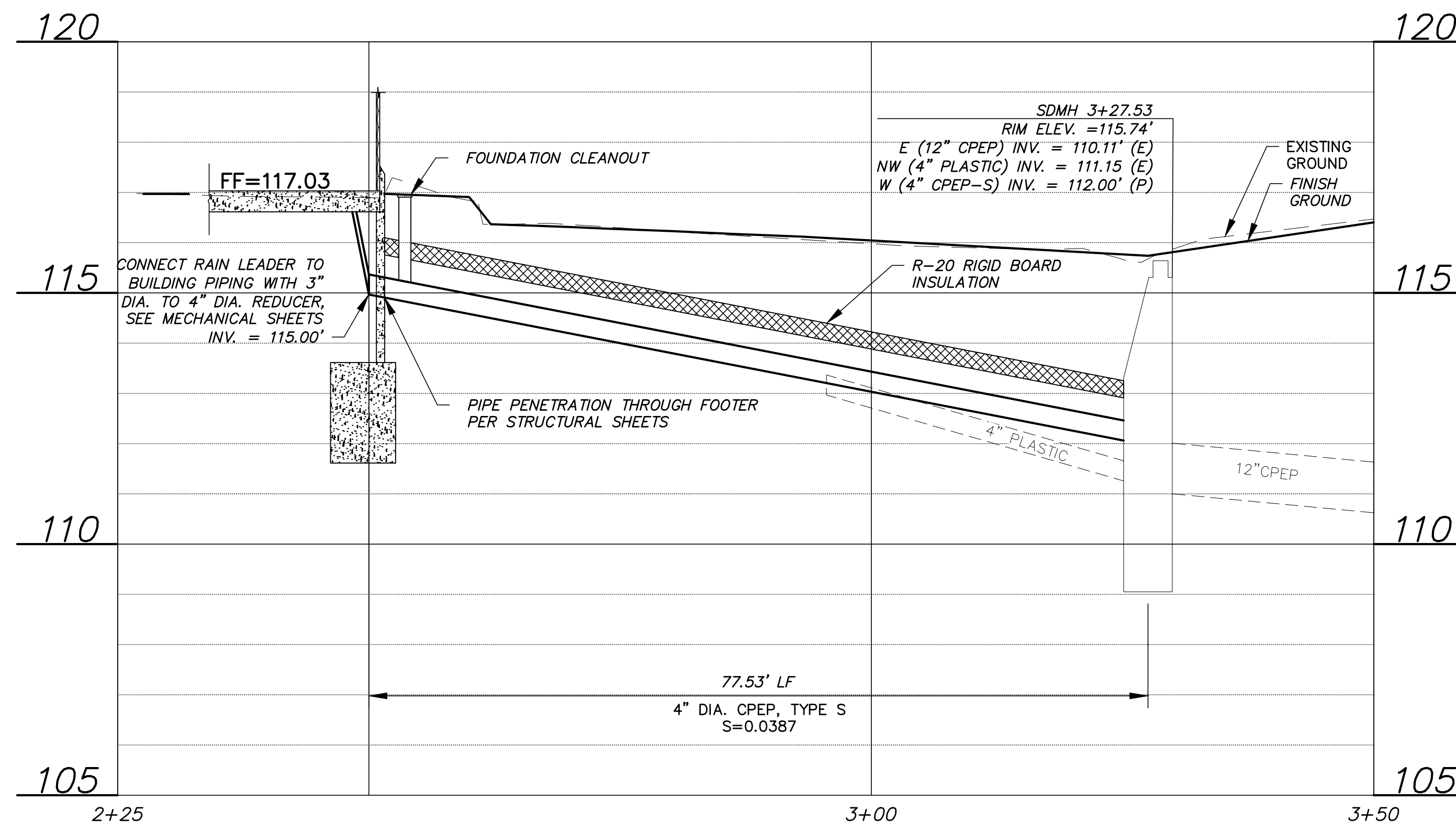
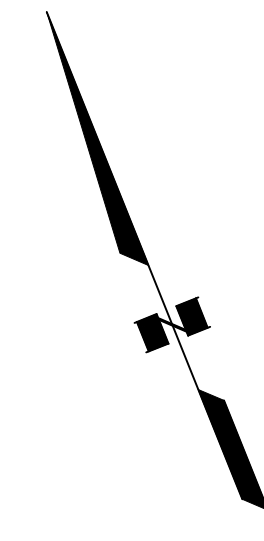
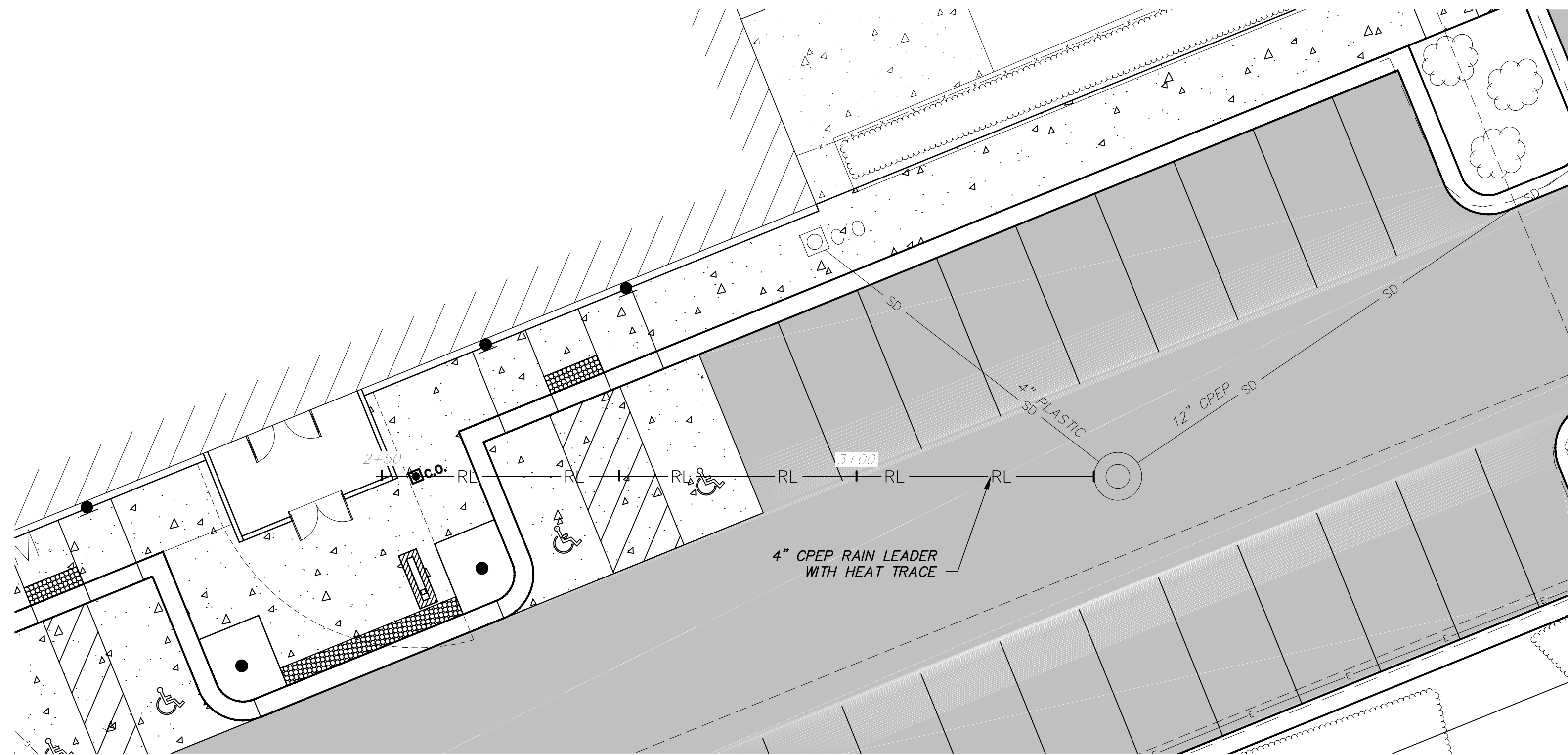
KING STREET MAIN BUILDING UPGRADE

HORIZONTAL CONTROL

HORZ SCALE: 1"=20'
VERT SCALE: N/A
DATE: 29 APR 2016
GRID: 2431
PROJ. ID.: 0000007039

SHEET C7 of C12

95% DESIGN



VERIFY SCALE		THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING.		0" = 1"		IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.		FULL SIZE SCALE	
DATA	DRAWN BY	CHECKED BY	DATA	DRAWN BY	CHECKED BY	REV	DATE	DESCRIPTION	BY
BASE			TELEPHONE						
TOPOGRAPHY			ELECTRIC						
PROFILE			CABLE TV						
SANITARY SEWER			TRAFFIC SIGNAL						
STORM SEWER			DESIGN						
WATER			QUANTITIES						
GAS			MUN. FINAL CHECK						
PLAN CHECK					REVISIONS				

RECORD DRAWING Note: To be filled out on original drawings upon project completion.

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 BY: _____ TITLE: _____
 DATE: _____

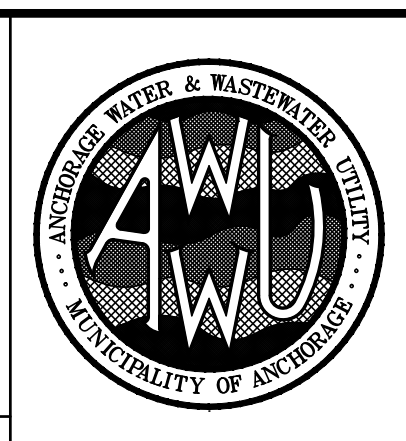
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KING STREET MAIN BUILDING UPGRADE

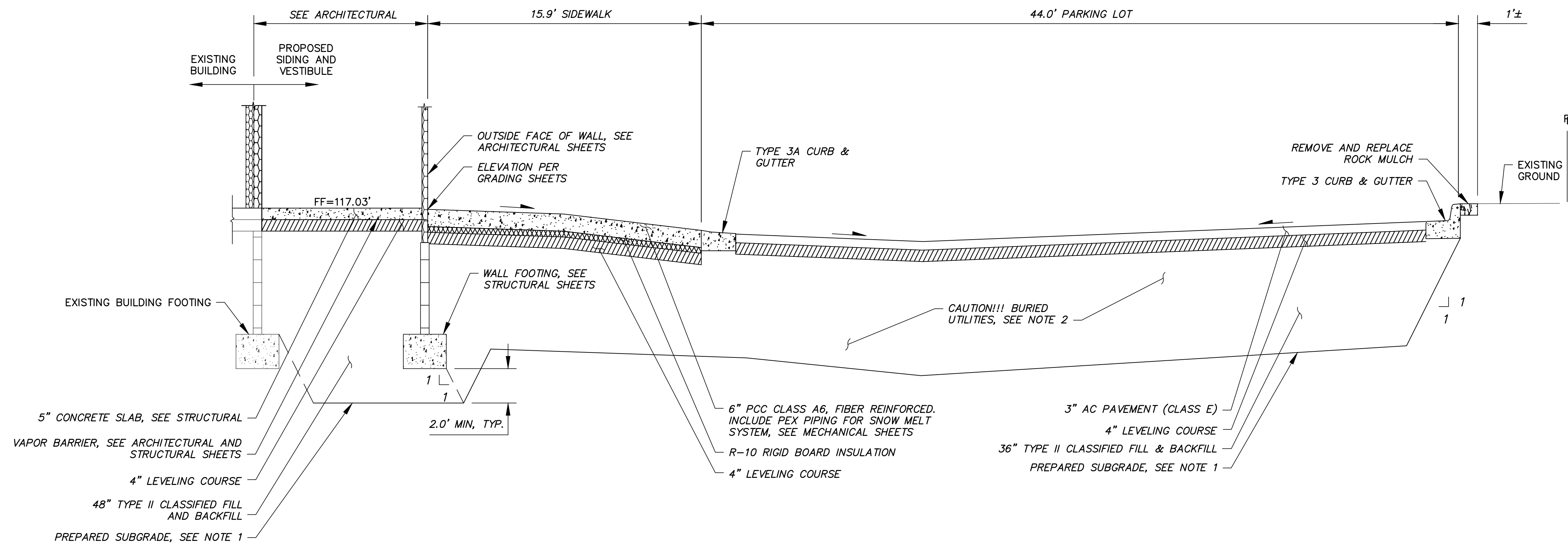
RAIN LEADER PLAN & PROFILE

HORIZ SCALE: 1"=10'
 VERT SCALE: 1"=5'

DATE: 29 APR 2016 GRID: 2431

PROJ. ID.: 000007039

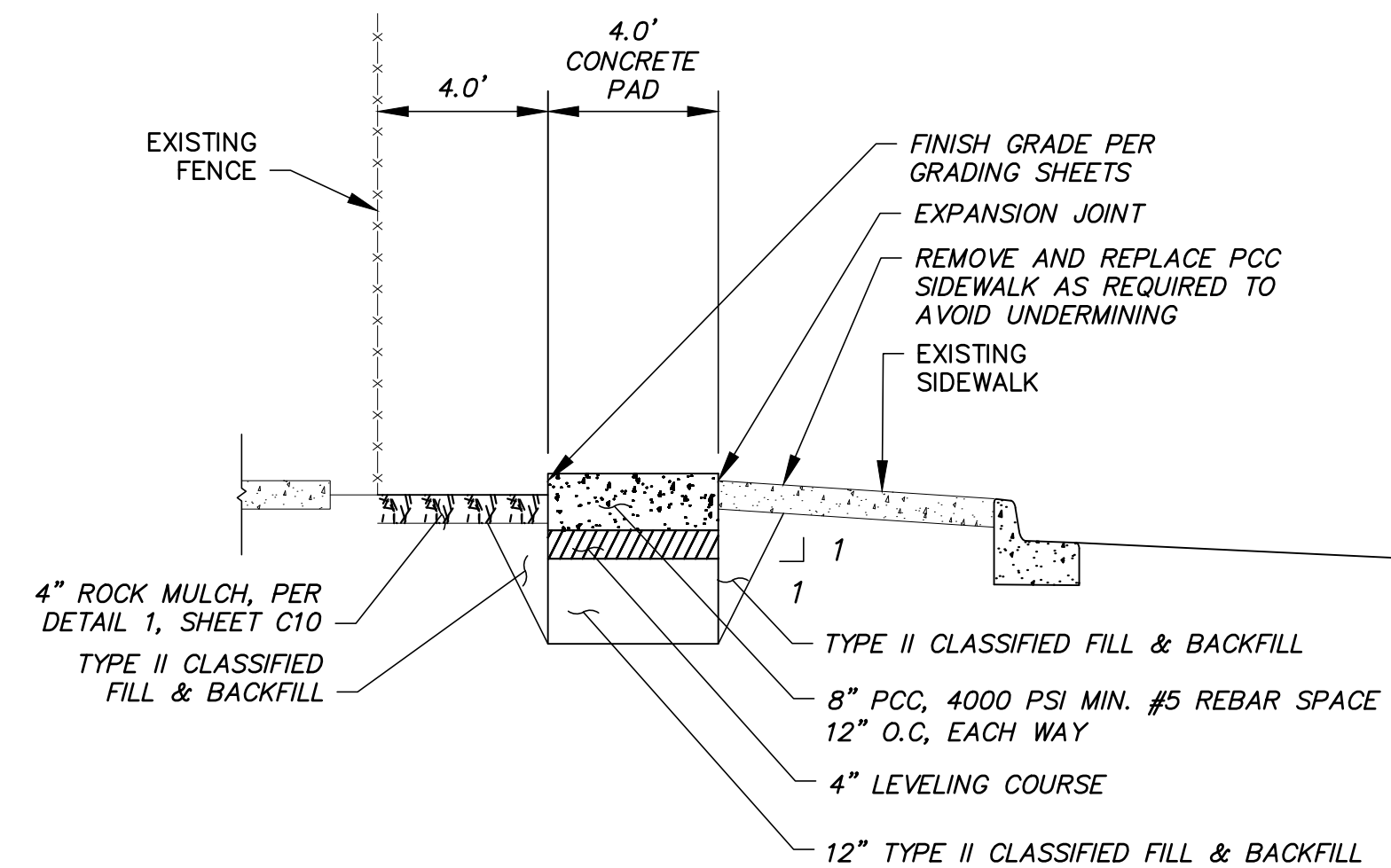
SHEET C8 of C12



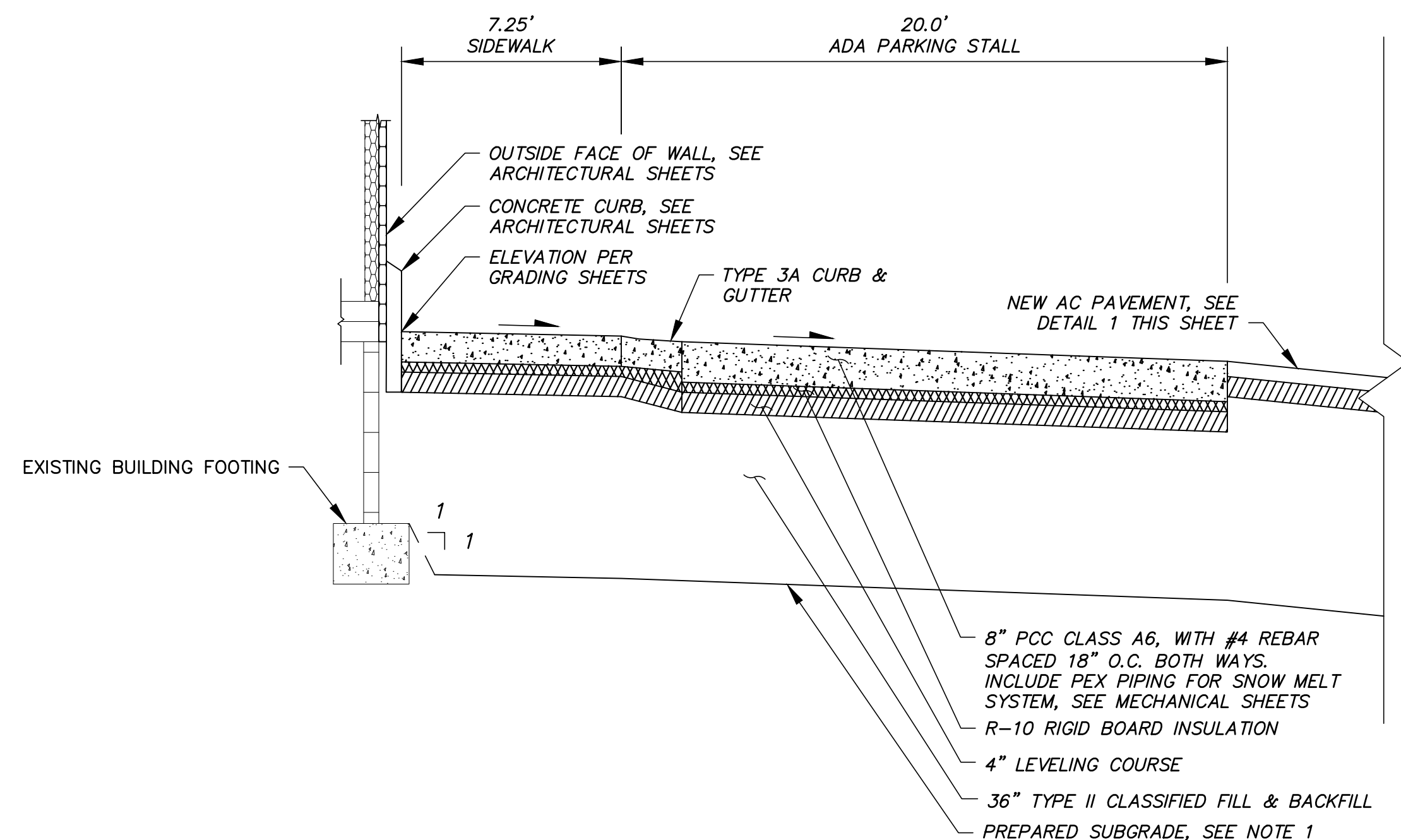
1 **AWWU ADMINISTRATION BUILDING PARKING LOT TYPICAL SECTION**
N.T.S

NOTES:

1. PREPARED SUBGRADE INCLUDES REMOVAL OF ALL ORGANICS AND YIELDING SOIL DOWN TO FIRM COMPETENT MINERAL SOIL. SUBGRADE SHALL BE COMPACTED TO 95% OF MAXIMUM DENSITY AT OPTIMUM MOISTURE CONTENT.
2. SHALLOW BURIED UTILITIES MAY EXIST WITHIN THE STRUCTURAL FILL. CONFIRM HORIZONTAL AND VERTICAL LOCATION PRIOR TO CONSTRUCTION.



2 **GENERATOR PAD TYPICAL SECTION**
N.T.S



3 **ADA PARKING STALL WITH HEATED SIDEWALK**
N.T.S

VERIFY SCALE		THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING.		0" = 1"		IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.		FULL SIZE SCALE	
DATA	DRAWN BY	CHECKED BY	DATA	DRAWN BY	CHECKED BY	REV	DATE	DESCRIPTION	BY
BASE			TELEPHONE						
TOPOGRAPHY			ELECTRIC						
PROFILE			CABLE TV						
SANITARY SEWER			TRAFFIC SIGNAL						
STORM SEWER			DESIGN						
WATER			QUANTITIES						
GAS			MUN. FINAL CHECK						
PLAN					CHECK				
REVISIONS									

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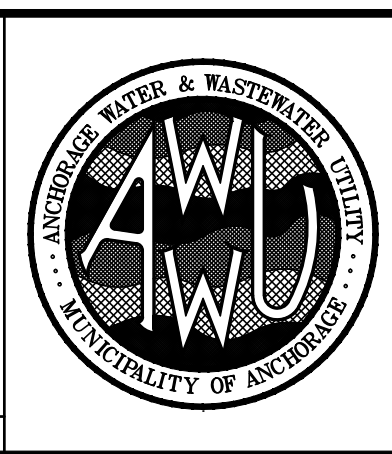
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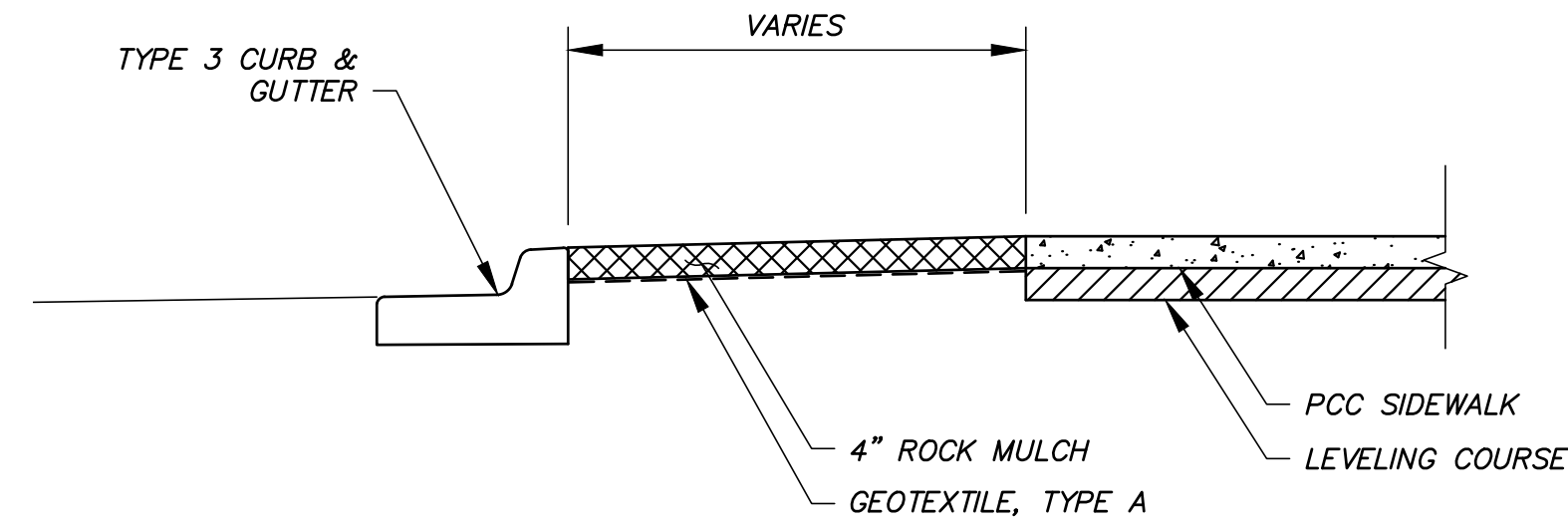
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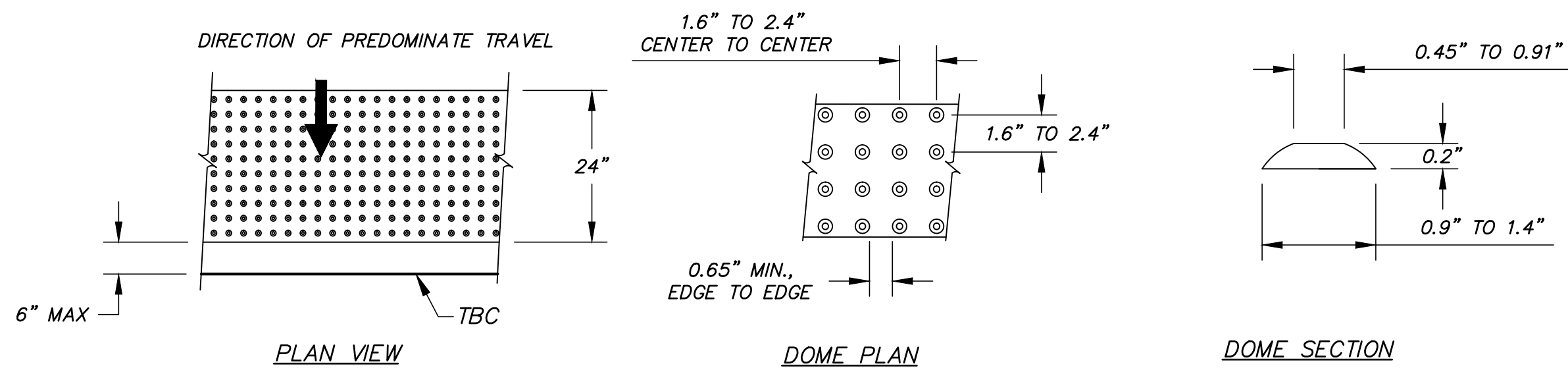
MUNICIPALITY OF ANCHORAGE WATER & WASTEWATER UTILITY		
KING STREET MAIN BUILDING UPGRADE		
SITE SECTIONS		
HORIZ SCALE: N/A	DATE: 29 APR 2016	GRID: 2431
VERT SCALE: N/A	PROJ. ID.: 0000007039	SHEET C9 of C12



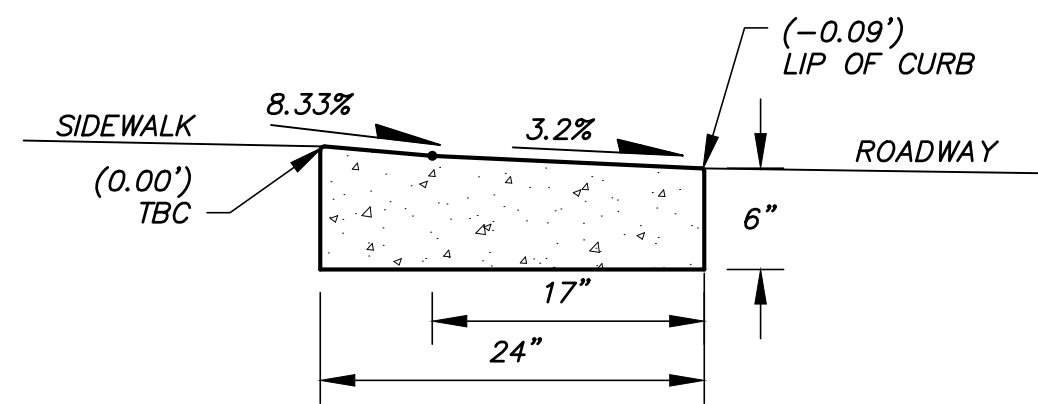
1 ROCK MULCH DETAIL
N.T.S.

NOTES

- ROCK MULCH SHALL MATCH EXISTING COLOR, SHAPE, AND GRADATION. APPROXIMATELY 3/4" TO 2" DIAMETER. ROCK MULCH SHALL BE FREE OF ORGANIC AND INORGANIC DEBRIS.



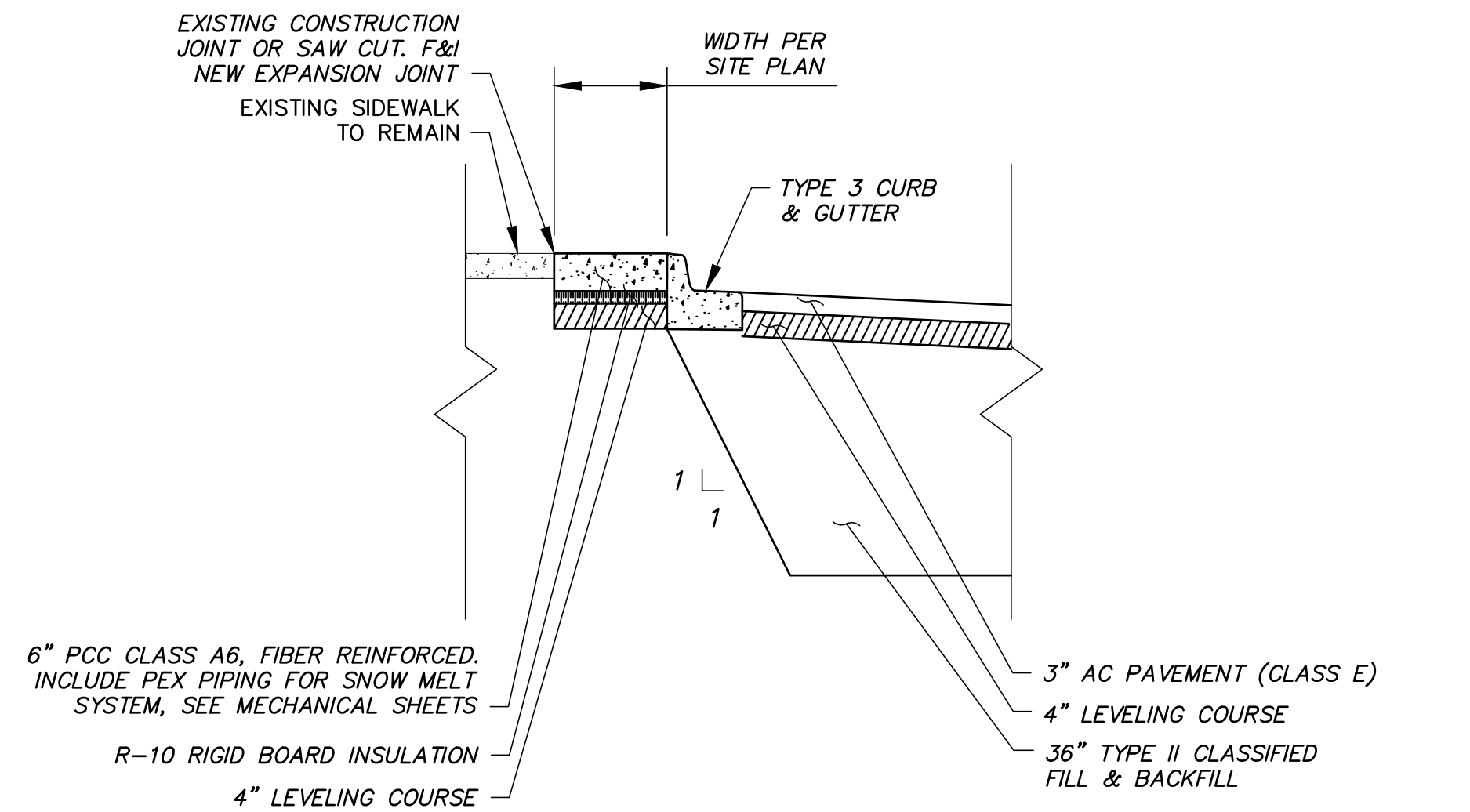
2 DETECTABLE WARNING PANEL
N.T.S.



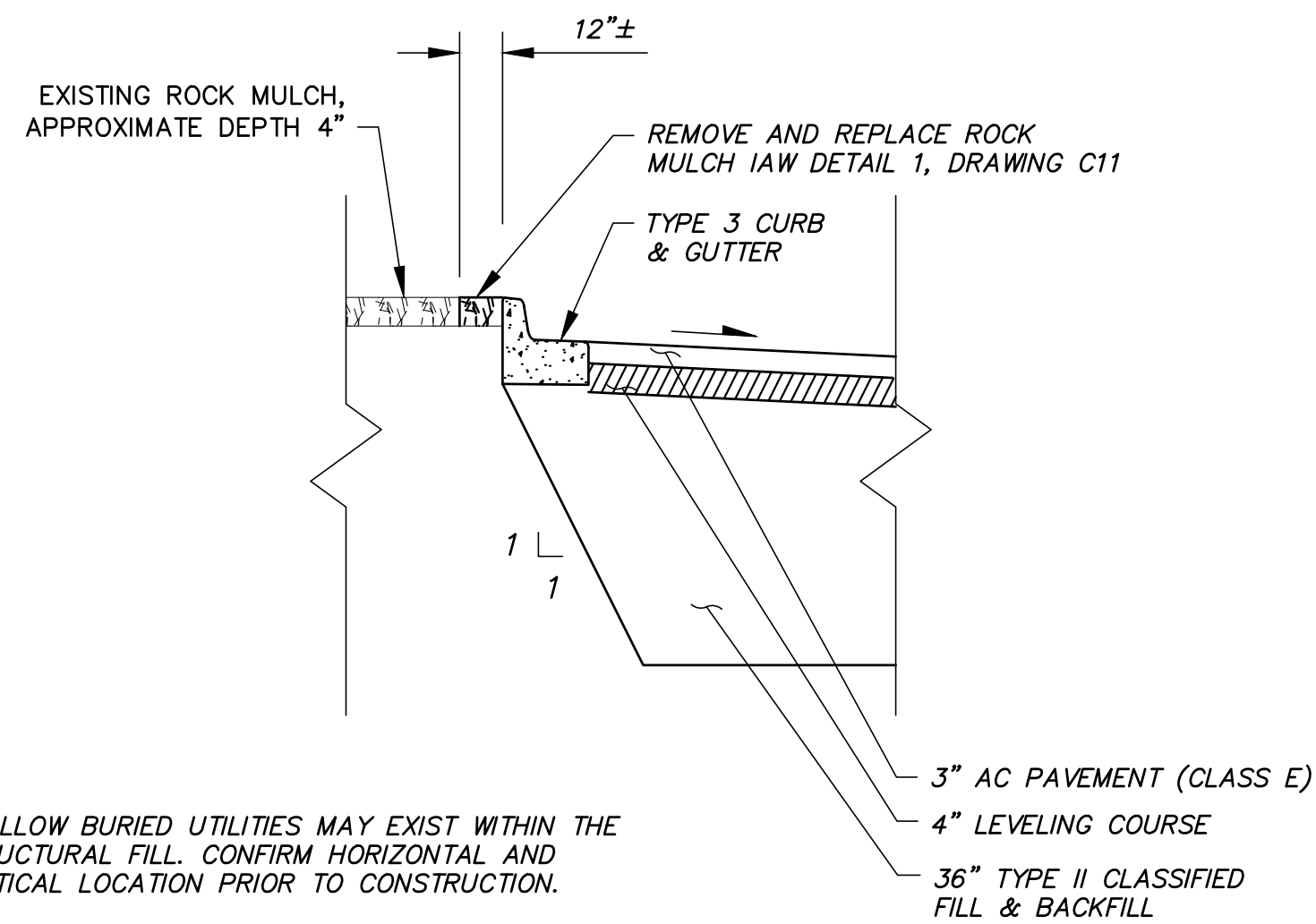
ACCESSIBLE CURB & GUTTER NOTES:

- TRANSITION CURBS TO MAINTAIN CONSTANT FLOWLINE ACROSS CURB RAMP AND AROUND CURB RETURN IAW PLANS.
- SEE MASS STANDARD DETAIL 30-10 FOR TYPE 1A ACCESSIBLE CURB AND GUTTER.

3 ACCESSIBLE CURB & GUTTER SECTION-TYPE 3A
N.T.S.



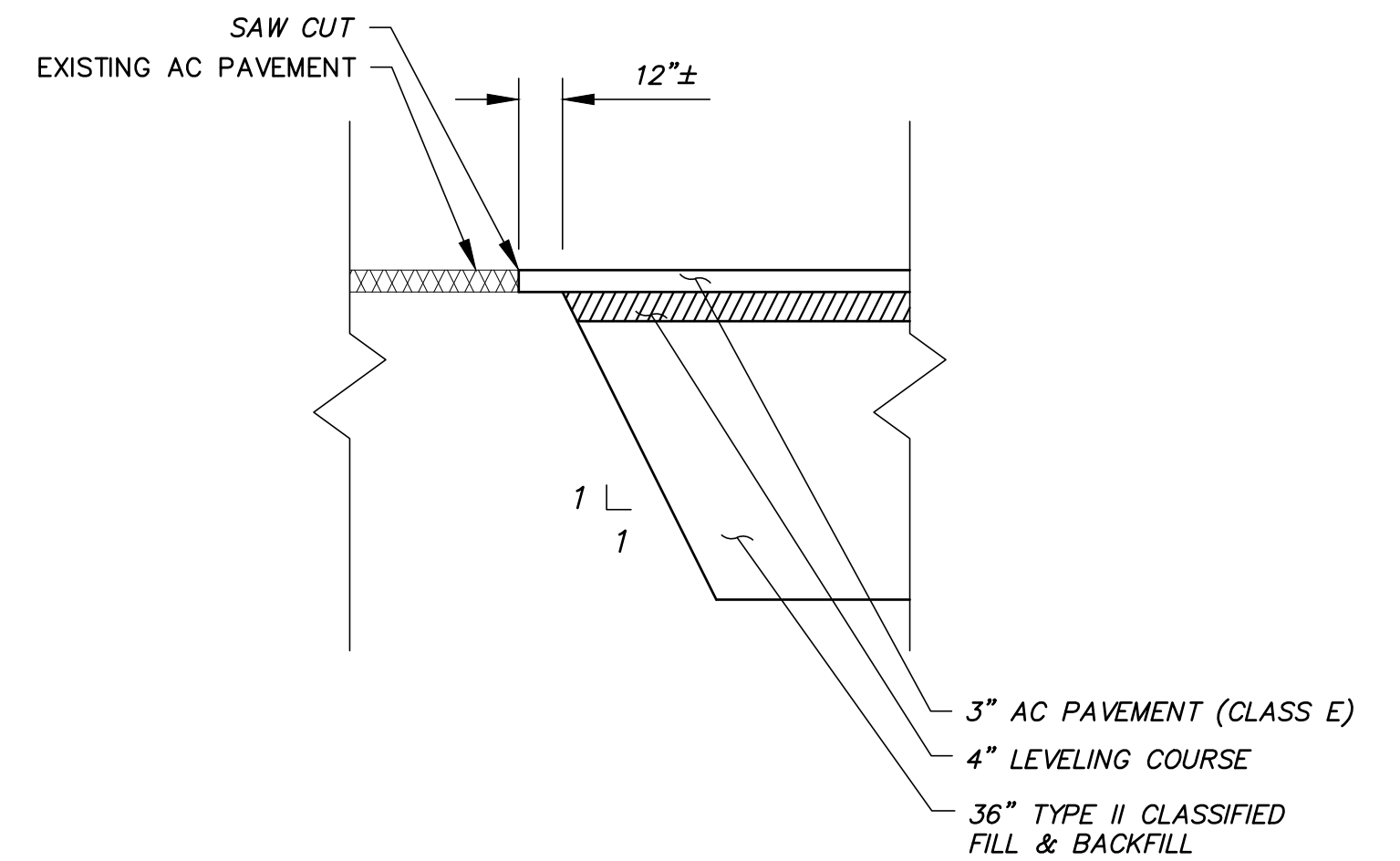
4 TYPICAL SECTION AT EXISTING SIDEWALK
N.T.S.



NOTES:

- SHALLOW BURIED UTILITIES MAY EXIST WITHIN THE STRUCTURAL FILL. CONFIRM HORIZONTAL AND VERTICAL LOCATION PRIOR TO CONSTRUCTION.

5 TYPICAL SECTION AT EXISTING ROCK MULCH MEDIANS
N.T.S.



6 TYPICAL SECTION AT EXISTING AC PAVEMENT
N.T.S.

VERIFY SCALE		THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING.		0" = 1"		IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.		FULL SIZE SCALE HORZ SCALE: N/A VERT SCALE: N/A	
DATA	DRAWN BY	CHECKED BY	DATE	REV	DATE	DESCRIPTION	BY	DATE	DESCRIPTION
BASE									
TOPOGRAPHY									
PROFILE									
SANITARY SEWER									
STORM SEWER									
WATER									
GAS									
PLAN CHECK					REVISIONS				

RECORD DRAWING		Note: To be filled out on original drawings upon project completion.	
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BY: _____ TITLE: _____		DATE: _____	
2. DATA TRANSFERRED BY:		DATA TRANSFER CHECKED BY: _____	
COMPANY: _____		DATE: _____	
DATE: _____			

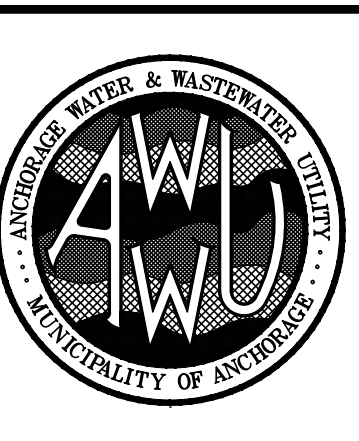
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CRW ENGINEERING GROUP LLC

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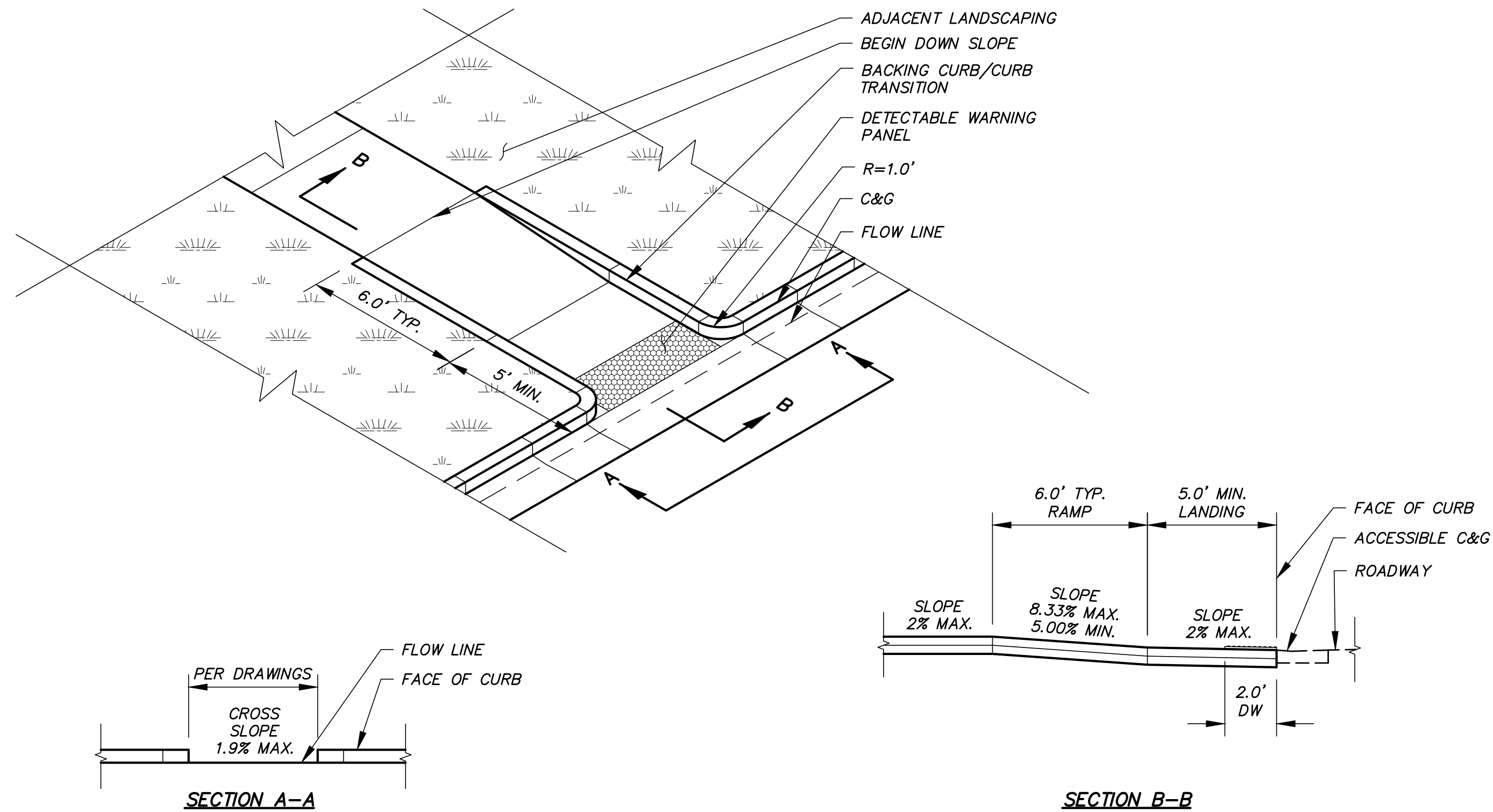
MUNICIPALITY OF ANCHORAGE
WATER & WASTEWATER UTILITY

KING STREET MAIN BUILDING UPGRADE

CIVIL DETAILS & SITE SECTIONS

HORZ SCALE: N/A
VERT SCALE: N/A
DATE: 29 APR 2016
GRID: 2431
PROJ. ID.: 0000007039

SHEET C10 of C12



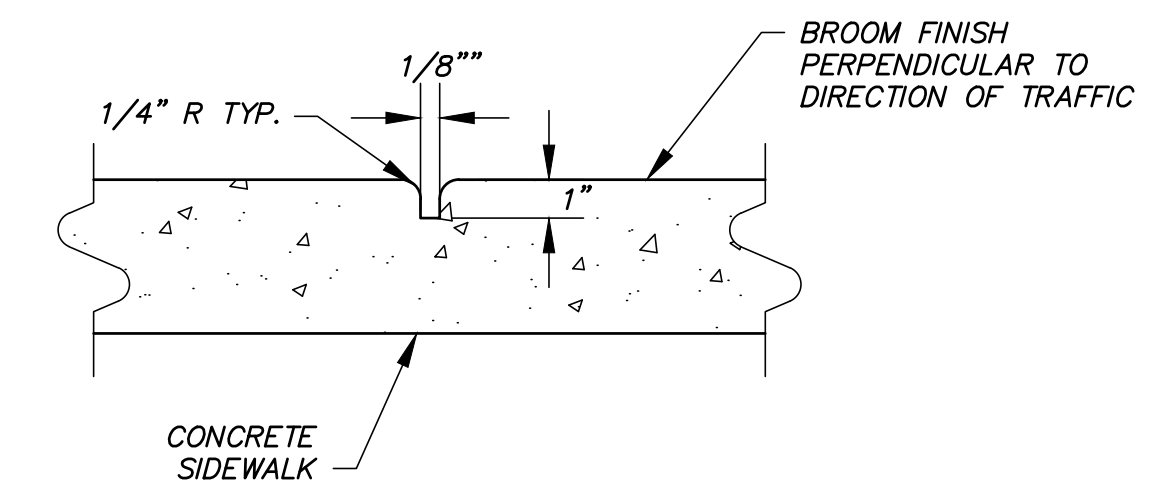
PERPENDICULAR CURB RAMP WITH BACKING CURB

1

N.T.S.

CURB AND CURB RAMP NOTES

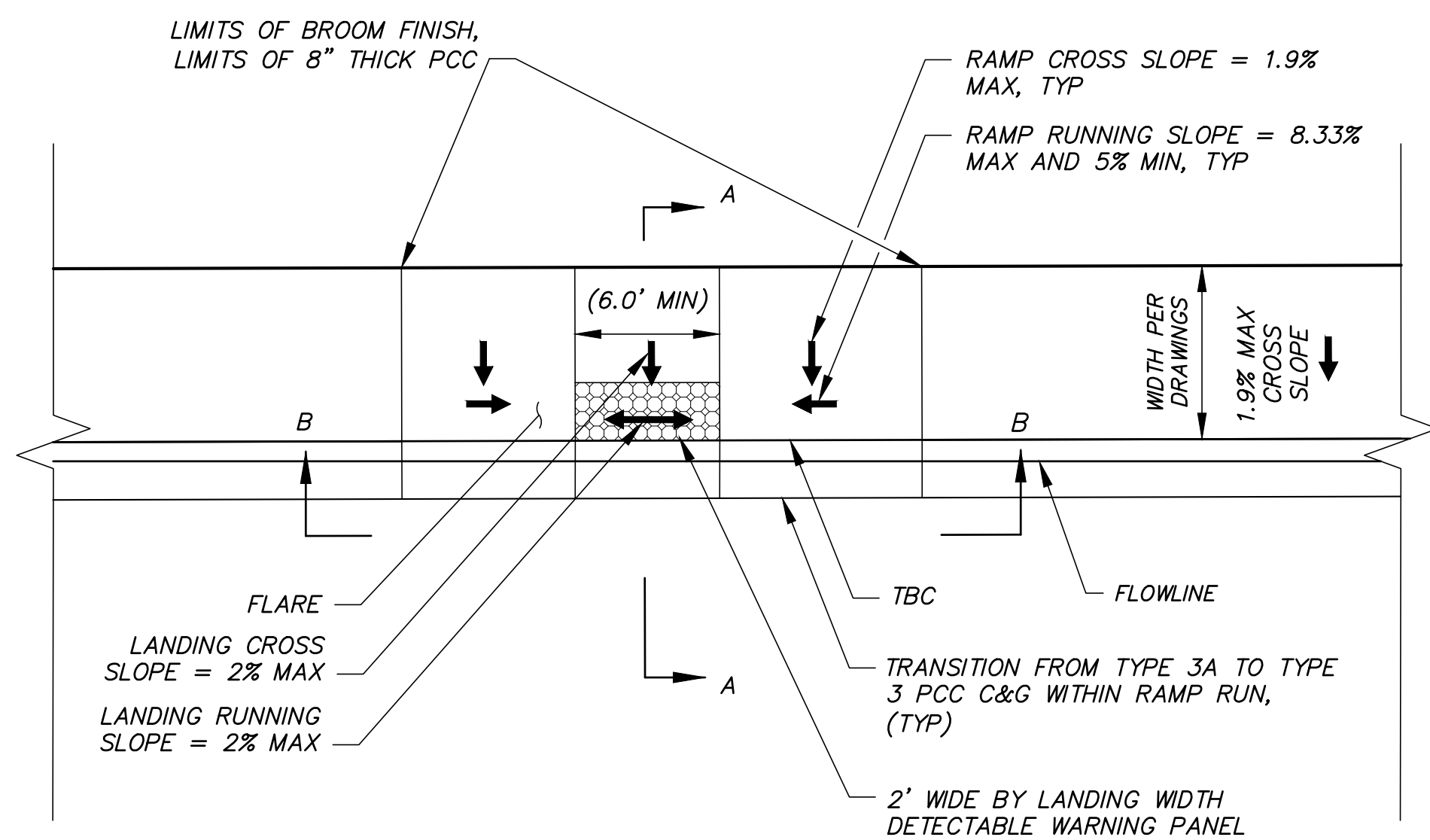
1. NOTIFY ENGINEER PRIOR TO INSTALLATION OF CONCRETE IF MAXIMUM/MINIMUM SLOPES CANNOT BE MAINTAINED.
2. RAMPS SHALL HAVE THE OUTSIDE EDGES AND JOINTS TRIMMED WITH A 1/4-INCH RADIUS EDGING TOOL.
3. ALL SLOPES ARE IN REFERENCE TO THE HORIZONTAL.
4. MINIMUM FLOWLINE SLOPE IN CURB RETURN IS 0.5%.
5. PROVIDE CONSTANT FLOWLINE BETWEEN CHANGE IN CURB TYPE.
6. FORM BACKING CURB AS DIRECTED BY THE ENGINEER TO MATCH EXISTING GROUND. IF EXISTING GROUND BEHIND SIDEWALK IS LANDSCAPE, PLACE ROCK MULCH AND GRADE TO MATCH EXISTING GROUND.
7. CONSTRUCT RAMPS AND LANDINGS WITH A BROOM FINISH RUNNING PERPENDICULAR TO THE DIRECTION OF TRAVEL.
8. INSTALL YELLOW ADA APPROVED DETECTABLE WARNINGS (DW) PANELS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND THESE DRAWINGS. SET DETECTABLE WARNINGS SO THAT THE FIELD AREA AT THE BASE OF THE DOMES IS FLUSH WITH THE SURROUNDING CONCRETE. THERE SHALL BE NO LIP AT THE EDGE OF THE DETECTABLE CURB WARNINGS.
9. DETECTABLE WARNING DOMES AT PARALLEL CURB RAMPS SHALL BE ALIGNED ON A SQUARE GRID IN THE PREDOMINATE DIRECTION OF TRAVEL TO PERMIT WHEELS TO ROLL BETWEEN DOMES.
10. RAMP LOCATIONS MAY BE ADJUSTED TO ENSURE MINIMUM 48" CLEARANCE AROUND APPURTENANCES SUCH AS SIGNAL POLES, POWER POLES, LIGHT POLES, J-BOXES, SIGNS, CATCH BASINS AND MANHOLES. PRIOR TO PLACEMENT OF CONCRETE AND APPURTENANCES, THE RAMP LAYOUT AND LOCATION SHALL BE APPROVED BY THE ENGINEER.
11. GAP BETWEEN DETECTABLE WARNING PANELS AND BACK OF CURB ONLY ALLOWABLE AT CENTER OF CURB RAMPS. CORNERS OF DETECTABLE WARNINGS SHALL BE FLUSH WITH BACK OF CURB. IF REQUIRED BY THE ENGINEER, CONTRACTOR SHALL CUT DETECTABLE WARNING PANELS PER THE MANUFACTURER'S RECOMMENDATIONS.



CONTROL JOINT DETAIL

3

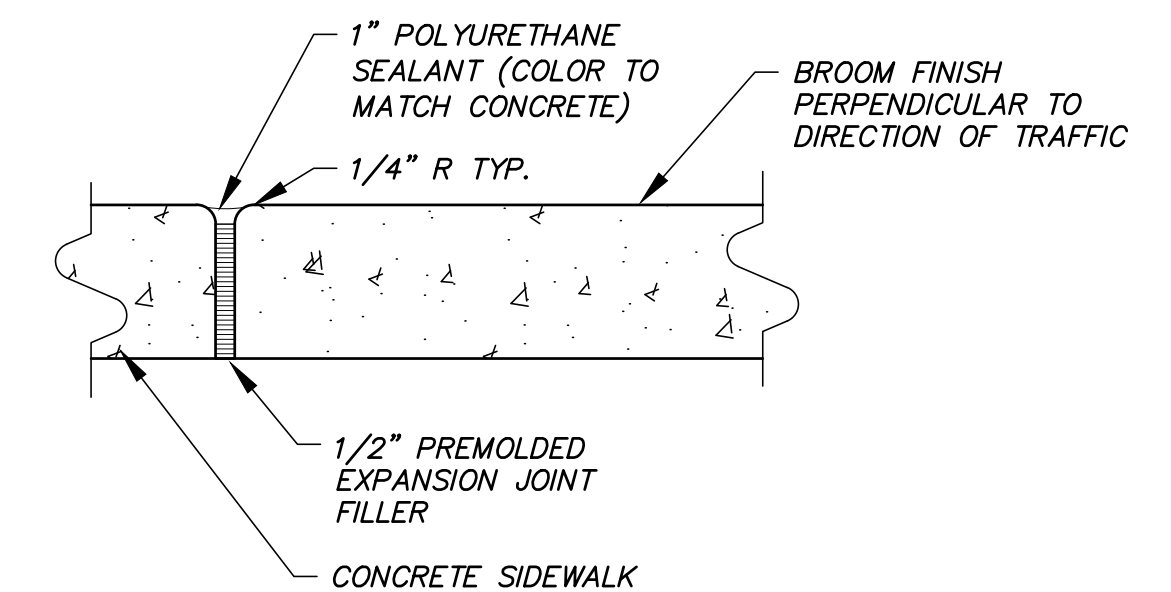
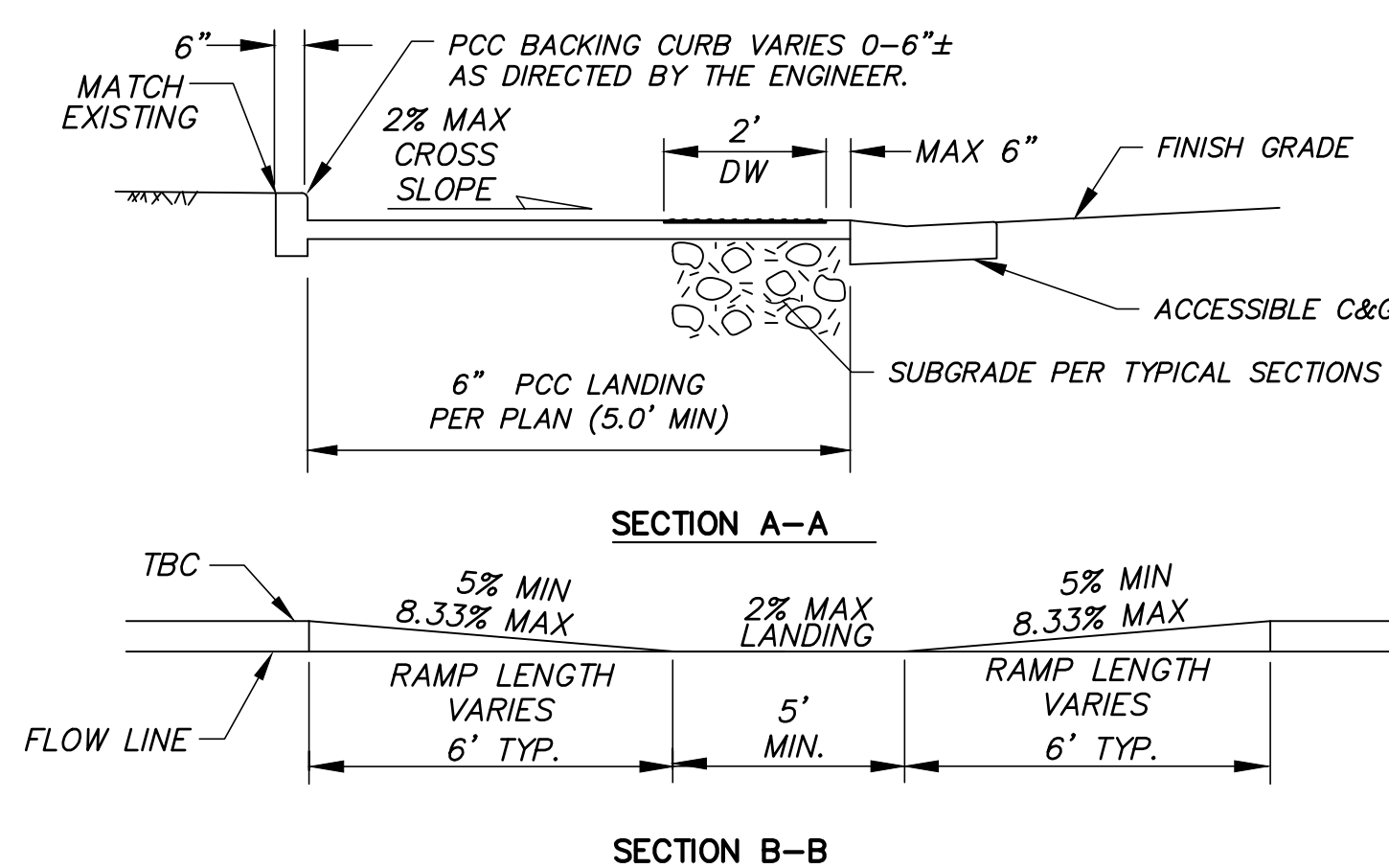
N.T.S.



PARALLEL CURB RAMP AT NON-CORNER LOCATION - PLAN VIEW

2

N.T.S.



EXPANSION JOINT DETAIL

4

N.T.S.

VERIFY SCALE		THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING.		0" = 1"		IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.		FULL SIZE SCALE	
DATA	DRAWN BY	CHECKED BY	DATE	REV	DATE	DESCRIPTION	BY	DATE	DESCRIPTION
BASE									
TOPOGRAPHY									
PROFILE									
SANITARY SEWER									
STORM SEWER									
WATER									
GAS									
PLAN CHECK		REVISIONS							

RECORD DRAWING Note: To be filled out on original drawings upon project completion.

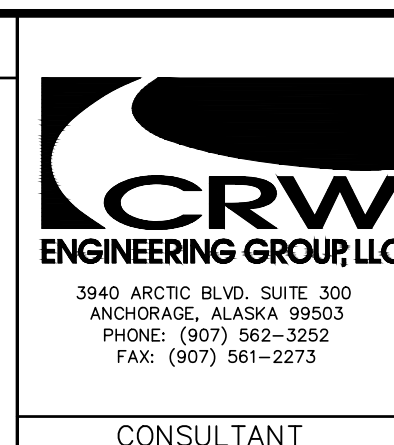
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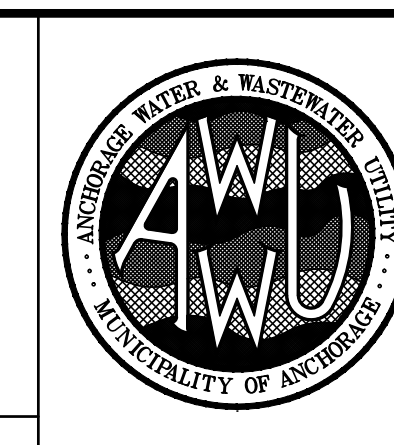
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MUNICIPALITY OF ANCHORAGE WATER & WASTEWATER UTILITY

KING STREET MAIN BUILDING UPGRADE

CIVIL DETAILS

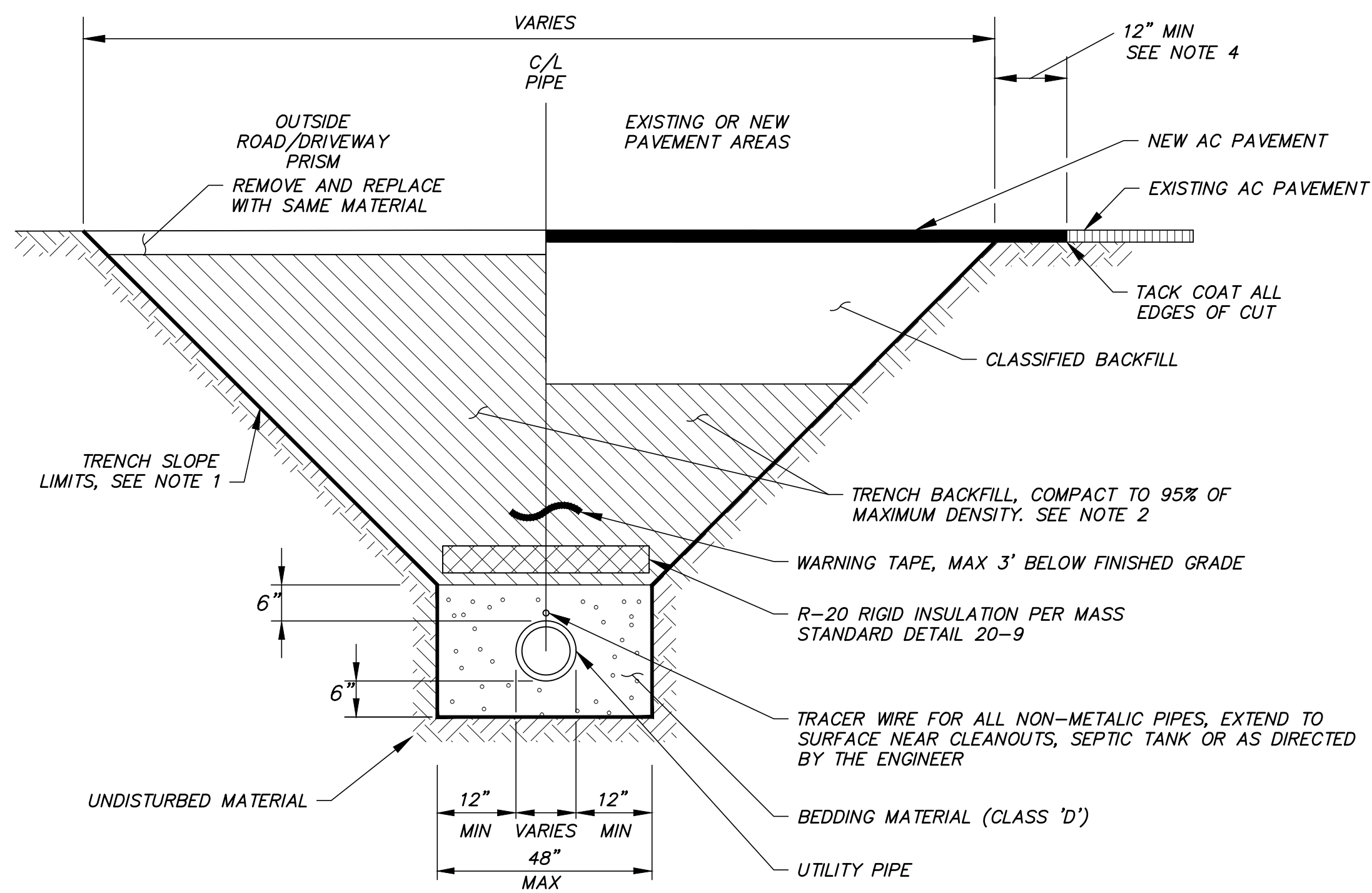
HORIZ SCALE: N/A
 VERT SCALE: N/A
 DATE: 29 APR 2016
 GRID: 2431
 PROJ. ID.: 0000007039

SHEET C11 of C12

PLOT DATE: 4/29/2016 4:11 PM

PLOT SCALE:

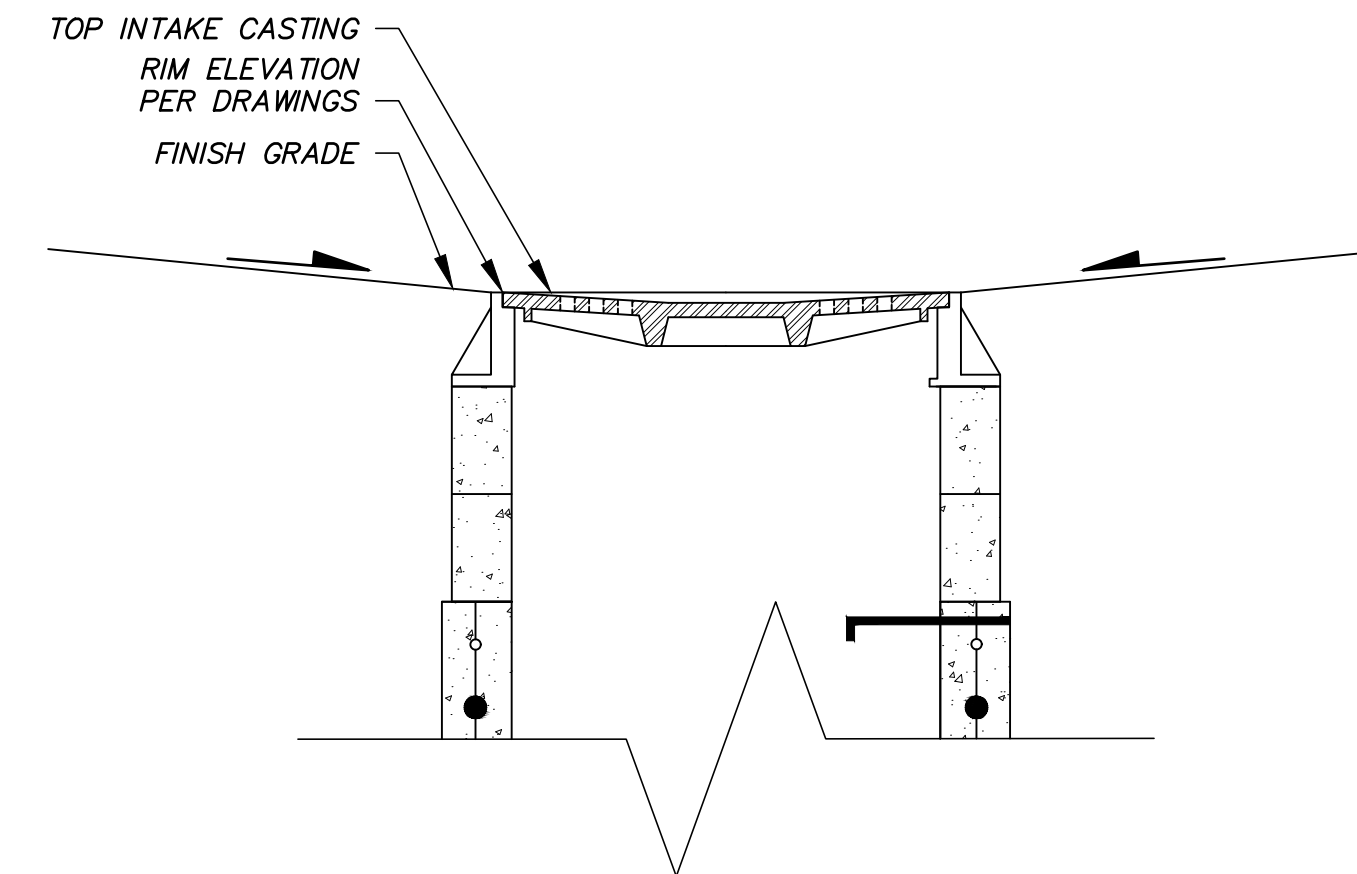
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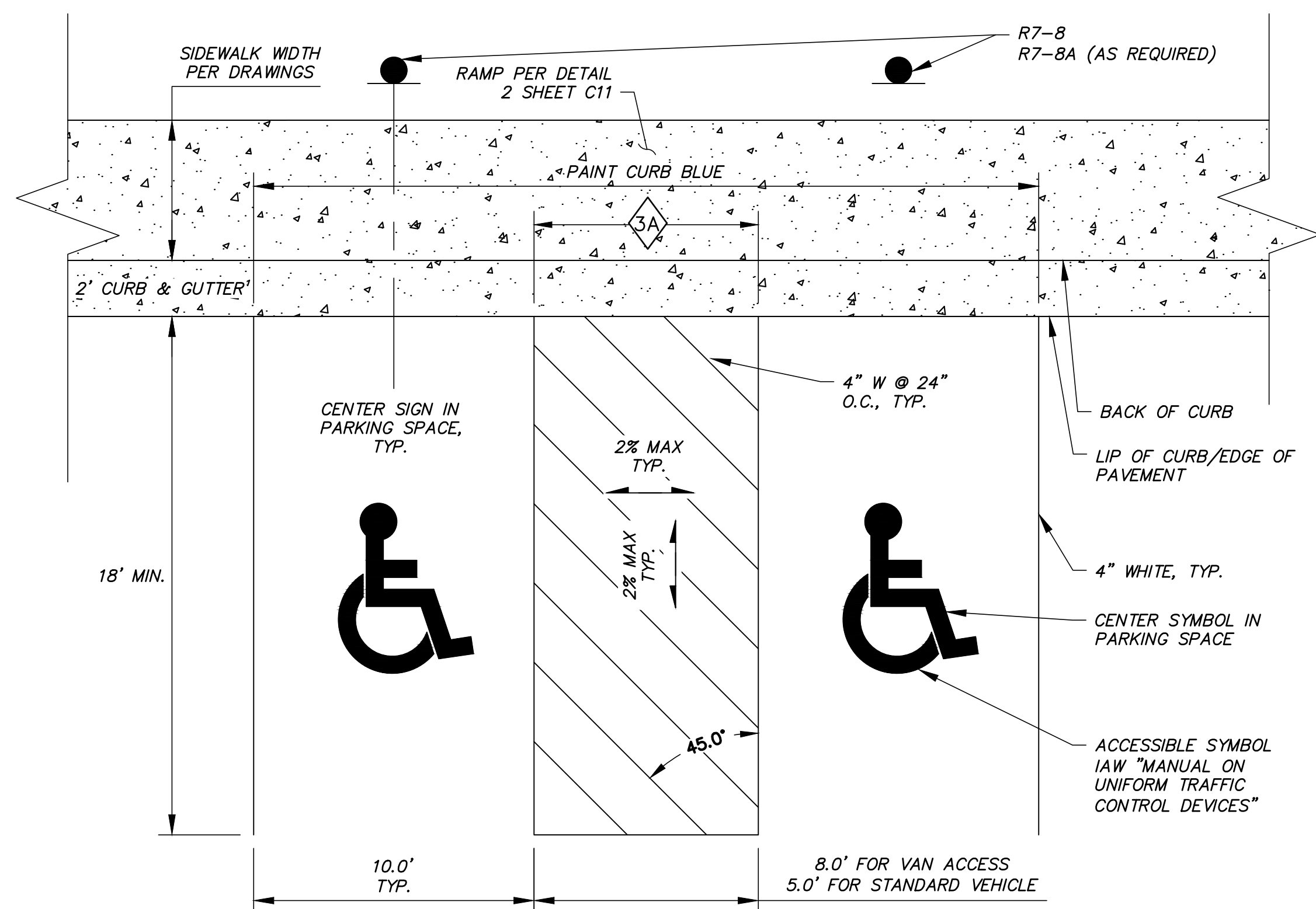
1 **RAIN LEADER TRENCH SECTION**
N.T.S.

NOTES:

1. TRENCH EXCAVATION AND SHORING SHALL COMPLY WITH ALL LOCAL, STATE, AND OSHA REGULATIONS AND REQUIREMENTS.
2. TRENCH BACKFILL SHALL BE NATIVE MATERIAL MEETING TYPE III CLASSIFICATION (MINIMUM) AS APPROVED BY THE ENGINEER. NATIVE MATERIAL NOT MEETING TYPE III CLASSIFICATION SHALL BE REMOVED AND REPLACED WITH TYPE II. ANY CONTAMINATED SOIL USED FOR BACKFILLING WITHIN TRENCH SECTION SHALL COMPLY WITH ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION REQUIREMENTS.
3. REMOVE AND DISPOSE OF ALL ORGANIC MATERIALS IN ACCORDANCE WITH MASS SECTION 20.13.
4. IN PREPARATION FOR AND IMMEDIATELY PRIOR TO PAVING, CONTRACTOR SHALL SAW CUT AND REMOVE AN ADDITIONAL 12" FROM EXISTING PAVEMENT EDGE. THE ENGINEER MAY REQUIRE MORE THAN A 12" ADDITIONAL CUT IF THE EXISTING PAVEMENT HAS BEEN LIFTED IN THE REMOVAL PROCESS, IF THE JOINT DOES NOT OCCUR ON UNDISTURBED MATERIAL, OR IF THE JOINT IS LOCATED WITHIN THE TRAVEL LANE. CUTS SHALL BE MADE WITH A SAW OR AIR CHISEL.



3 **STORM DRAIN RIM ELEVATION DETAIL**
N.T.S.



2 **ACCESSIBLE PARKING SPACE STRIPING**
N.T.S.

VERIFY SCALE		THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING.		0" — 1"		IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.		FULL SIZE SCALE HORZ SCALE: N/A VERT SCALE: N/A	
DATA	DRAWN BY	CHECKED BY	DATA	DRAWN BY	CHECKED BY	REV	DATE	DESCRIPTION	BY
BASE			TELEPHONE						
TOPOGRAPHY			ELECTRIC						
PROFILE			CABLE TV						
SANITARY SEWER			TRAFFIC SIGNAL						
STORM SEWER			DESIGN						
WATER			QUANTITIES						
GAS			MUN. FINAL CHECK						
PLAN CHECK					REVISIONS				

RECORD DRAWING Note: To be filled out on original drawings upon project completion.

1. DATA PROVIDED BY: _____
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 CONTRACTOR: _____
 BY: _____ TITLE: _____
 DATE: _____

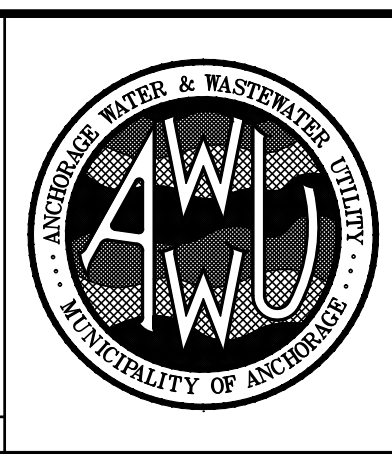
2. DATA TRANSFERRED BY: _____
 COMPANY: _____
 DATE: _____

3. 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.
 DATA TRANSFER CHECKED BY: _____
 COMPANY: _____
 BY: _____ TITLE: _____
 DATE: _____

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 3940 ARCTIC BLVD, SUITE 300
 ANCHORAGE, ALASKA 99503
 PHONE: (907) 562-3252
 FAX: (907) 561-2273



MUNICIPALITY OF ANCHORAGE
 WATER & WASTEWATER UTILITY

KING STREET MAIN BUILDING UPGRADE

CIVIL DETAILS

HORZ SCALE: N/A
 VERT SCALE: N/A
 DATE: 29 APR 2016
 GRID: 2431
 PROJ. ID.: 0000007039

CONSULTANT SEAL

SHEET 12 of 12

AWWU PLAN SET NO. XXXX

95% DESIGN

LEGEND

SYMBOL		
NEW	---	GRADE BREAK - HIGH POINT (OBSERVED)
EXISTING	---	GRADE BREAK - HIGH POINT (OBSERVED)
	---	DRAIN PIPE (APPROXIMATE LOCATION)
	---	SAW CUT LINE (APPROXIMATE LOCATION)
	□	FLOOR DRAIN (RECOMMENDED)

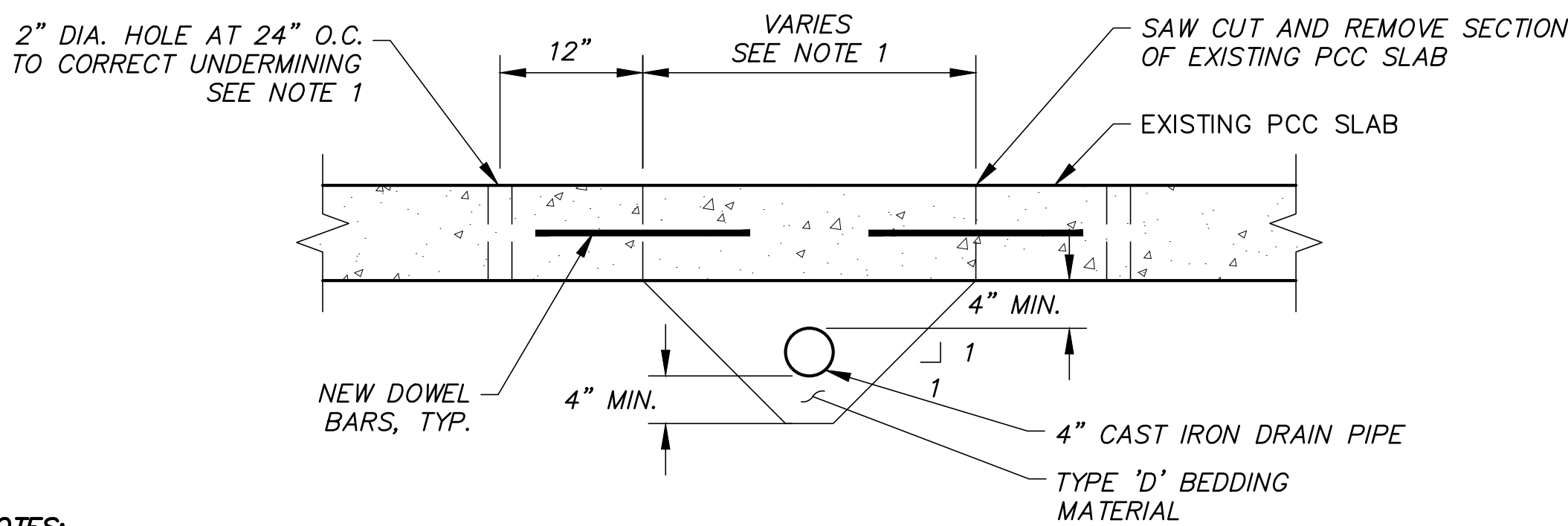
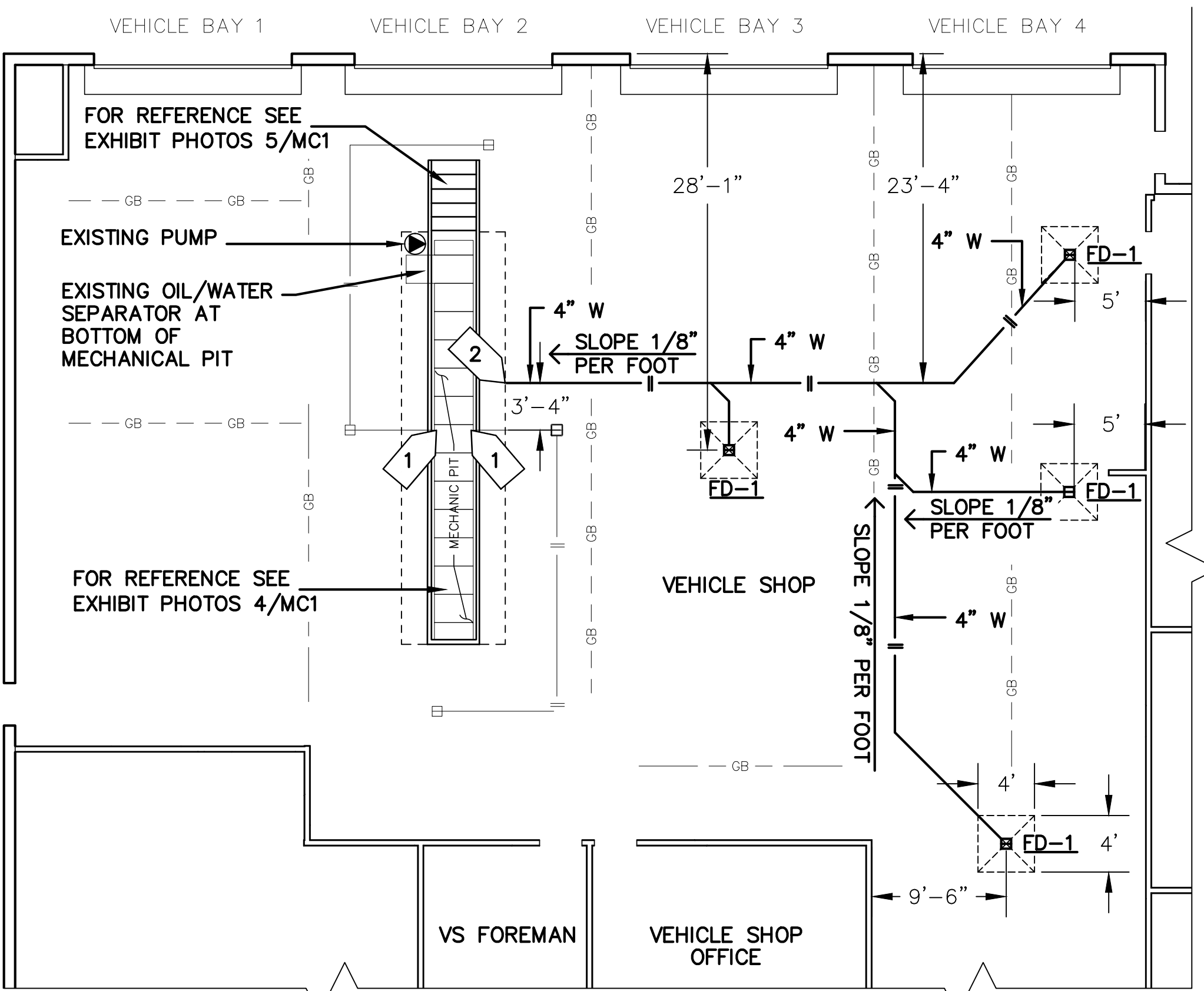
ABBREVIATIONS					
BLDG	BUILDING	FD-X	FLOOR DRAIN DESIGNATOR	NSF	NATIONAL SANITATION FOUNDATION
DIA / Ø	DIAMETER	FT	FEET	NTS	NOT TO SCALE
DN	DOWN	IN	INCHES	TYP	TYPICAL
DWG	DRAWING	MAX	MAXIMUM	UPC	UNIFORM PLUMBING CODE
(E)	EXISTING	MIN	MINIMUM	W	WASTE

NOTES

- EXISTING DRAIN PIPE OUTLET LOCATED AT BOTTOM OF MECHANIC PIT.
- NEW DRAIN PIPE OUTLET TO BE LOCATED AT BOTTOM OF MECHANICAL PIT. FIELD LOCATE AS REQUIRED. FOR DETAIL SEE 3/MC1.
- FLOOR PLAN LINE WORK BASED ON DRAWINGS PROVIDED BY McCOOL CARLSON GREEN, DATED 8-5-2015.
- LOCATION OF VEHICLE SHOP FEATURES ARE APPROXIMATE.
- ALL VEHICLE BAY'S FLOORING IS PORTLAND CEMENT CONCRETE (PCC).
- INVERT ELEVATIONS SHOWN ARE FROM TOP OF SLAB TO TOP OF PIPE. INVERTS REPRESENTS MINIMUM DEPTHS ANTICIPATED FOR PIPE. CONTRACTOR TO VERIFY LOCATION OF EXISTING PIPING. INFORMATION WAS TAKEN FROM A NON-DESTRUCTIVE WALK THROUGH AND AS-BUILTS. THERE IS NO GUARANTEE FOR THE LOCATIONS OF EXISTING PIPING IN THE SLAB.
- BELOW GRADE WASTE PIPING TO BE CAST IRON, (CISPI301, HUBLESS), SERVICE WEIGHT. FITTINGS: CAST IRON. JOINTS: NEOPRENE GASKET AND STAINLESS STEEL SHIELD ASSEMBLIES.
- TESTING: CAP ALL OPENINGS, FILL PIPE TO HIGHEST OPENING WITH WATER. OBSERVE SYSTEM FOR DROP IN WATER LEVEL FOR 1 HOUR. REPAIR ALL LEAKS OBSERVED. RETEST AFTER REPAIR UNTIL NO LEAKS ARE OBSERVED. A 5 PSI AIR TEST IS AN ACCEPTABLE ALTERNATE IF FREEZING COULD OCCUR.
- ALL NEW FLOOR DRAINS TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- EXACT LOCATIONS AT FLOOR DRAINS TO BE IDENTIFIED BY AWWU.

PLUMBING FIXTURE SCHEDULE

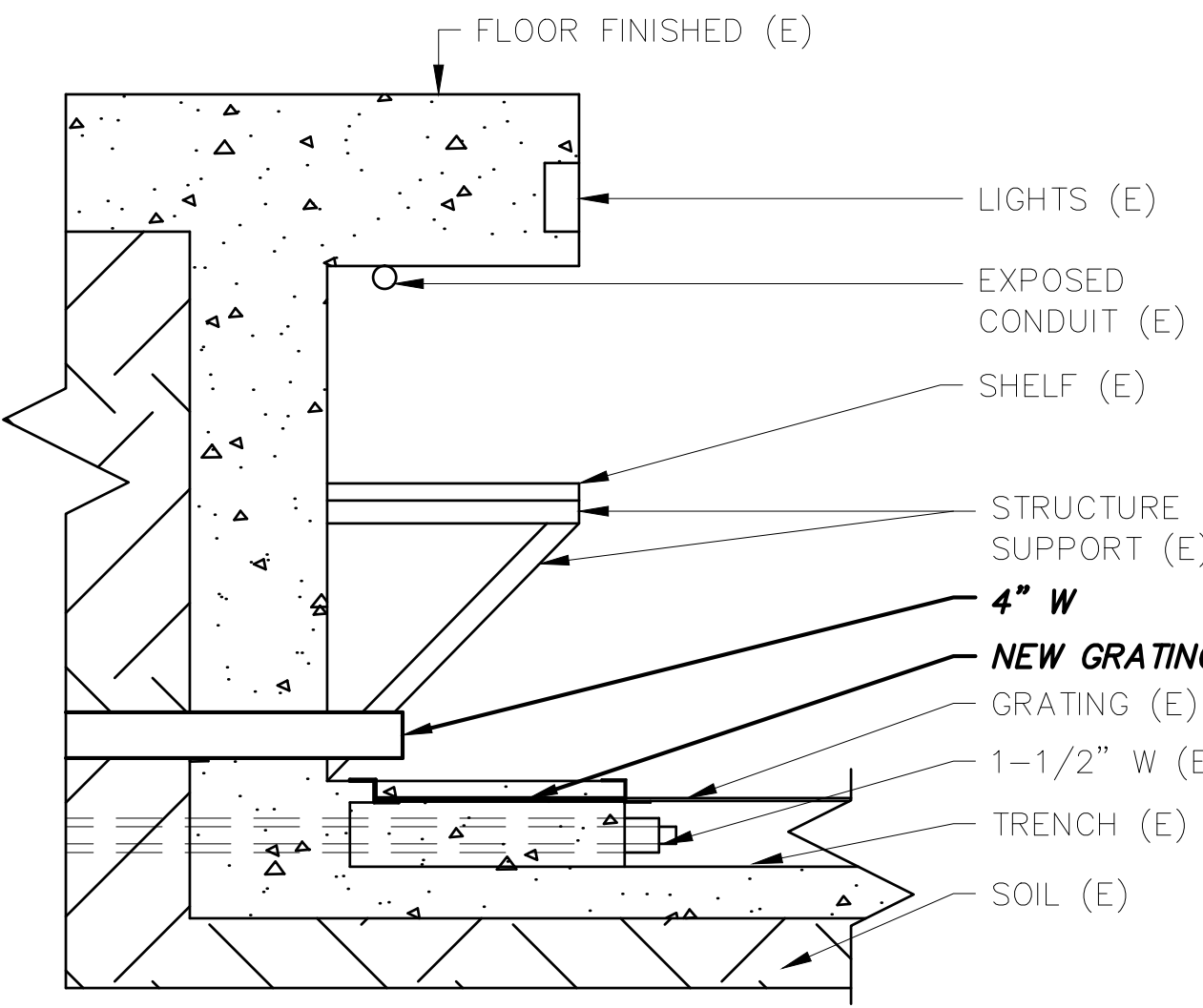
SYMBOL	FIXTURE	MOUNTING	CW	HW	WASTE	VENT	TRAP	MANUFACTURER	BASIC MODEL	COLOR/FINISH	REMARKS
FD-1	FLOOR DRAIN	--	--	--	4	--	--	ZURN	Z662-NH	--	SQUARE TOP DRAIN, BOTTOM OUTLET SEEPAGE PAN AND COMBINATION MEMBRANE FLASHING CLAMP AND FRAME FOR HEAVY DUTY SLOTTED LOOSE GRATE WITH SUSPENDED SEDIMENT BUCKET. SUITABLE FOR VEHICLE LOADS UP TO 7500 LBS.



- NOTES:**
- CONTRACTOR SHALL PREVENT UNDERMINING OF EXISTING PCC SLAB. CONTRACTOR MAY DRILL HOLES 12" FROM EDGE OF SAW CUT AT 24" O.C. ON BOTH SIDES OF TRENCH AND PUMP SAND SLURRY INTO VOID TO MINIMIZE SAW CUT WIDTH.
 - MATCH THICKNESS OF EXISTING CONCRETE SLAB. NEW CONCRETE SHALL BE CLASS A-3.
 - INSTALL 1.5" DIA. 18" LONG DOWEL BARS AT 12" O.C. 6" MIN PENETRATION INTO EXISTING CONCRETE. EPOXY DOWEL BARS.

UTILITY PIPE SECTION DETAIL

SCALE: 1" = 1'-0"



MECHANICAL PIT SECTION DETAIL

NOT TO SCALE

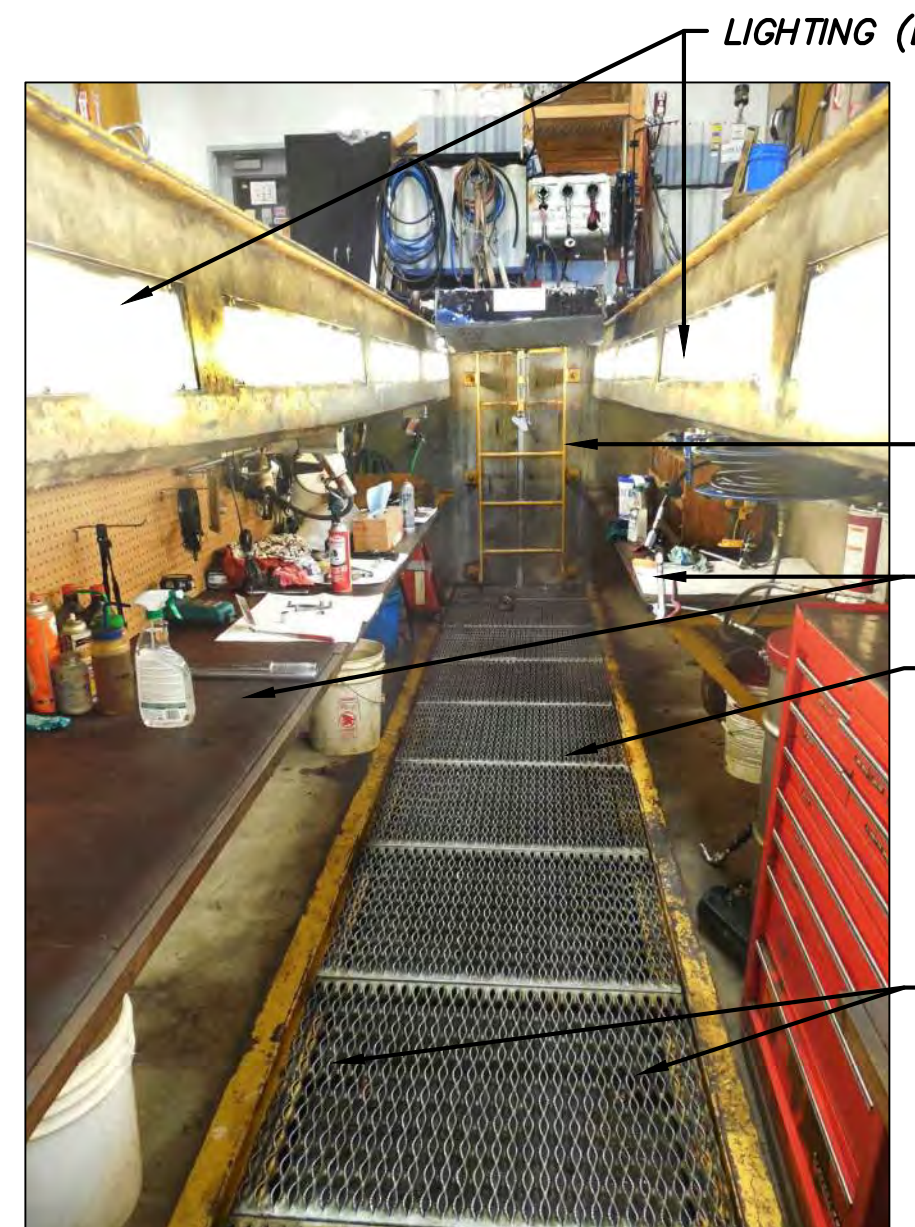


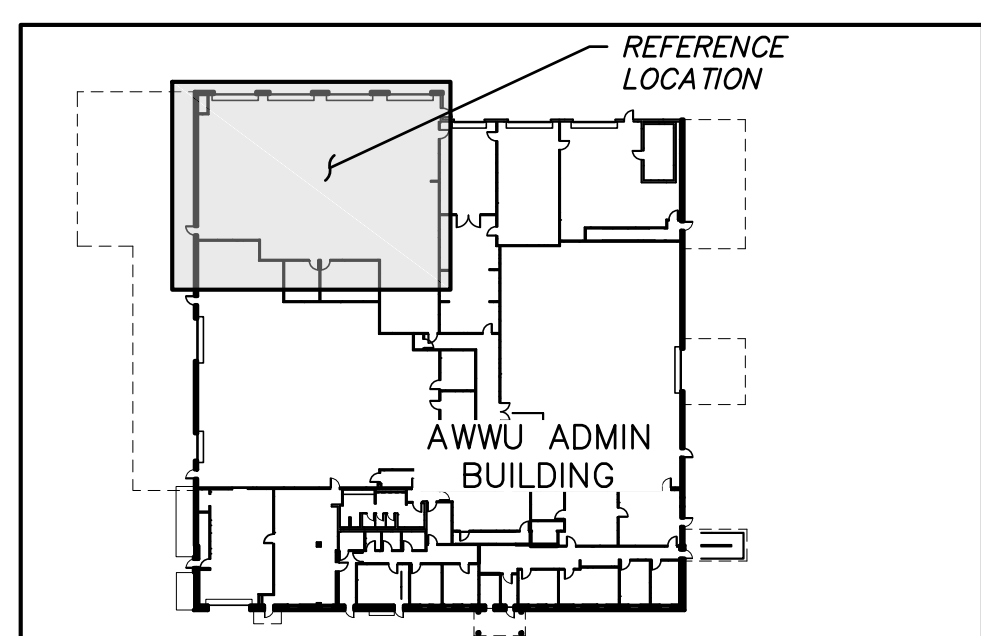
EXHIBIT PHOTO

NOT TO SCALE



EXHIBIT PHOTO

NOT TO SCALE



BUILDING KEY MAP
SCALE: NTS

AWWU ADMINISTRATION BUILDING BELOW GRADE PLUMBING PLAN

SCALE: 1/8" = 1'-0"

PLOT DATE: 4/29/2016 4:12 PM
PLOT SCALE:
ACAD FILE: \\s2040\substuf\jobdata\10322.08 King Street Admin Building\00 CAD\01 Working Set\01 Civil\10322.08 Proposed Floor Drain Location.dwg

AWWU PLAN SET NO. XXXX

95% DESIGN

VERIFY SCALE		THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING.		0" = 1"		IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.		FULL SIZE SCALE	
DATA	DRAWN BY	CHECKED BY	DATE	REV	DATE	DESCRIPTION	BY	DATE	DESCRIPTION
BASE									
TOPOGRAPHY									
PROFILE									
SANITARY SEWER									
STORM SEWER									
WATER									
GAS									
PLAN		CHECK				REVISIONS			

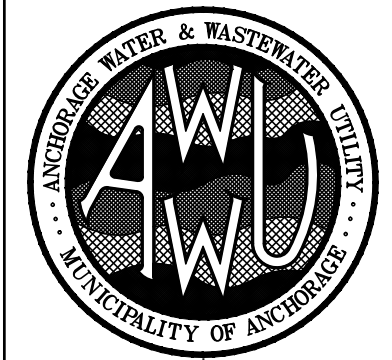
RECORD DRAWING		Note: To be filled out on original drawings upon project completion.	
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This will serve to certify that these Record Drawings are a true and accurate representation of the project as constructed.		CONTRACTOR: _____	
BY: _____	TITLE: _____	DATE: _____	DATE: _____
2. DATA TRANSFERRED BY:		DATA TRANSFER CHECKED BY: _____	
BY: _____	TITLE: _____	DATE: _____	DATE: _____
COMPANY: _____		COMPANY: _____	
DATE: _____		DATE: _____	

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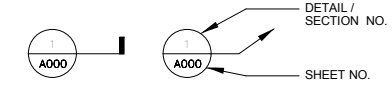
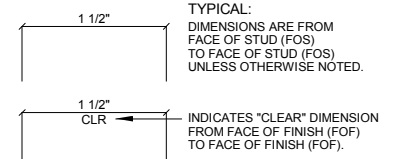


MUNICIPALITY OF ANCHORAGE WATER & WASTEWATER UTILITY		KING STREET MAIN BUILDING UPGRADE	
PROPOSED FLOOR DRAIN LOCATION ADMINISTRATIVE BUILDING			
HORIZ SCALE: N/A	DATE: 29 APR 2016	GRID: 2431	MC1
VERT SCALE: N/A	PROJ. ID.: 0000007039	SHEET	MC1

ARCHITECTURAL STANDARD ABBREVIATIONS

A	ACRYLIC COATING	FAF	FLUID APPLIED SPORTS FLOORING	O/	OVER	S	SEALER	TOP	TOP OF PARAPET
AB	ANCHOR BOLT	FD	FLOOR DRAIN	O/A	OUTSIDE AIR ON CENTER	SB	SMOKE BARRIER	TP	TOILET PAPER TREADS
AC	ACOUSTICAL	FDN	FOUNDATION	OC	ON CENTER	SAC	SUSPENDED ACOUSTICAL CEILING	TR	TACK SURFACE
ADD	ADDITIVE	FE	FIRE EXTINGUISHER	O.F./C.I.	OWNER FURNISHED CONTRACTOR INSTALLED	S/A	SUPPLY AIR	TS	TYPICAL
ADJ	ADJUSTABLE	FIN	FINISH	OFD	OVER FLOW DRAIN	SCHED	SCHEDULE	UBC	UNIFORM BUILDING CODE
AFF	ABOVE FINISH FLOOR	FIXT	FIXTURE	OFF	OFFICE	SEC	SECRETARY	UL	UNDERWRITERS LABORATORY
AK	ALASKA	FLASH	FLASHING	OH	OPPOSITE HAND / OVERHEAD	SF	SQUARE FOOT	UNO	UNLESS NOTED OTHERWISE
ALT	ALTERNATE	FLR	FLOOR	OPNG	OPENING	SHT	SHEET		
AL/ALUM	ALUMINUM	FOF	FACE OF FINISH	OPP	OPPOSITE HAND	SHTG	SHEATHING		
APPROX	APPROXIMATE	FOS	FACE OF STUD			SHR	SHOWER	VT	VINYL TILE
APT	APARTMENT	FPW	FIRE RETARDANT TREATED PLYWOOD	P	PAINT	SIM	SIMILAR	VR	VAPOR RETARDER
ARCH	ARCHITECTURAL	FRP	FIBERGLASS REINFORCED PLASTIC	PC	PORCELAIN CERAMIC TILE	SM	SURFACE MOUNT	VERT	VERTICAL
AWW	ACRYLIC WALL COATING	FRT	FIRE RETARDANT TREATED	PERF	PERFORATED	SPECS	SPECIFICATIONS	VEST	VESTIBULE
AT	ACOUSTIC TILE	FT	FOOT OR FEET	PLWD	PLYWOOD	SQ	SQUARE	VST	STAIR TREAD
AWC	ALUMINUM WINDOW WALL	FTG	FOOTING	P-LAM	PLASTIC LAMINATE	SS	STAINLESS STEEL		
		FURR	FURRING	PLY	PLYWOOD WAINSCOT	STD	STANDARD	W	WIDE / WOMEN
B	BATH	GALV	GALVANIZED	PP	PLASTIC PANEL WAINSCOT	STL	STEEL	W/	WITH
BD	BOARD	GFR	GLASS FIBER REINFORCED CEMENT	PS	PROJECTION SCREEN	STRUCT	STRUCTURAL	WC	WATER CLOSET
BDRM	BEDROOM	GL	GLASS	PT	PRESERVATIVE TREATED	ST STL	STAINLESS STEEL	WD	WOOD
BLD/BLDG	BUILDING	GWB	GYPSSUM WALLBOARD	PNL	PANEL	SUSP	SUSPENDED SHEET VINYL	WFB	WOOD FIBER BOARD
BM	BEAM	GYP	GYPSSUM	PR	PAIR	T	TOILET	WOM	WALK OFF ENTRY CARPET
BOD	BOTTOM OF DECK			R	RADIUS / RISER	TEL	TELEPHONE	WRGWB	WATER RESISTANT GYPSUM WALLBOARD
BOT	BOTTOM			RAF	RAISED ACCESS FLOOR	T&G	TONGUE & GROOVE	W/O	WITHOUT
BSMT	BASEMENT			R/AP	RETURN AIR	TOB	TOP OF BEAM	WP	WATERPROOF
BTWN	BETWEEN			RB	RUBBER BASE	TOD	TOP OF DECK	WWF	WELDED WIRE FABRIC
CAB	CABINET			RD	ROOF DRAIN	TOEB	TOP OF EXISTING BEAM		
CAR	CARPET			REF	REFERENCE / REFRIGERATOR	TOED	TOP OF EXISTING DECK		
CB	COVE BASE			REINF	REINFORCED	TOEJ	TOP OF EXISTING JOIST		
CIP	CAST IN PLACE			REQ'D	REQUIRED	TOEP	TOP OF EXISTING PARAPET		
CJ	CONTROL JOINT			REV	REVISED/REVISION	TOJ	TOP OF JOIST		
CLG	CEILING			RG	REFRIGERATOR				
CLO	CLOSET			RF	ROOF				
CLR	CLEAR			RM	ROOM				
COL	COLUMN			RO	ROUGH OPENING				
CONF	CONFERENCE			RT	RUBBER TILE				
CMP	CORRUGATED METAL PIPE			RTT	RUBBER TIRE TILE				
CMU	CONCRETE MASONRY UNITS			RUB	RUBBER ANTI-SLIP				
CONC	CONCRETE								
CONST	CONSTRUCTION								
CONT	CONTINUOUS								
CONTR	CONTRACTOR								
COORD	COORDINATE								
CORR	CORRIDOR								
CUH	CABINET UNIT HEATER								
CT	CERAMIC TILE								
CL	CENTERLINE								
CTSK	COUNTERSUNK								
D	DEEP								
DBL	DOUBLE								
DF	DRINKING FOUNTAIN								
DIA/□	DIAMETER								
DIM	DIMENSION								
DISP	DISPENSER								
DN	DOWN								
DOT/PF	ALASKA DEPARTMENT OF TRANSPORTATION/PUBLIC FACILITIES								
DTL	DETAIL								
DW	DISHWASHER								
DWG	DRAWING								
DWR	DRAWER								
(E)	EXISTING								
EA	EACH								
E/A	EXHAUST AIR								
ELEC	ELECTRICAL								
EL/ELEV	ELEVATION								
ELEV	ELEVATOR								
ENCL	ENCLOSURE								
EPDM	ETHYLENE PROPYLENE DIENE MONOMER								
EQ	EQUAL								
ESC	ESCALATOR								
EX/EXIST	EXISTING								
EXP	EXPOSED STRUCTURE (NO CEILING)								
EXT	EXTERIOR								
EXWD	EXISTING WOOD CEILING								

NOTE: Reference Schedules, Structural, Mechanical, Electrical for additional abbreviation legends.



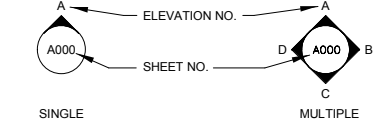
DETAIL SYMBOL



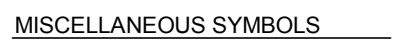
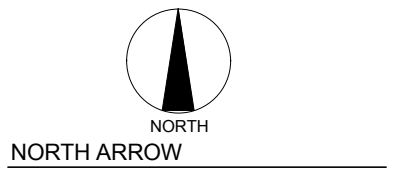
WALL SECTION SYMBOL



BUILDING SECTION SYMBOL



ELEVATION SYMBOLS



MISCELLANEOUS SYMBOLS

DATA	DATE	REVISION	DESCRIPTION
BASE	---	---	TELEPHONE
TOPOGRAPHY	---	---	ELECTRIC
PROFILE	---	---	CABLE TV
SANITARY SEWER	---	---	TRAFFIC SIGNAL
STORM SEWER	---	---	DESIGN
WATER	---	---	QUANTITIES
GAS	---	---	MUN. FINAL CHECK

RECORD DRAWING

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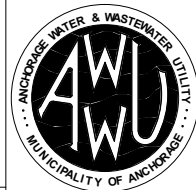
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MUNICIPALITY OF ANCHORAGE
WATER & WASTEWATER UTILITY

KING STREET MAIN BUILDING EXTERIOR UPGRADES
ARCHITECTURAL

KING STREET MAIN BUILDING UPGRADES
ARCHITECTURAL ABBREVIATIONS

HORZ SCALE: AS NOTED
VERT SCALE: 04-29-2016
GRID: 2431

PROJ. ID.: 2015022.05

CONSULTANT SEAL SHEET A001 of



1 FRONT AT WEST END
A100 3/4" = 1'-0"

2 FRONT AT EAST END
A100 1/8" = 1'-0"

9 WEST SIDE VIEW
A100 1/8" = 1'-0"

10 EAST SIDE VIEW
A100 3/4" = 1'-0"



5 WEST CANOPY
A100 1/8" = 1'-0"

6 MAIN CANOPY
A100 1/8" = 1'-0"

7 MAIN ENTRY
A100 1/8" = 1'-0"

11 WINDOW
A100 1/8" = 1'-0"

8 CANOPY COLUMN BASE
A100 1/8" = 1'-0"



3 PARAPET AT WEST
A100 1/8" = 1'-0"

4 PARAPET AT EAST
A100 1/8" = 1'-0"

12 WINDOW AND CORNER
A100 1/8" = 1'-0"

13 WINDOW - INSIDE
A100 1/8" = 1'-0"

VERIFY SCALE		THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING.		0" = 1"		IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.		FULL SIZE SCALE	
DATA	REVISION	DATE	DESCRIPTION	BY	DATE	DESCRIPTION	BY	DATE	DESCRIPTION
BASE	---	---	TELEPHONE	---	---	---	---	---	---
TOPOGRAPHY	---	---	ELECTRIC	---	---	---	---	---	---
PROFILE	---	---	CABLE TV	---	---	---	---	---	---
SANITARY SEWER	---	---	TRAFFIC SIGNAL	---	---	---	---	---	---
STORM SEWER	---	---	DESIGN	---	---	---	---	---	---
WATER	---	---	QUANTITIES	---	---	---	---	---	---
GAS	---	---	MUN. FINAL CHECK	---	---	---	---	---	---
PLAN CHECK					REVISIONS				

RECORD DRAWING		Note: To be filled out on original drawings upon project completion.	
1. DATA PROVIDED BY:	_____	3. 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.	_____
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CONTRACTOR:	_____	DATE:	_____
BY:	_____	DATE:	_____
DATE:	_____	DATE:	_____
2. DATA TRANSFERRED BY:	_____	DATE:	_____
COMPANY:	_____	DATE:	_____
DATE:	_____	DATE:	_____

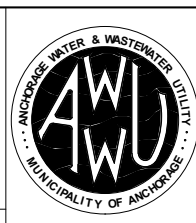
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MCCOOL CARLSON GREEN

HISTORIC ANCHORAGE TRAIN DEPOT
401 W. 1ST AVENUE • SUITE 500 • ANCHORAGE, ALASKA 99501
PH: 207.268.8078 • FAX: 207.268.8075 • WWW.MCGARCH.COM

CONSULTANT



MUNICIPALITY OF ANCHORAGE
WATER & WASTEWATER UTILITY

KING STREET MAIN BUILDING UPGRADE
ARCHITECTURAL

KING STREET MAIN BUILDING UPGRADES
REFERENCE PHOTOS

HORIZ SCALE: AS NOTED
VERT SCALE: AS NOTED

PROJ. ID.: 2015022.05

04-29-2016

GRID: 2431

A100 of

SHEET

PLOT DATE: 4/29/2016 10:31:40 AM

PLOT SCALE: Douglas G. Green

FILE PATH AND NAME: \\MCOX\Redirection\Folders\zamorano\My Documents\AWU Main Bldg Upgrade--ARCH--zamorano.rvt

AWWU PLAN SET NO. XXXX



SOUTH VIEW

GENERAL NOTES

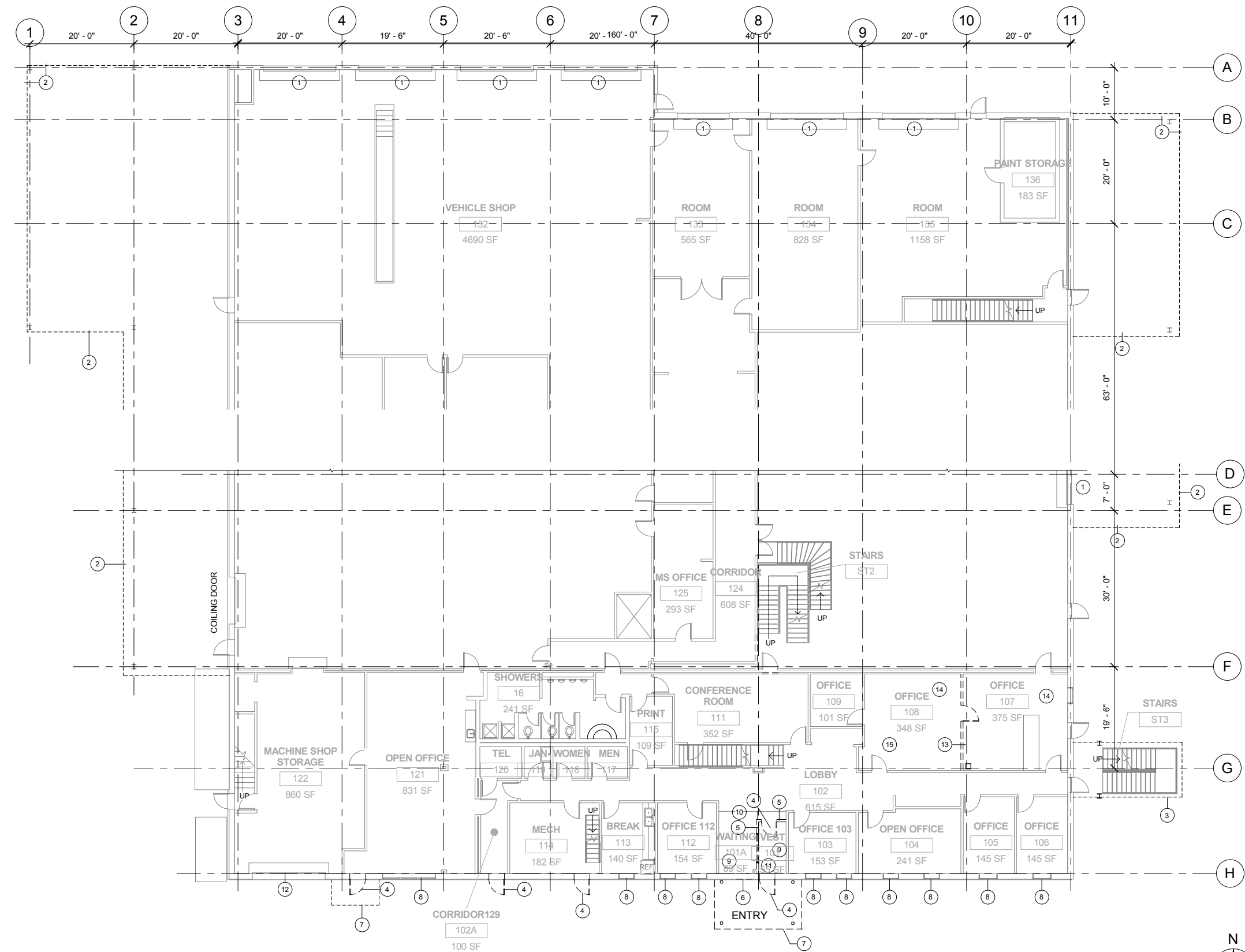
- 1) DIMENSIONS ARE BASED ON RECORD DRAWINGS AND SITE VISIT. VERIFY CRITICAL DIMENSIONS
- 2) THE OWNER SHALL HAVE FIRST RIGHT OF REFUSAL ON ALL SALVAGEABLE MATERIAL. THE CONTRACTOR SHALL DELIVER SALVAGED MATERIALS TO AN AREA AS DIRECTED BY THE OWNER
- 3) PATCH AND REFINISH WORK AREAS TO MATCH EXISTING ADJACENT SURFACES

SHEET NOTES

- 1 INSULATED OVERHEAD SECTIONAL DOORS
- 2 HIGH CANOPY ROOF OVER
- 3 SLOPED METAL ROOF OVER EXTERIOR STEEL STAIR
- 4 DEMOLISH DOOR AND FRAME FOR NEW DOOR AND FRAME
- 5 DEMOLISH WALL COORDINATE MECHANICAL AND ELECTRICAL
- 6 DEMO WINDOW AND CUT WALL FOR NEW DOOR
- 7 DEMOLISH EXISTING CANOPY
- 8 REMOVE WINDOW TRIM FOR NEW SIDING TRIM TYPICAL
- 9 REMOVE (E) FLOORING - CLEAN AND LEVEL FLOOR FOR NEW FLOORING
- 10 REMOVE VINYL FLOORING SHOWN HATCH - CLEAN AND LEVEL FLOOR FOR NEW FLOOR
- 11 PATCH AND PAINT INTERIOR WALL DAMAGE AROUND WINDOWS TO MATCH EXISTING ADJACENT SURFACE
- 12 OVERHEAD COILING DOOR
- 13 DEMO WALL BETWEEN ROOM 107 & 108 & LEVEL FLOOR
- 14 DEMO SUSPENDED CEILING OVER 107 & 108
- 15 DEMO CARPET IN ROOM 108

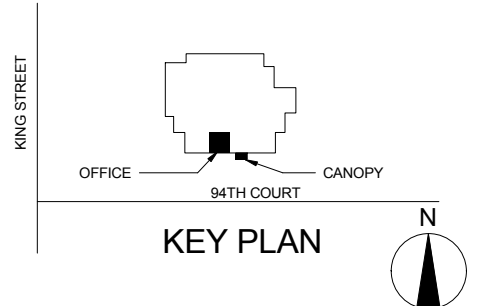
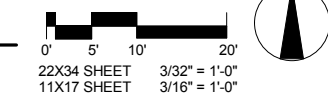
LEGEND

- 1 SHEET NOTE
- DEMO STUD WALLS
- EXISTING DOOR AND FRAME / EXISTING WORK TO REMAIN
- DEMO DOOR AND FRAME



1 EXISTING AND DEMO FLOOR PLAN - LEVEL 1

A101 3/32" = 1'-0"



DESIGN DEVELOPMENT

VERIFY SCALE	THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING.	IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.	FULL SIZE SCALE
DATA	0" = 1"	1"	VERT SCALE:
BASE	---	TELEPHONE	---
TOPOGRAPHY	---	ELECTRIC	---
PROFILE	---	CABLE TV	---
SANITARY SEWER	---	TRAFFIC SIGNAL	---
STORM SEWER	---	DESIGN	---
WATER	---	QUANTITIES	---
GAS	---	MUN. FINAL CHECK	---
PLAN CHECK		REVISIONS	

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1. DATA PROVIDED BY: This will serve to certify that these Record Drawings are a true and accurate representation of the project as constructed.

2. DATA TRANSFERRED BY: COMPANY: _____ DATE: _____

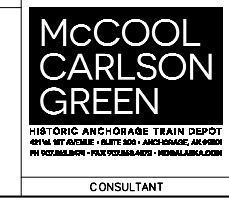
3. Based on periodic field observations by the Engineer (or an individual under his/her direct supervision), the Contractor-provided data appears to represent the project as constructed.

DATA TRANSFER CHECKED BY: _____ TITLE: _____

CONTRACTOR: _____ BY: _____ DATE: _____

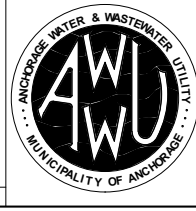
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CONSULTANT

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MUNICIPALITY OF ANCHORAGE
WATER & WASTEWATER UTILITY

KING STREET MAIN BUILDING UPGRADE ARCHITECTURAL

KING STREET MAIN BUILDING UPGRADES
EXISTING AND DEMO FLOOR PLAN-LEVEL 1

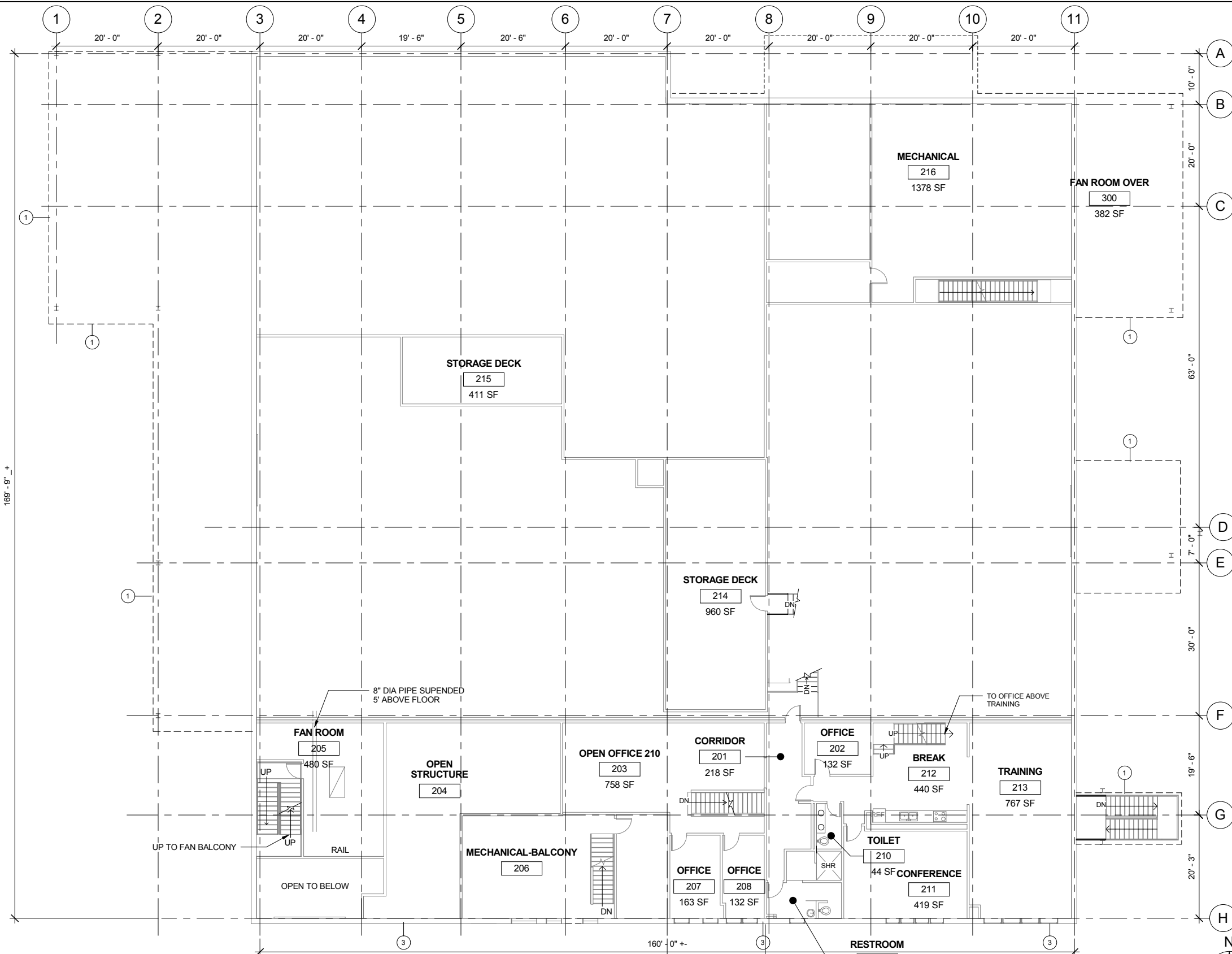
HORIZ SCALE: AS NOTED
VERT SCALE: 04-29-2016
GRID: 2431
PROJ. ID.: 2015022.05

A101 of _____ SHEET

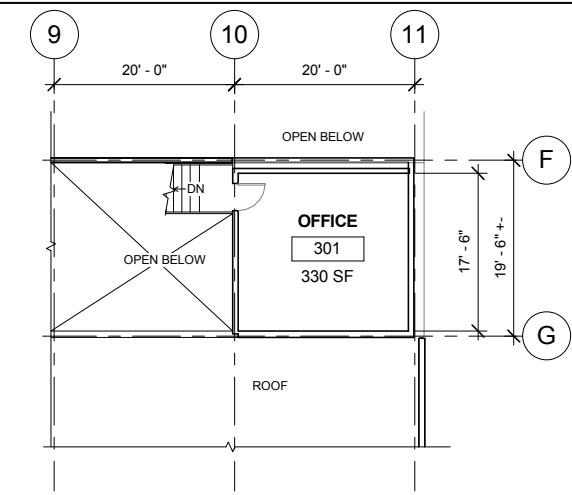
PLOT DATE: 4/29/2016 10:31:58 AM

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FILE PATH AND NAME: \\MCOX\Redirection\Folders\zamorano\My Documents\AWWU Main Bldg Upgrade-ARCH_zamorano.rvt



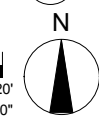
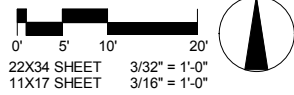
1 EXISTING AND DEMO FLOOR PLAN - LEVEL 2
 A102 3/32" = 1'-0"



2 MEZZANINE - LEVEL 3
 A102 3/32" = 1'-0"
 22X34 SHEET 3/32" = 1'-0"
 11X17 SHEET 3/16" = 1'-0"

SHEET NOTES

- 1 EXISTING ROOF ABOVE
- 2 NO INTERIOR ARCHITECTURAL WORK ON LEVEL 2 AND MEZZANINE
- 3 DEMO EXISTING METAL ROOF-SIDING FASCIA AND ROOF PARAPET CAP FOR 1/A622 FASCIA REPLACEMENT



DATA	DATE	DESCRIPTION	BY
BASE	---	TELEPHONE	---
TOPOGRAPHY	---	ELECTRIC	---
PROFILE	---	CABLE TV	---
SANITARY SEWER	---	TRAFFIC SIGNAL	---
STORM SEWER	---	DESIGN	---
WATER	---	QUANTITIES	---
GAS	---	MUN. FINAL CHECK	---

RECORD DRAWING Note: To be filled out on original drawings upon project completion.

1. DATA PROVIDED BY: _____
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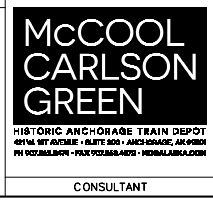
2. DATA TRANSFERRED BY: _____
 COMPANY: _____ DATE: _____

3. 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.

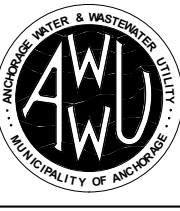
DATA TRANSFER CHECKED BY: _____
 COMPANY: _____ DATE: _____

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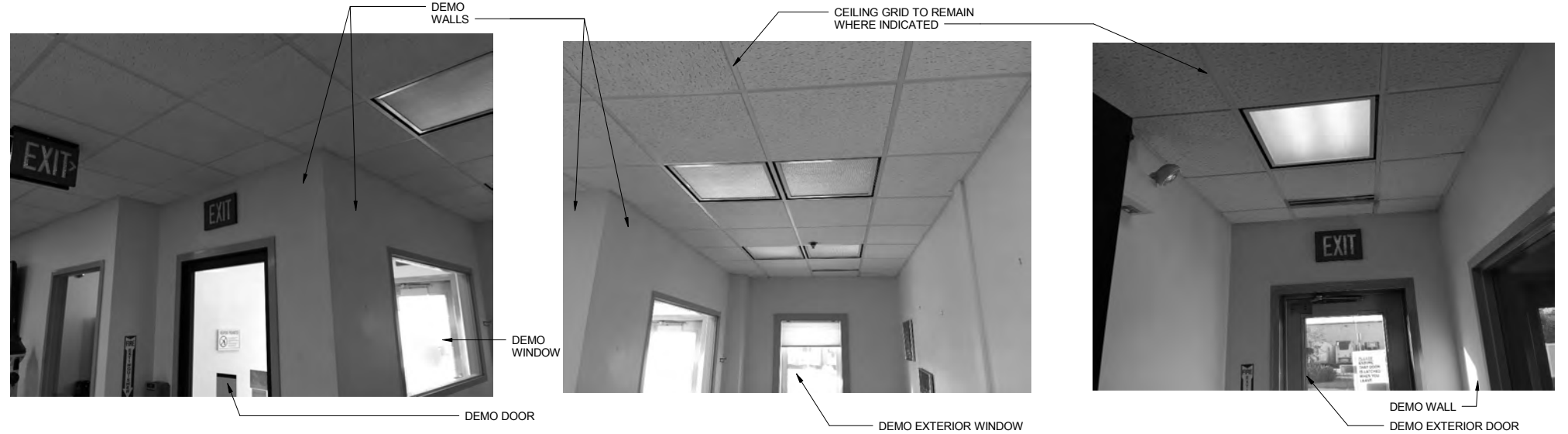
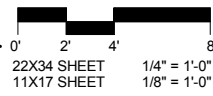
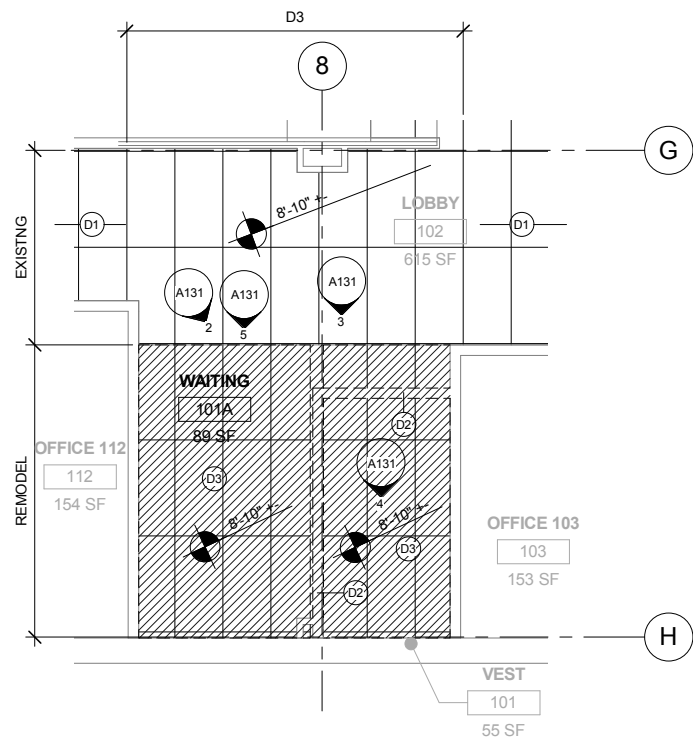


MUNICIPALITY OF ANCHORAGE
 WATER & WASTEWATER UTILITY
 KING STREET MAIN BUILDING UPGRADE ARCHITECTURAL
 KING STREET MAIN BUILDING UPGRADES
 EXISTING AND DEMO FLOOR PLAN-LEVEL 2

HORIZ SCALE: AS NOTED
 VERT SCALE: AS NOTED
 PROJ. ID.: 2015022.05
 GRID: 2431
 SHEET A102 of

AWWU PLAN SET NO. XXXX

DESIGN DEVELOPMENT



1 PHOTO LOCATION PLAN - MAIN ENTRY
A131 1/4" = 1'-0"

2 INTERIOR VIEW AT CEILING
A131 3/4" = 1'-0"

3 CEILING AT WAITING
A131 3/4" = 1'-0"

4 VIEW AT VESTIBULE
A131 3/4" = 1'-0"



5 INTERIOR VIEW AT WAITING FLOOR
A131 3/4" = 1'-0"

SHEET NOTES

- (D1) (E) EXISTING SAC CEILING - TO REMAIN
- (D2) DEMO WALL
- (D3) REMOVE EXISTING AND REPLACE SUSPENDED ACOUSTICAL CEILING SYSTEM TO MATCH EXISTING CEILING

LEGEND

- (D1) SHEET NOTES
- 9'-0" INDICATES HEIGHT FROM FINISH FLOOR
- EXISTING 2 X 4 EXPOSED GRID SUSPENDED ACOUSTICAL CEILING SYSTEM - MATCH EXISTING
- REPLACE SAC PER A302 ; COORDINATE ELECTRICAL AND MECHANICAL

DATA	DATE	DESCRIPTION	BY
BASE	---	TELEPHONE	---
TOPOGRAPHY	---	ELECTRIC	---
PROFILE	---	CABLE TV	---
SANITARY SEWER	---	TRAFFIC SIGNAL	---
STORM SEWER	---	DESIGN	---
WATER	---	QUANTITIES	---
GAS	---	MUN. FINAL CHECK	---

RECORD DRAWING Note: To be filled out on original drawings upon project completion.

1. DATA PROVIDED BY: _____
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CONTRACTOR: _____
BY: _____ TITLE: _____
DATE: _____

2. DATA TRANSFERRED BY: _____
COMPANY: _____
DATE: _____

3. 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.

DATA TRANSFER CHECKED BY: _____
COMPANY: _____
BY: _____ TITLE: _____
DATE: _____

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KING STREET MAIN BUILDING UPGRADE ARCHITECTURAL
KING STREET MAIN BUILDING UPGRADES
ENTRY PLANS & PHOTOS

HORZ SCALE: AS NOTED
VERT SCALE: AS NOTED
PROJ. ID.: 2015022.05

04-29-2016
GRID: 2431

A131 of

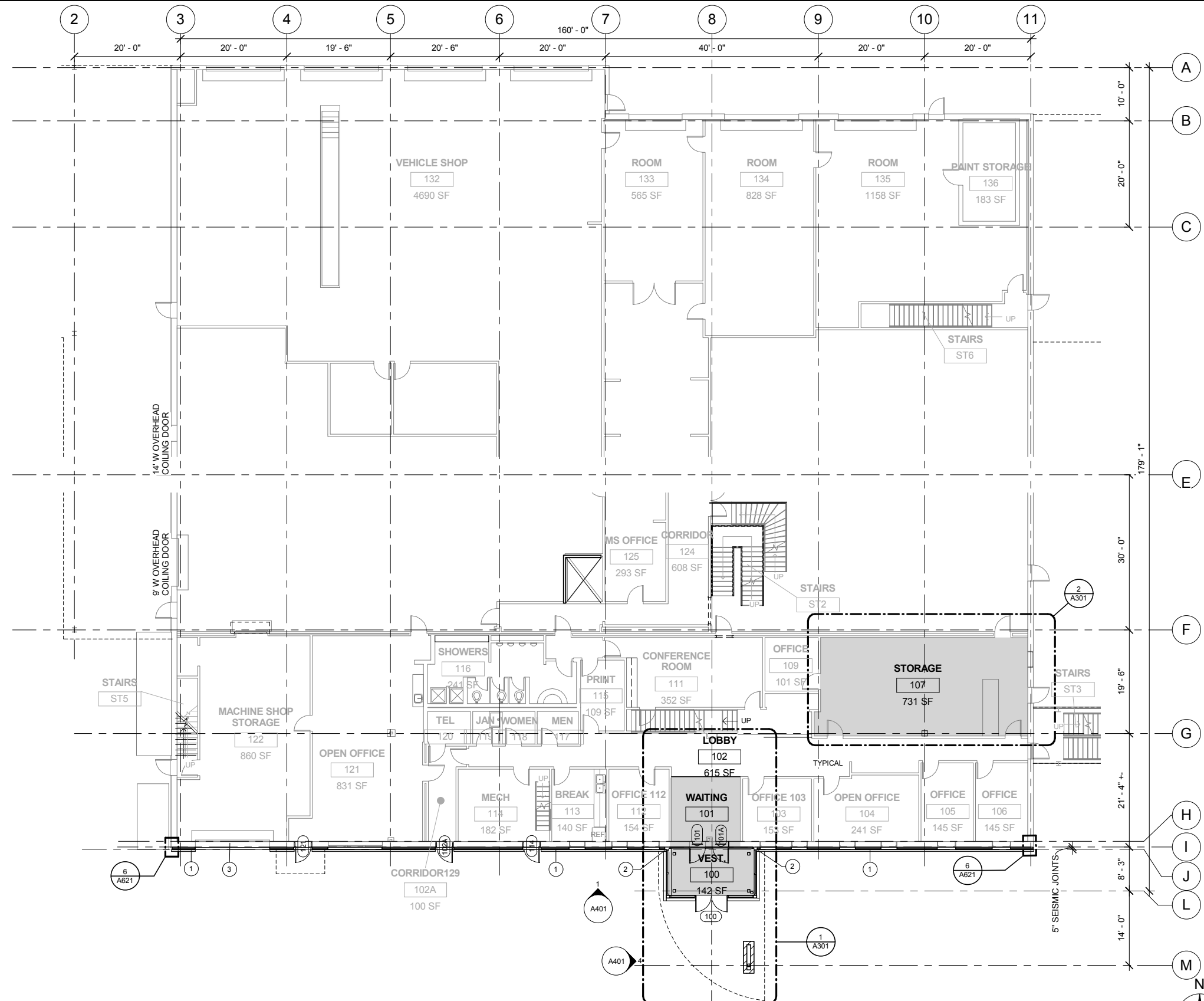
PLOT DATE: 4/29/2016 10:35:37 AM

PLOT SCALE: cudlis G. Green

FILE PATH AND NAME: \\MCOX\Redirection\Folders\wzomora\My Documents\AWU Main Bldg Upgrade-ARCH-wzomora.rvt

AWWU PLAN SET NO. XXXX

DESIGN DEVELOPMENT

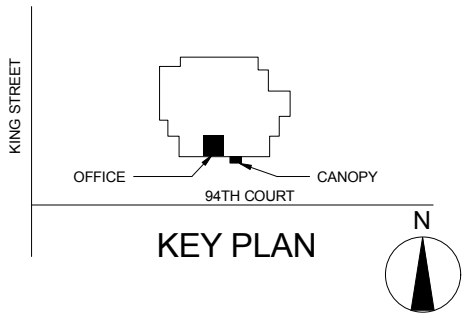


SHEET NOTES

- ① NEW SIDING
- ② SEISMIC JOINTS
- ③ PAINT EXISTING OVERHEAD DOOR

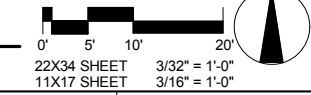
LEGEND

REMODEL AREA



① UPGRADE PLAN - LEVEL 1

A211 3/32" = 1'-0"



VERIFY SCALE		THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING.		IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.		FULL SIZE SCALE	
DATA	DATE	DATA	DATE	DESCRIPTION	BY	HORZ SCALE:	VERT SCALE:
BASE	---	TELEPHONE	---			0" = 1"	
TOPOGRAPHY	---	ELECTRIC	---				
PROFILE	---	CABLE TV	---				
SANITARY SEWER	---	TRAFFIC SIGNAL	---				
STORM SEWER	---	DESIGN	---				
WATER	---	QUANTITIES	---				
GAS	---	MUN. FINAL CHECK	---				

RECORD DRAWING

Note: To be filled out on original drawings upon project completion.

1. DATA PROVIDED BY: This will serve to certify that these Record Drawings are a true and accurate representation of the project as constructed.

2. DATA TRANSFERRED BY: DATE: _____

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DATA TRANSFER CHECKED BY: _____

COMPANY: _____

BY: _____ TITLE: _____

DATE: _____

EXISTING HARD WALLS REMAIN, OPEN EXIT DOOR TO SHOP, USE DEMOUNTABLE PARTITIONS

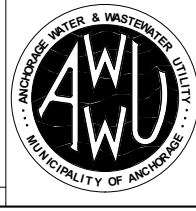
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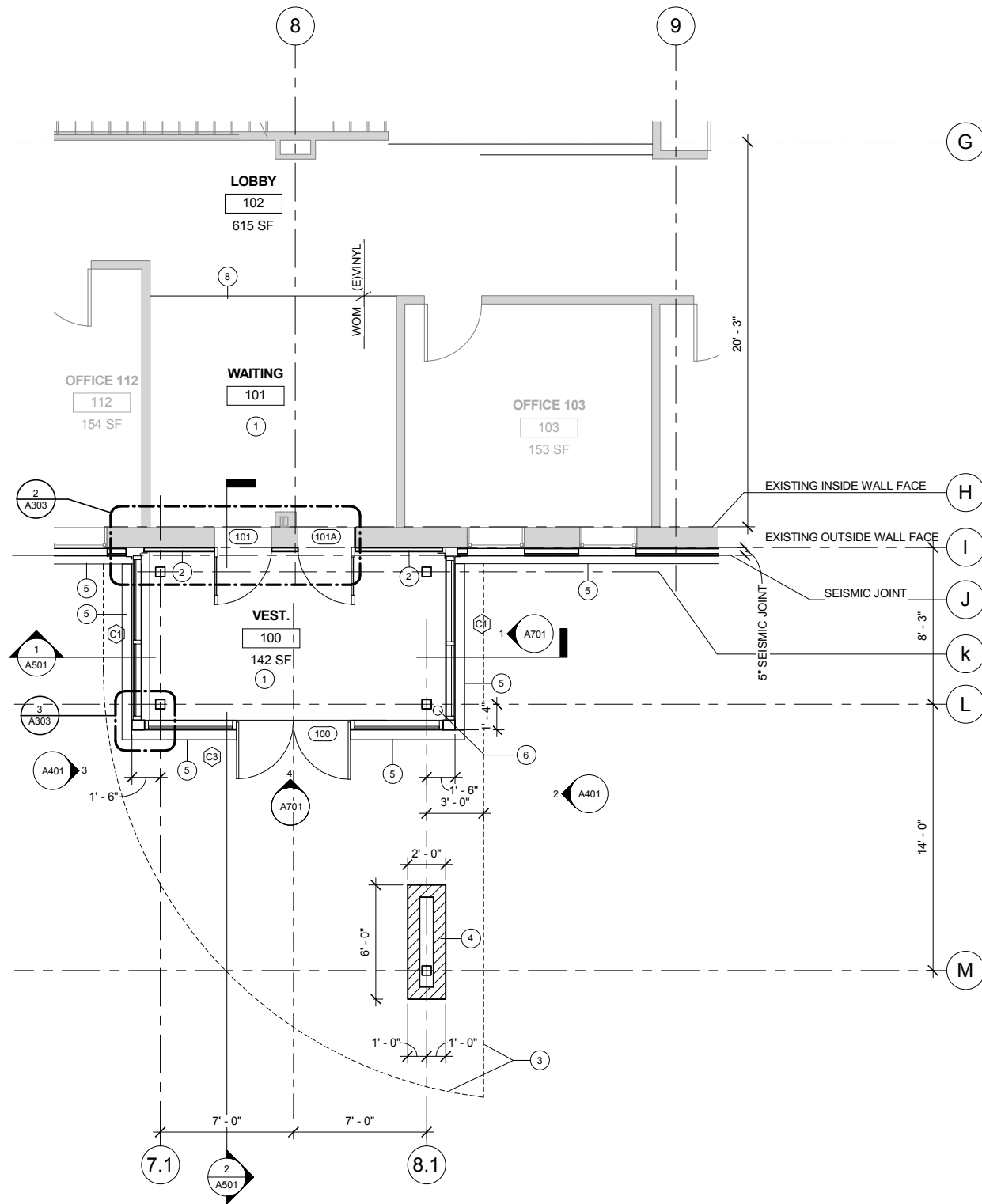
MUNICIPALITY OF ANCHORAGE
WATER & WASTEWATER UTILITY

KING STREET MAIN BUILDING UPGRADE
ARCHITECTURAL

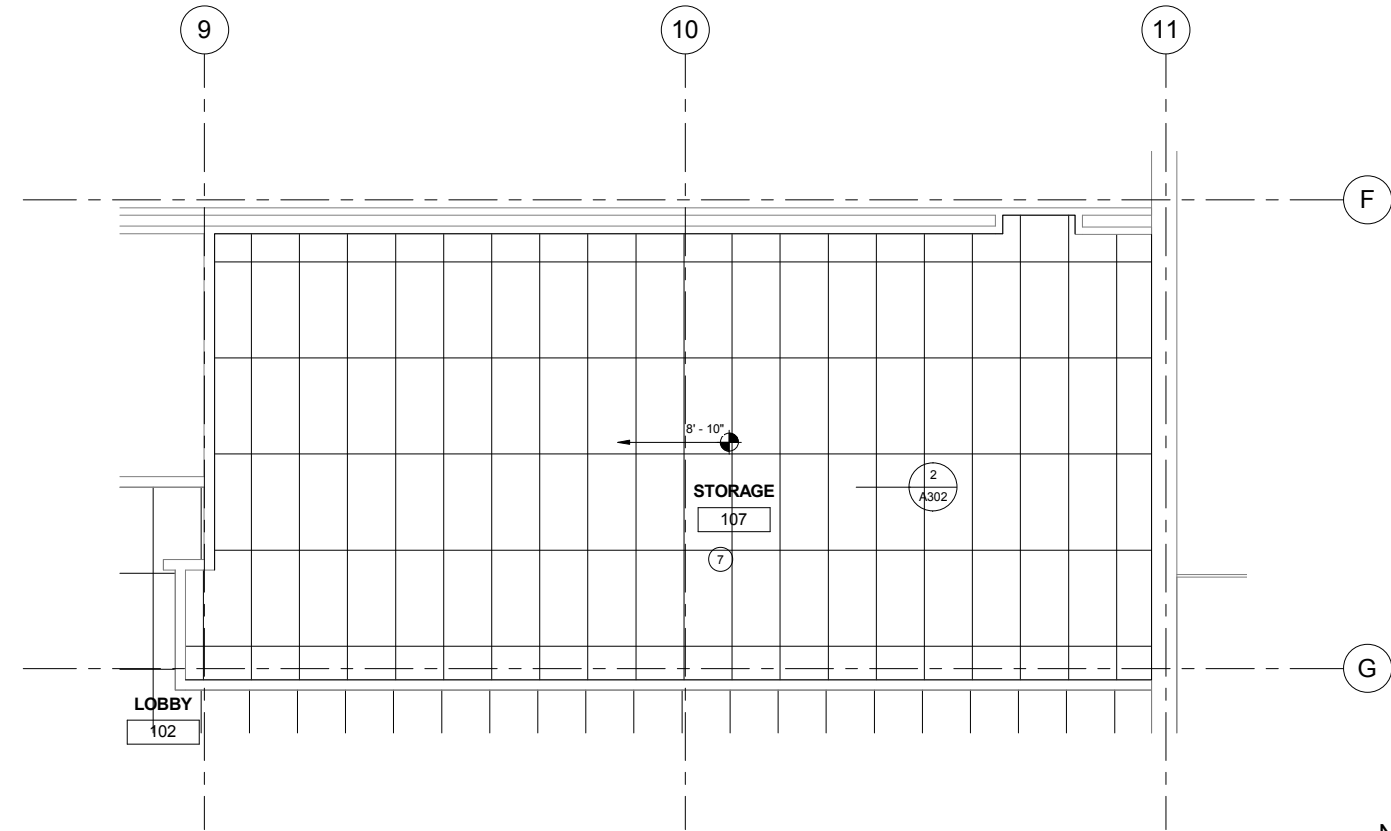
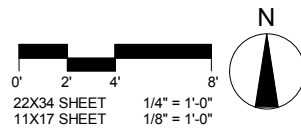
KING STREET MAIN BUILDING UPGRADES
UPGRADE FLOOR PLAN - LEVEL 1

HORZ SCALE: AS NOTED
VERT SCALE: 04-29-2016
GRID: 2431
PROJ. ID.: 2015022.05

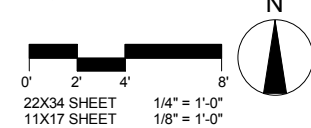
A211 of SHEET



1 ENLARGED FLOOR PLAN - MAIN ENTRY
A301 1/4" = 1'-0"



2 STORAGE 107 REFLECTED CEILING PLAN
A301 1/4" = 1'-0"



SHEET NOTES

- 1 NEW FLOORING - REFER FINISH SCHEDULE
- 2 NEW GWB AND METAL FURRING OVER EXISTING METAL SIDING
- 3 CANOPY ROOF ABOVE
- 4 CMU WALLS
- 5 CONCRETE CURB
- 6 ROOF DRAIN - EXPOSED WITH METAL JACKETED INSULATION
- 7 2' X 4' SUSPENDED ACOUSTICAL CEILING, MATCH EXISTING
- 8 THRESHOLD OVER WOM & VINYL

LEGEND

- EXISTING WALLS
- NEW WALLS
- EXISTING DOOR REMAINS
- NEW DOOR

DATA	DATE	DESCRIPTION	BY
BASE	---	TELEPHONE	---
TOPOGRAPHY	---	ELECTRIC	---
PROFILE	---	CABLE TV	---
SANITARY SEWER	---	TRAFFIC SIGNAL	---
STORM SEWER	---	DESIGN	---
WATER	---	QUANTITIES	---
GAS	---	MUN. FINAL CHECK	---

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DATE: _____

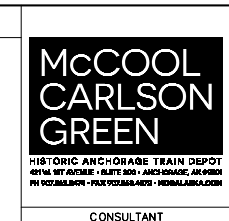
2. DATA TRANSFERRED BY: _____
COMPANY: _____
DATE: _____

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DATA TRANSFER CHECKED BY: _____
COMPANY: _____
BY: _____ TITLE: _____
DATE: _____

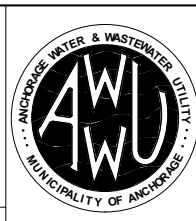
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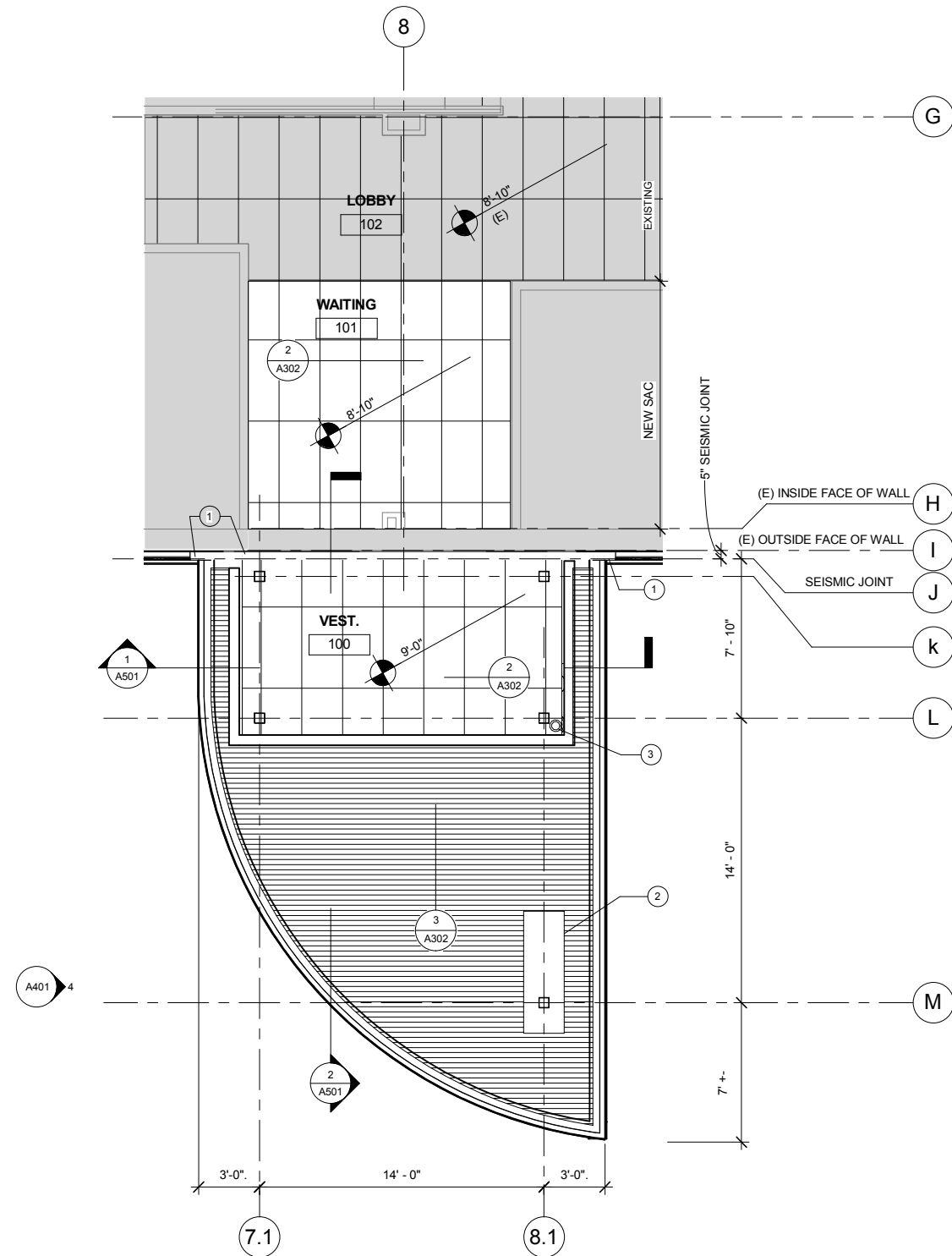
MUNICIPALITY OF ANCHORAGE WATER & WASTEWATER UTILITY			
KING STREET MAIN BUILDING UPGRADE ARCHITECTURAL			
KING STREET MAIN BUILDING UPGRADES ENLARGED UPGRADE PLANS			
HORIZ SCALE: AS NOTED	04-29-2016	GRID: 2431	A301 of
PROJ. ID.: 2015022.05			SHEET

SHEET NOTES

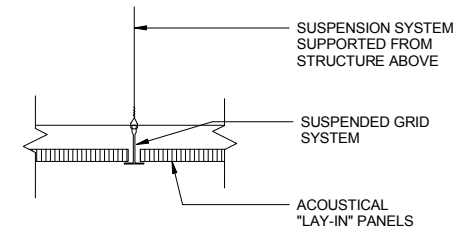
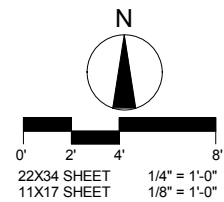
- 1 SEISMIC JOINT COVER ASSEMBLY
- 2 24 GAGE FACTORY PAINTED, J-TRIM AROUND CMU
- 3 ROOF DRAIN PIPE

LEGEND

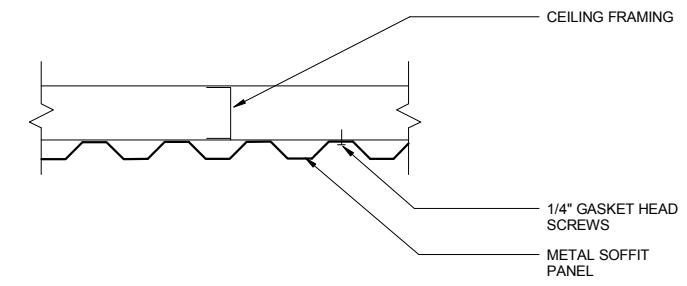
- 1 SHEET NOTES
- 9'-0" INDICATES HEIGHT FROM FINISH FLOOR
- 2' X 4' SUSPENDED ACOUSTICAL CEILING SYSTEM
- EXISTING
- METAL SOFFIT PANEL



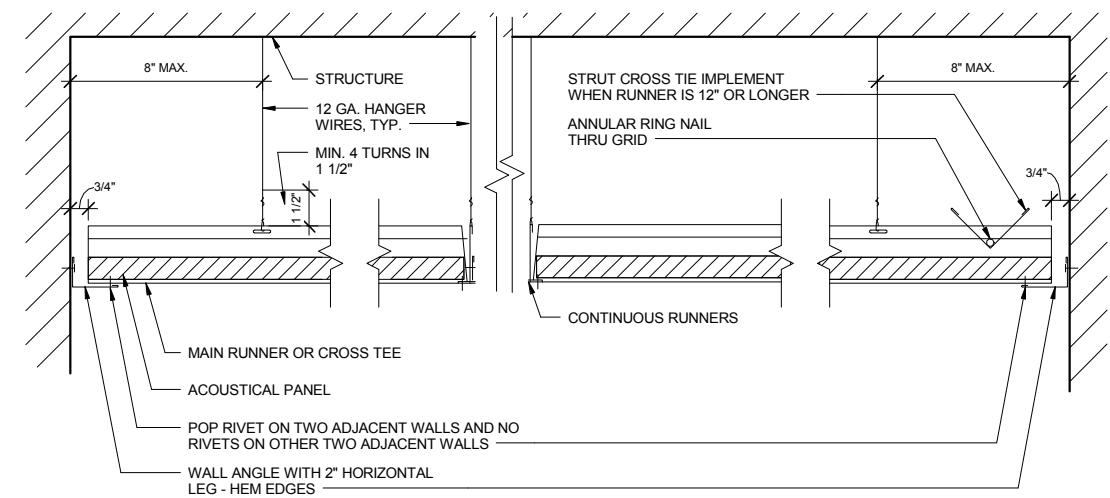
1 REFLECTED CEILING PLAN - CANOPY
A302 1/4" = 1'-0"



2 SUSPENDED CEILING SYSTEM
A302 1 1/2" = 1'-0" REFER 4/A302



3 SOFFIT AT EXTERIOR CANOPY
A302 1 1/2" = 1'-0"



4 TYPICAL SUSPENDED CEILING DETAILS
A302 3" = 1'-0"

DATA	DATE	DESCRIPTION	BY
BASE	---	TELEPHONE	---
TOPOGRAPHY	---	ELECTRIC	---
PROFILE	---	CABLE TV	---
SANITARY SEWER	---	TRAFFIC SIGNAL	---
STORM SEWER	---	DESIGN	---
WATER	---	QUANTITIES	---
GAS	---	MUN. FINAL CHECK	---

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CONTRACTOR: _____
BY: _____ TITLE: _____
DATE: _____

2. DATA TRANSFERRED BY: _____
COMPANY: _____
DATE: _____

3. 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.

DATA TRANSFER CHECKED BY: _____
COMPANY: _____
BY: _____ TITLE: _____
DATE: _____

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CONSULTANT

MUNICIPALITY OF ANCHORAGE
WATER & WASTEWATER UTILITY

KING STREET MAIN BUILDING UPGRADE ARCHITECTURAL

KING STREET MAIN BUILDING UPGRADES
ENTRY REFLECTED CEILING PLAN - CANOPY

HORZ SCALE: AS NOTED
VERT SCALE: AS NOTED

04-29-2016 GRID: 2431

PROJ. ID.: 2015022.05 SHEET A302 of

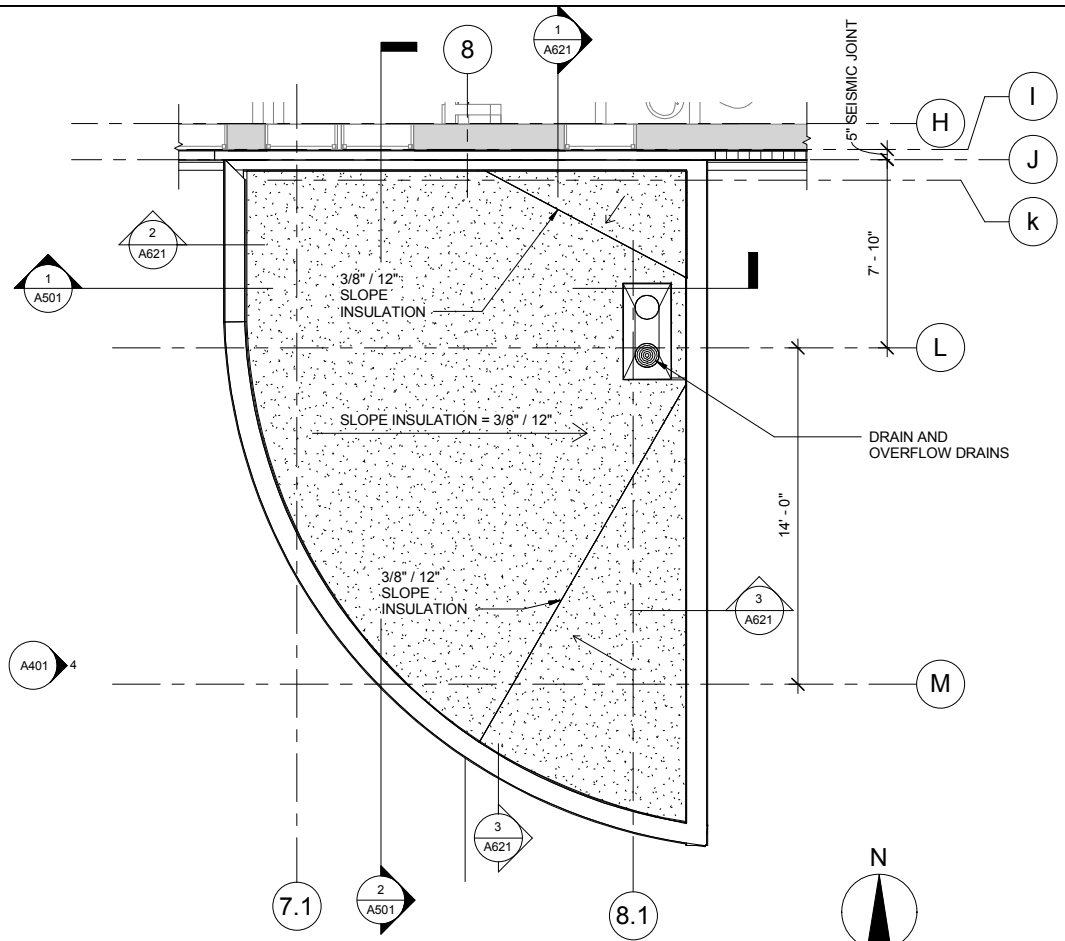
PLOT DATE: 4/30/2016 9:53:41 AM

PLOT SCALE: Checker

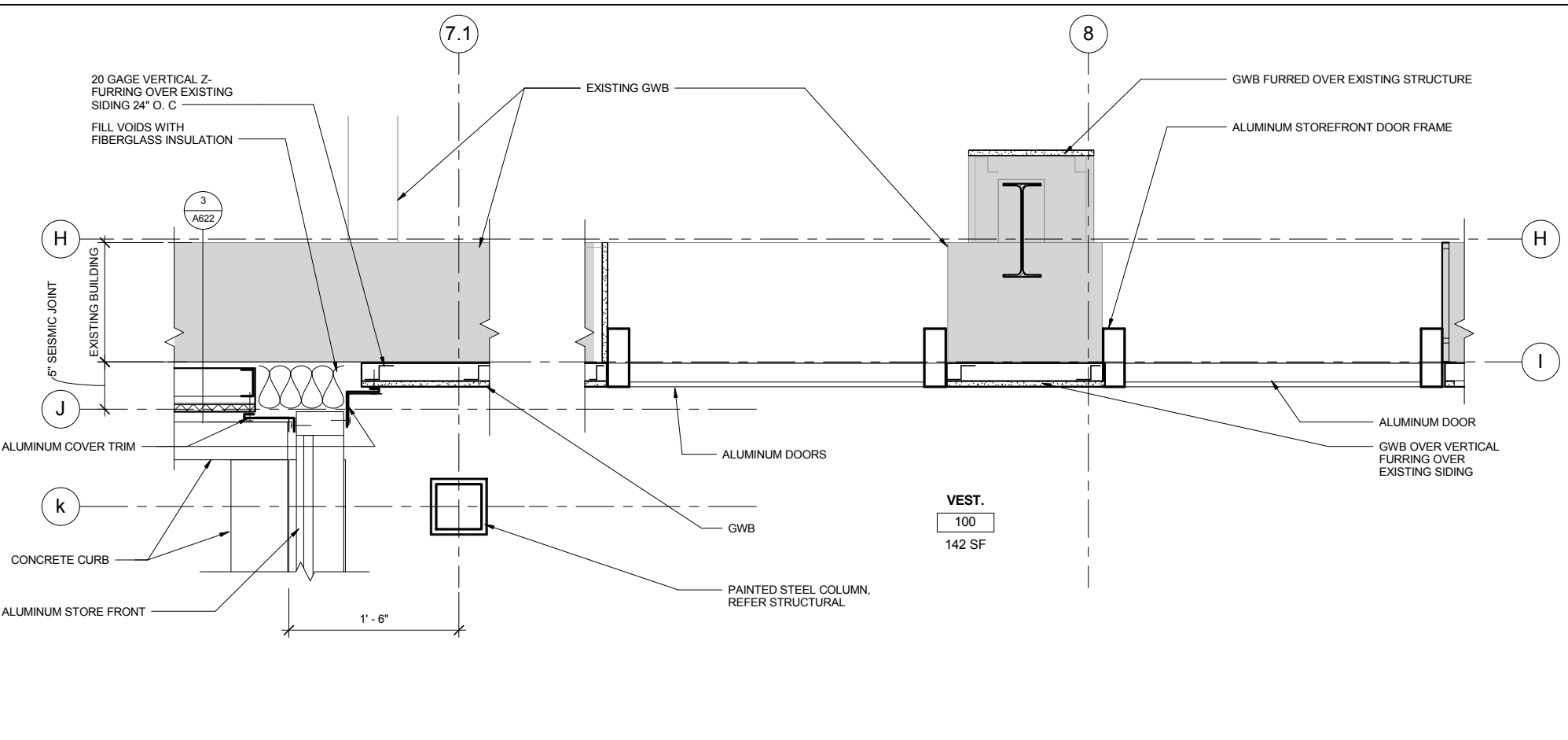
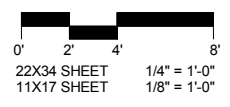
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AWWU PLAN SET NO. XXXX

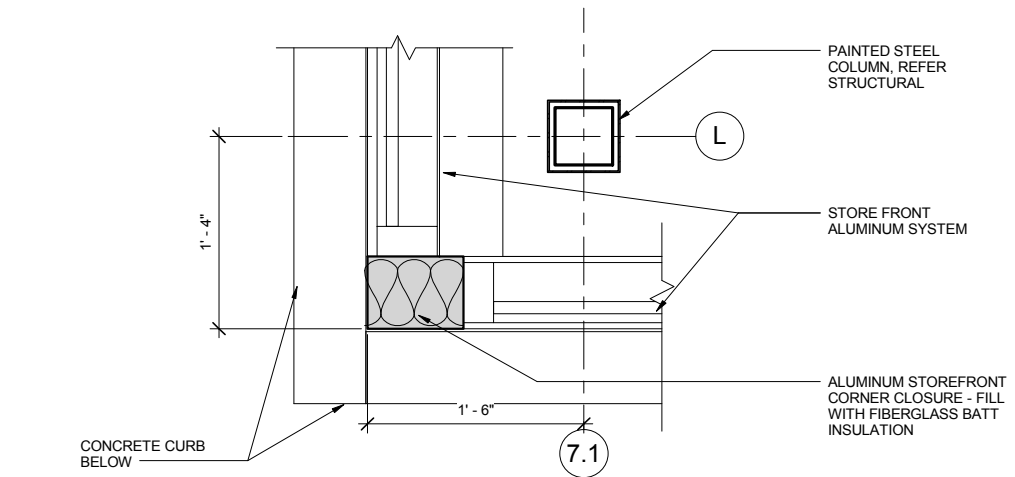
DESIGN DEVELOPMENT



1 ROOF PLAN - ENTRY CANOPY
A303 1/4" = 1'-0"



2 SEISMIC JOINT AND DOOR ENTRY - PLAN
DETAIL
A303 1 1/2" = 1'-0"



3 DETAIL AT CORNER
A303 1 1/2" = 1'-0"

VERIFY SCALE		THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING.		0" = 1"		IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.		FULL SIZE SCALE	
DATA	DRAWN BY	CHECKED BY	DATA	DRAWN BY	CHECKED BY	REV	DATE	DESCRIPTION	BY
BASE	---	---	TELEPHONE	---	---				
TOPOGRAPHY	---	---	ELECTRIC	---	---				
PROFILE	---	---	CABLE TV	---	---				
SANITARY SEWER	---	---	TRAFFIC SIGNAL	---	---				
STORM SEWER	---	---	DESIGN	---	---				
WATER	---	---	QUANTITIES	---	---				
GAS	---	---	MUN. FINAL CHECK	---	---				
PLAN CHECK					REVISIONS				

RECORD DRAWING Note: To be filled out on original drawings upon project completion.

1. DATA PROVIDED BY: _____ This will serve to certify that these Record Drawings are a true and accurate representation of the project as constructed.

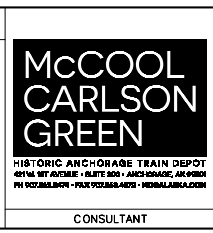
2. DATA TRANSFERRED BY: _____ COMPANY: _____ DATE: _____

3. 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.

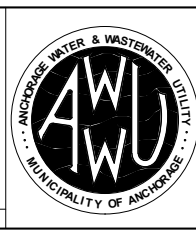
DATA TRANSFER CHECKED BY: _____ COMPANY: _____ BY: _____ TITLE: _____ DATE: _____

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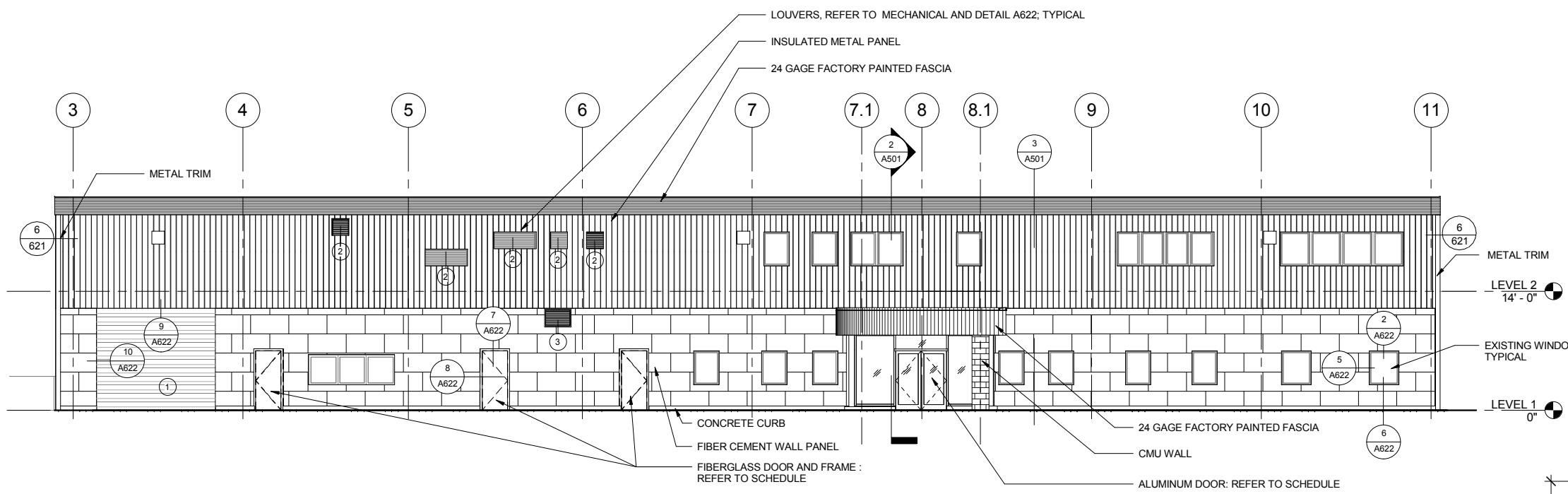


MUNICIPALITY OF ANCHORAGE
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KING STREET MAIN BUILDING UPGRADES
ROOF PLAN AND DETAILS - CANOPY

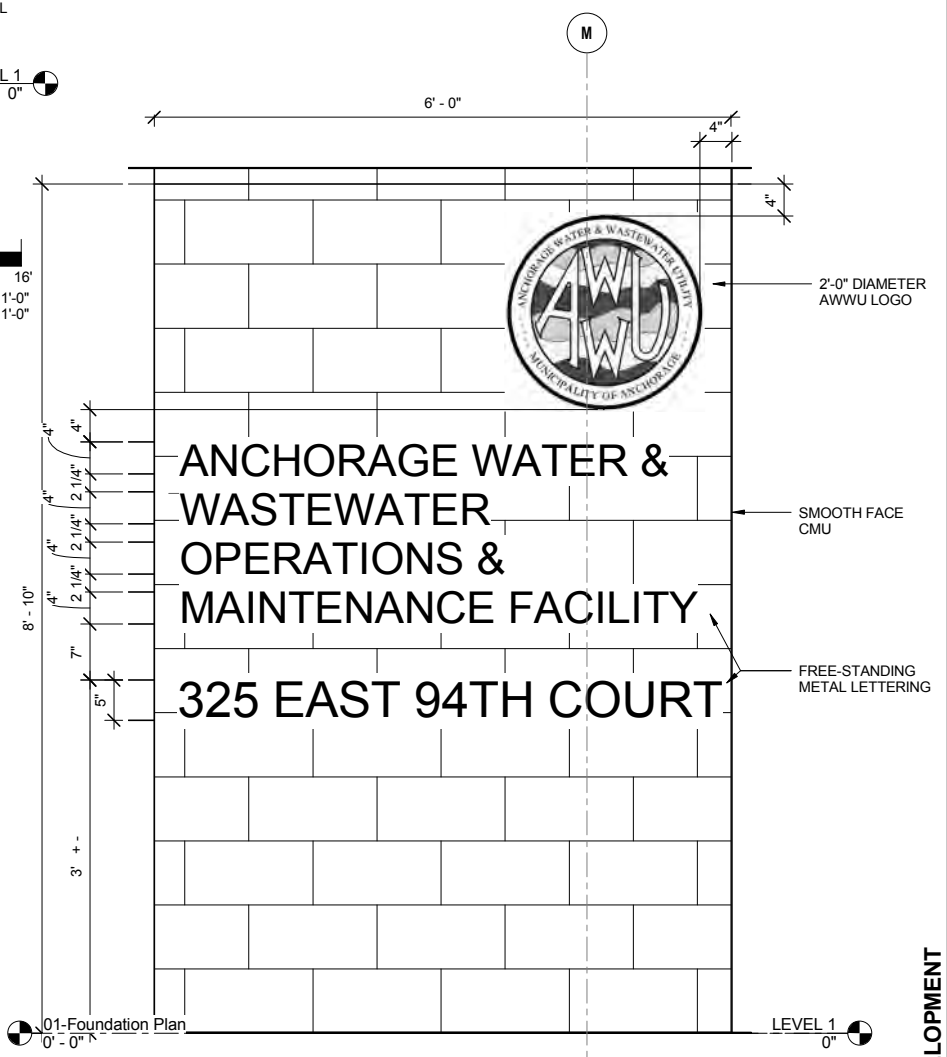
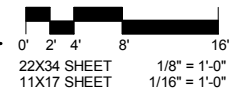
HORZ SCALE: AS NOTED	04-29-2016	GRID: 2431	A303 of
VERT SCALE: AS NOTED			
PROJ. ID.: 2015022.05			SHEET

SHEET NOTES

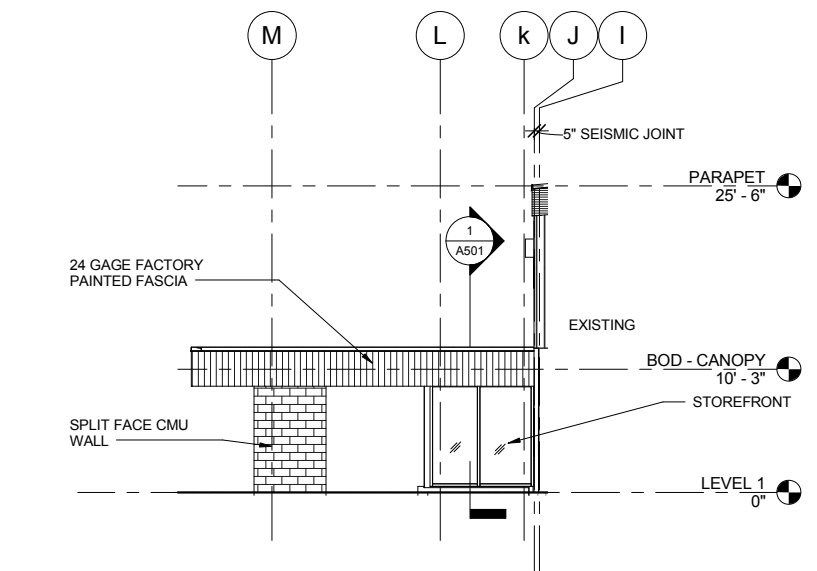
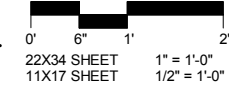
- ① PAINT EXISTING OVERHEAD DOOR AND FRAME; REMOVE (E) LOOSE PAINT, SAND PAPER, PRIME AND PAINT
 - ② PAINT EXISTING LOUVERS AND FRAME; REMOVE (E) LOOSE PAINT, SAND PAPER, PRIME AND PAINT
 - ③ INSTAL LOUVER; REFER TO MECHANICAL
 - ④ SIGN SPECS LETTERS:
INDIVIDUAL LETTERS 1/4" MINIMUM THICK ALUMINUM WITH 1/4" SPACE BETWEEN BACK OF LETTER & WALL.
SATIN CLEAR ALUMINUM FINISH.
LETTER STYLE: PLAIN BLOCK UPPERCASE SANS SERIFF. PROVIDE SCALED LAYOUT SHOP DRAWING INDICATING LETTER LAYOUT & LETTER STYLE FOR APPROVAL.
ATTACH EACH LETTER WITH MINIMUM 2 CONCEALED STUDS INTO PREDRILLED HOLES IN WALL WITH URETHANE ADHESIVE.
- AWWU LOGO
BLUE, GRAY, BLACK, & WHITE COLORS TO MATCH PROVIDED GRAPHIC.
VINYL DECAL WITH WEATHER RESISTANT ADHESIVE MOUNTED ONTO 1/2" ALUMINUM BACKER.
1/4" SPACE BETWEEN BACKER & WALL.
ATTACH WITH 8 EVENLY SPACED #10 ROUND HEAD TORX SECURITY SCREWS INTO PREDRILLED HOLES AROUND LOGO PERIMETER, COLOR PAINT SCREWS TO MATCH LOGO SURFACE.



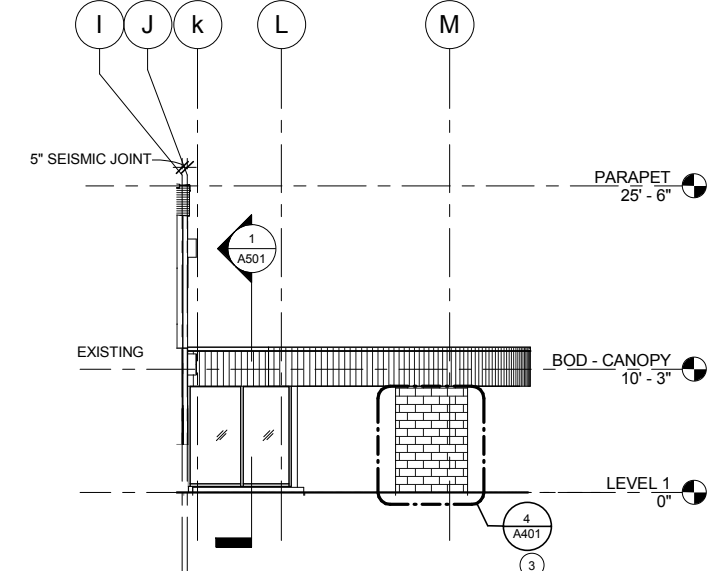
1 BUILDING SOUTH ELEVATION - CANOPY
A401 1/8" = 1'-0"



4 SIGNAGE
A401 1" = 1'-0"



2 BUILDING EAST ELEVATION - CANOPY
A401 1/8" = 1'-0"
22X34 SHEET 11X17 SHEET 1/8" = 1'-0"
1/16" = 1'-0"



3 BUILDING WEST ELEVATION - CANOPY
A401 1/8" = 1'-0"
REFER 2/A401 FOR CALLOUTS
22X34 SHEET 11X17 SHEET 1/8" = 1'-0"
1/16" = 1'-0"

PLOT DATE: 4/30/2016 9:37:47 AM

Checker

FILE PATH AND NAME: \\MCOX\Redirection\zamorano\My Documents\AWWU Main Bldg Upgrade--ARCH--zamorano.rvt

DESIGN DEVELOPMENT

VERIFY SCALE		THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING.		0" = 1"		IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.		FULL SIZE SCALE	
DATA	DRWN BY	CHECKED BY	DATA	DRWN BY	CHECKED BY	REV	DATE	DESCRIPTION	BY
BASE	---	---	TELEPHONE	---	---				
TOPOGRAPHY	---	---	ELECTRIC	---	---				
PROFILE	---	---	CABLE TV	---	---				
SANITARY SEWER	---	---	TRAFFIC SIGNAL	---	---				
STORM SEWER	---	---	DESIGN	---	---				
WATER	---	---	QUANTITIES	---	---				
GAS	---	---	MUN. FINAL CHECK	---	---				
PLAN CHECK					REVISIONS				

RECORD DRAWING Note: To be filled out on original drawings upon project completion.

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DATE: _____

2. DATA TRANSFERRED BY: _____
COMPANY: _____
DATE: _____

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HISTORIC ANCHORAGE TRAIN DEPOT
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CONSULTANT

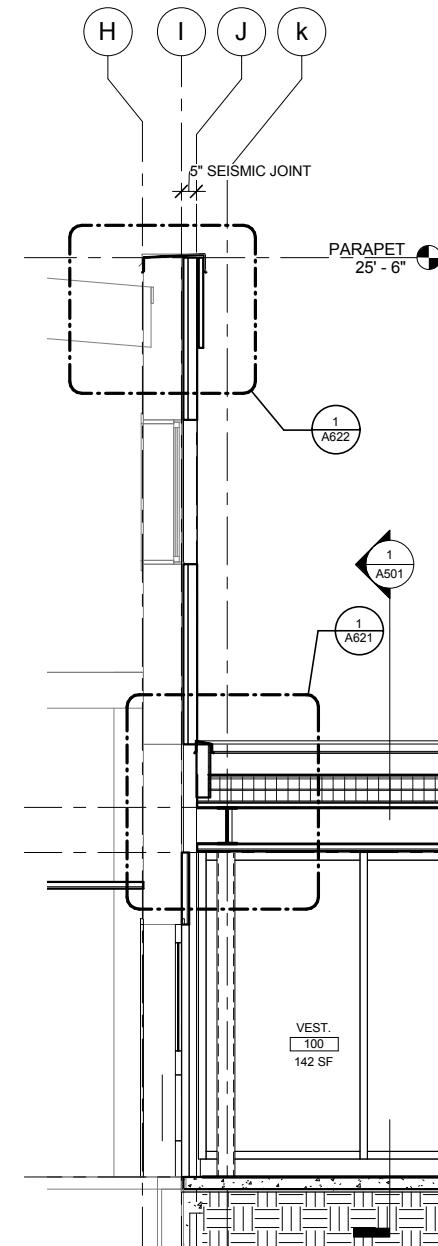
SEAL

MUNICIPALITY OF ANCHORAGE
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KING STREET MAIN BUILDING UPGRADE ARCHITECTURAL
KING STREET MAIN BUILDING UPGRADES EXTERIOR ELEVATIONS

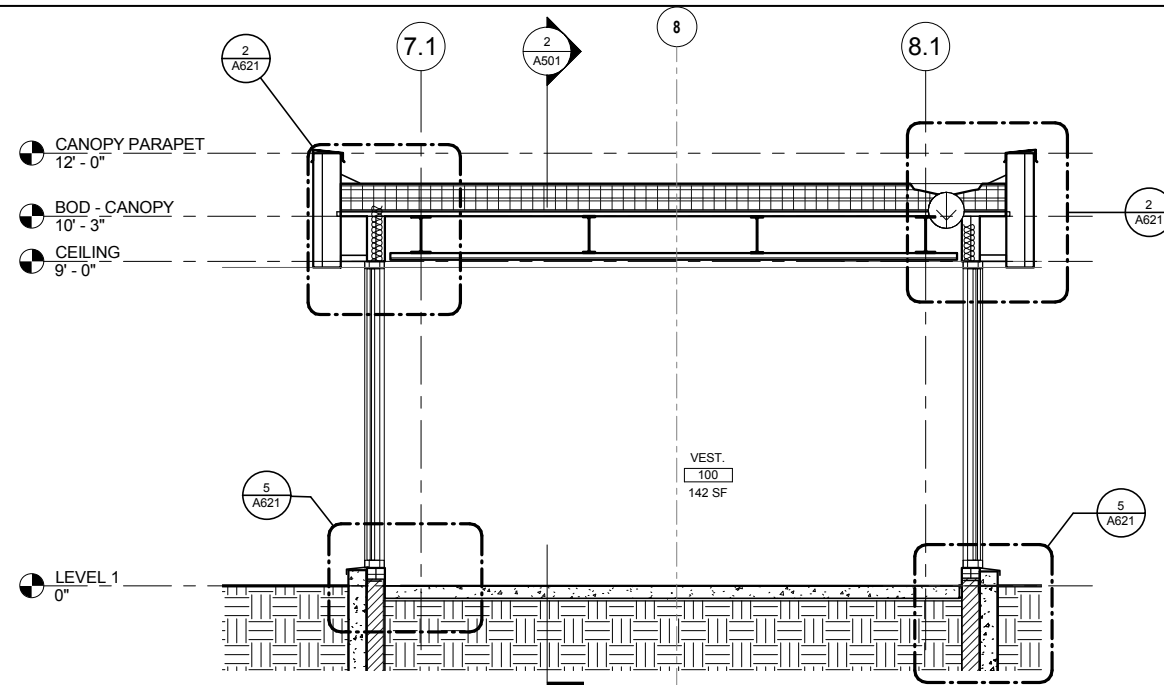
HORZ SCALE: AS NOTED
VERT SCALE: AS NOTED
04-29-2016
GRID: 2431

PROJ. ID.: 2015022.05

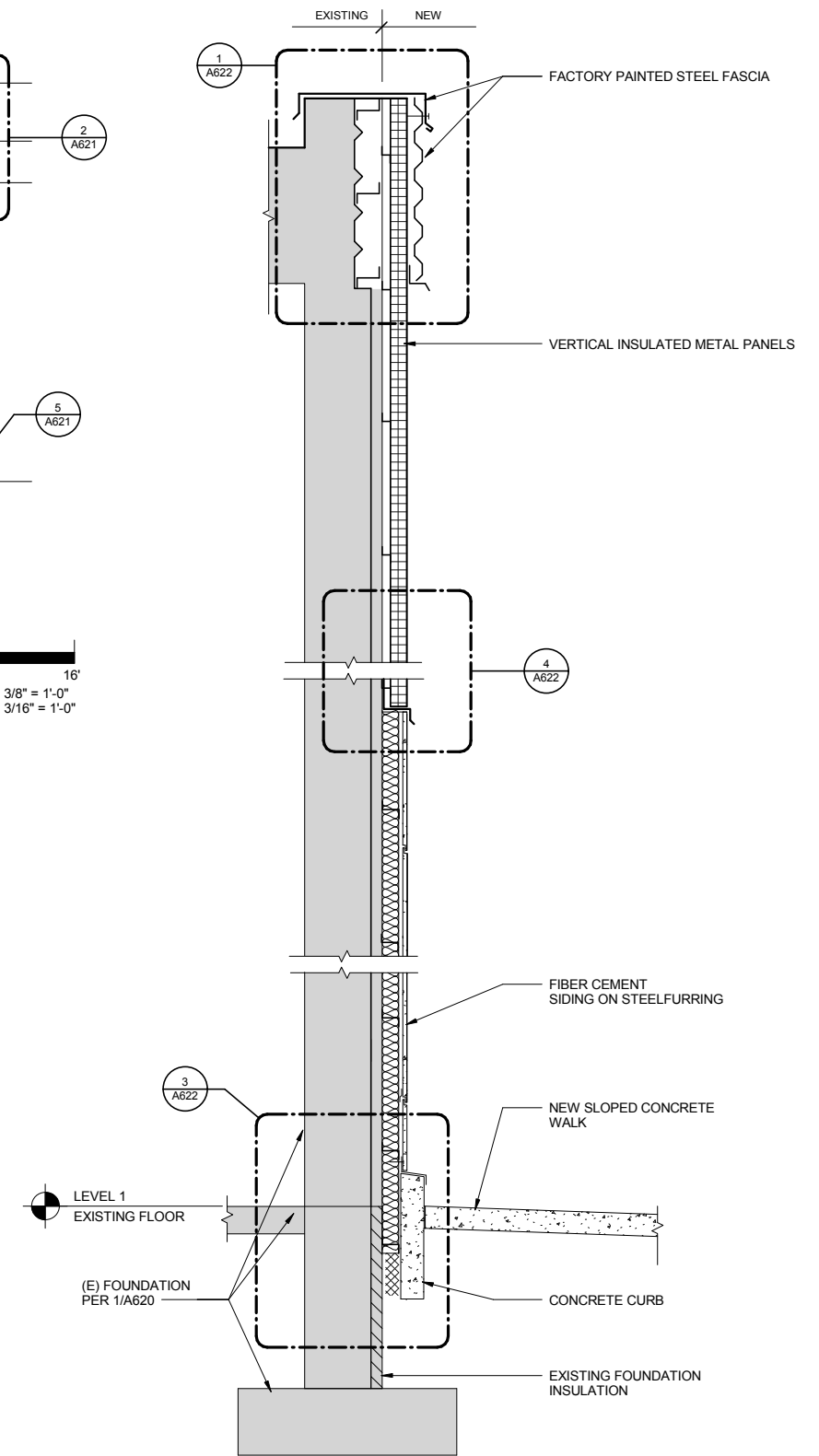
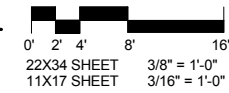
A401 of



2 LONGITUDINAL SECTION - CANOPY
A501 3/8" = 1'-0"



1 CROSS SECTION - CANOPY
A501 3/8" = 1'-0"



3 TYPICAL WALL SECTION
A501 3/4" = 1'-0"

DATA	DATE	CHECKED BY	DESCRIPTION	DATE	BY
BASE	---	TELEPHONE	---		
TOPOGRAPHY	---	ELECTRIC	---		
PROFILE	---	CABLE TV	---		
SANITARY SEWER	---	TRAFFIC SIGNAL	---		
STORM SEWER	---	DESIGN	---		
WATER	---	QUANTITIES	---		
GAS	---	MUN. FINAL CHECK	---		

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DATE: _____

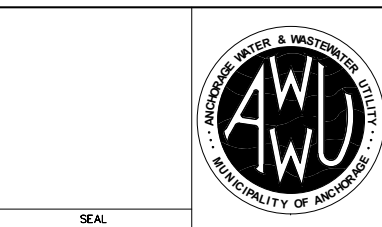
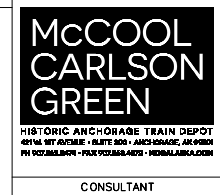
2. DATA TRANSFERRED BY: _____
COMPANY: _____
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COMPANY: _____
BY: _____ TITLE: _____
DATE: _____

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KING STREET MAIN BUILDING UPGRADE ARCHITECTURAL

KING STREET MAIN BUILDING UPGRADES
CANOPY SECTIONS AND WALL SECTION

HORZ SCALE: AS NOTED
VERT SCALE: 04-29-2016
GRID: 2431

PROJ. ID.: 2015022.05

CONSULTANT SEAL SHEET A501 of

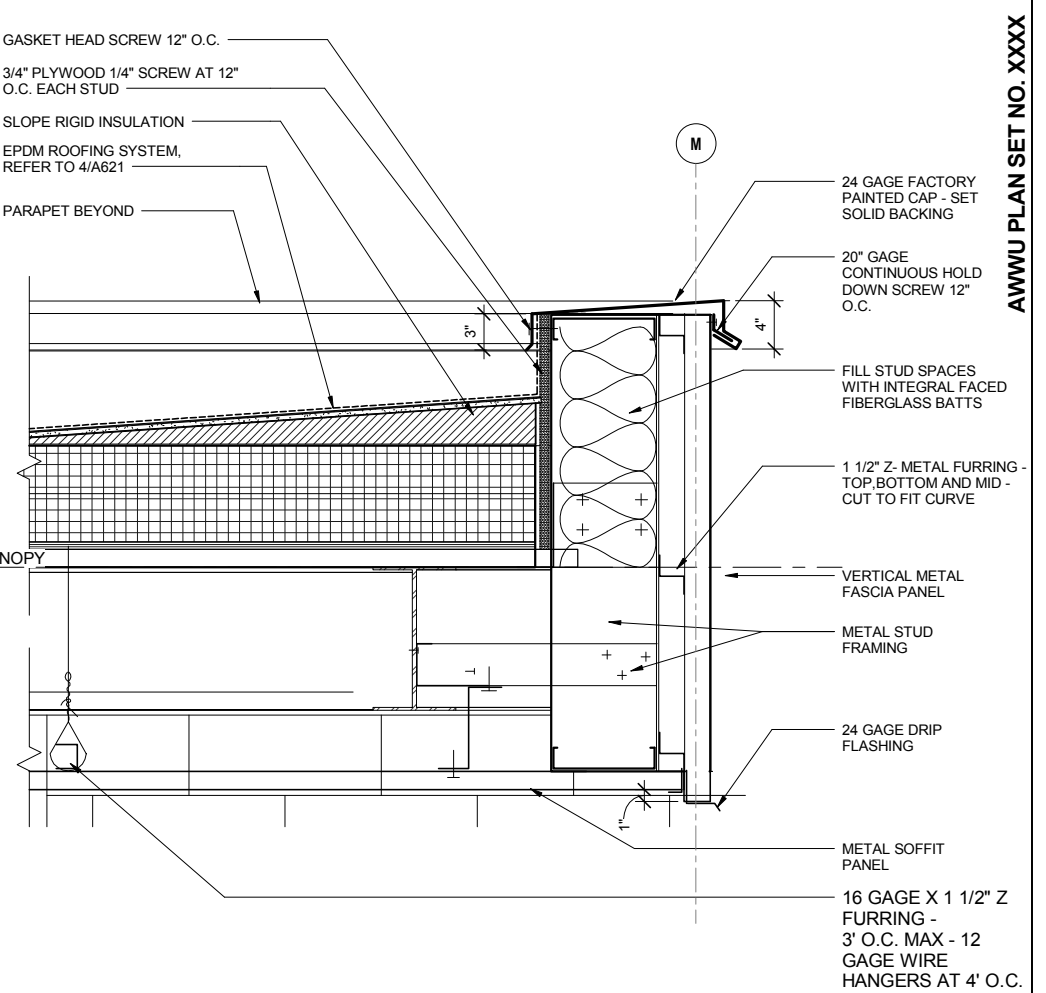
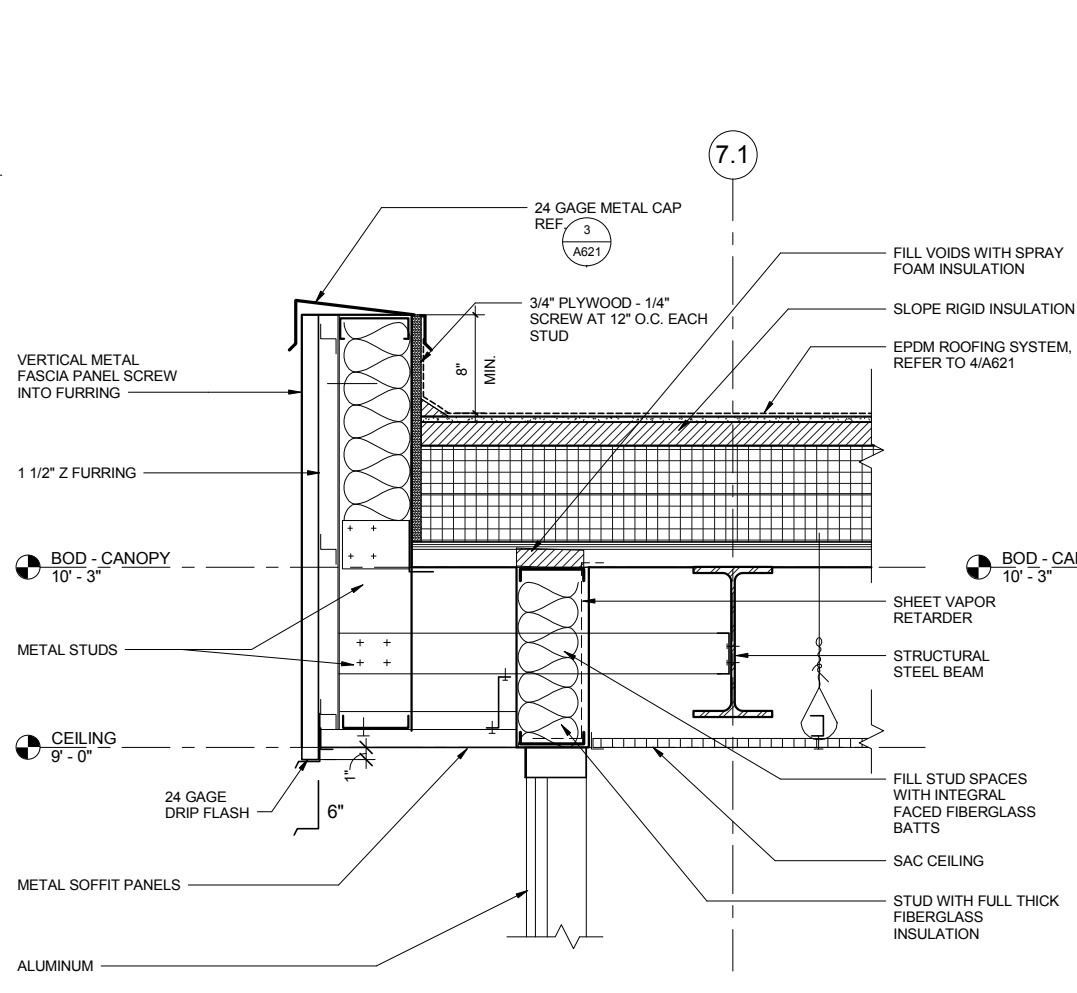
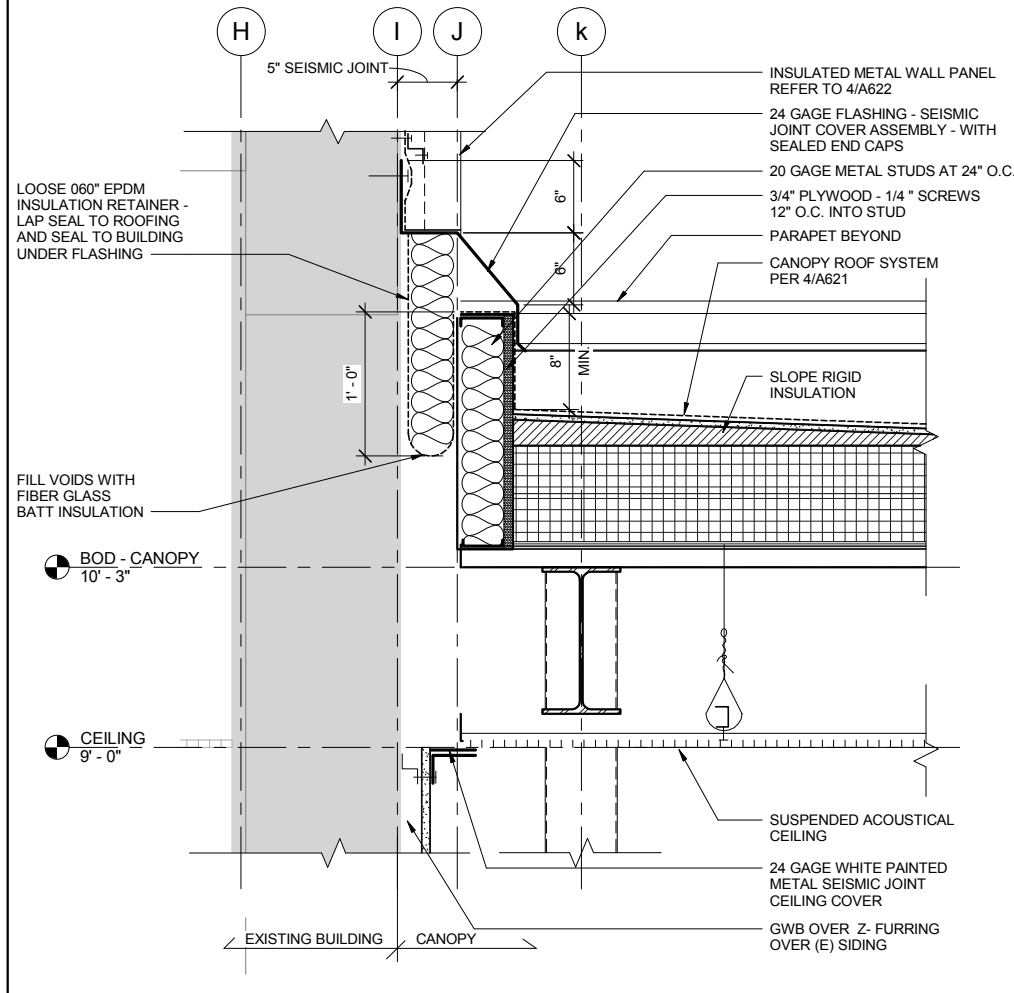
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PLOT SCALE: Checker

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AWU PLAN SET NO. XXXX

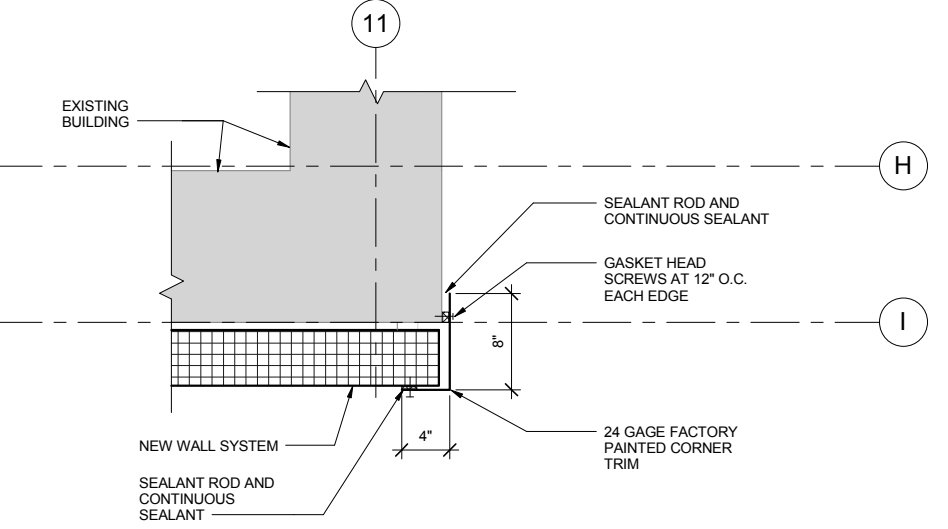
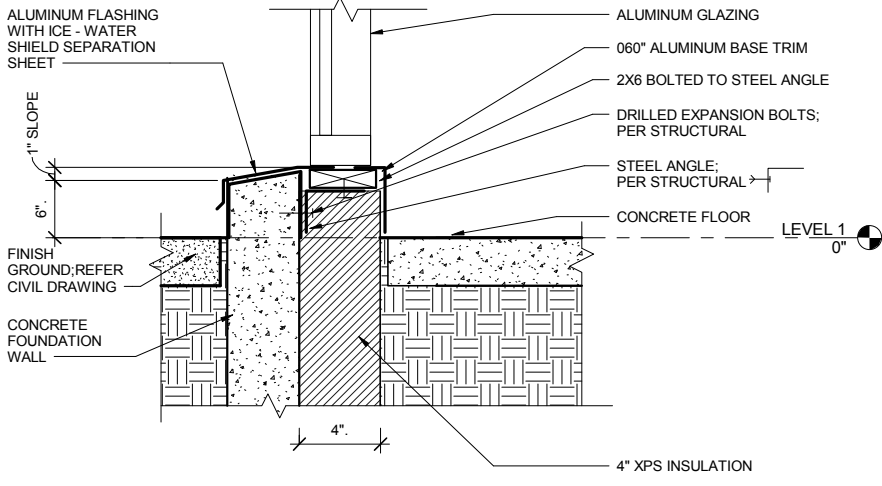
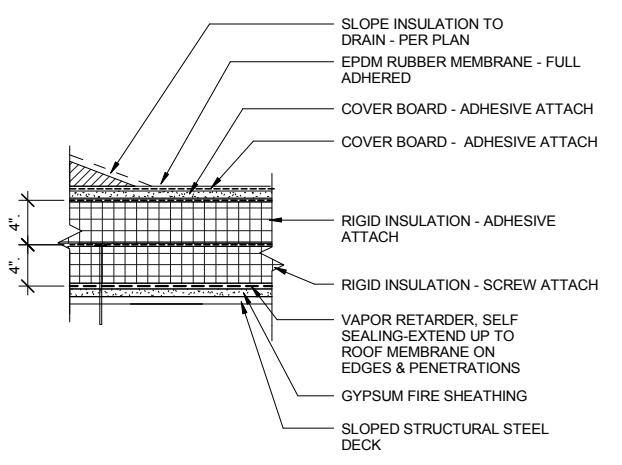
DESIGN DEVELOPMENT



1 SEISMIC JOINT AT CANOPY ROOF
A621 1 1/2" = 1'-0"

2 PARAPET AT VESTIBULE CANOPY
A621 1 1/2" = 1'-0"

3 PARAPET AT EXTERIOR CANOPY
A621 1 1/2" = 1'-0"



4 TYPICAL CANOPY ROOFING
A621 1 1/2" = 1'-0"

5 CANOPY BASE
A621 1 1/2" = 1'-0"

6 SIDING AT CORNER
A621 1 1/2" = 1'-0"

VERIFY SCALE		THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING.		IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.		FULL SIZE SCALE	
DATA	DRWN BY	CHECKED BY	DATA	DRWN BY	CHECKED BY	REV	DATE
BASE	---	---	TELEPHONE	---	---		
TOPOGRAPHY	---	---	ELECTRIC	---	---		
PROFILE	---	---	CABLE TV	---	---		
SANITARY SEWER	---	---	TRAFFIC SIGNAL	---	---		
STORM SEWER	---	---	DESIGN	---	---		
WATER	---	---	QUANTITIES	---	---		
GAS	---	---	MUN. FINAL CHECK	---	---		
PLAN CHECK				REVISIONS			

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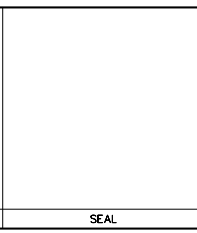
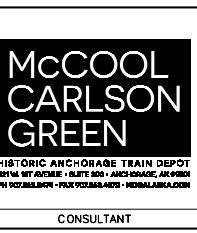
2. DATA TRANSFERRED BY: _____ COMPANY: _____ DATE: _____

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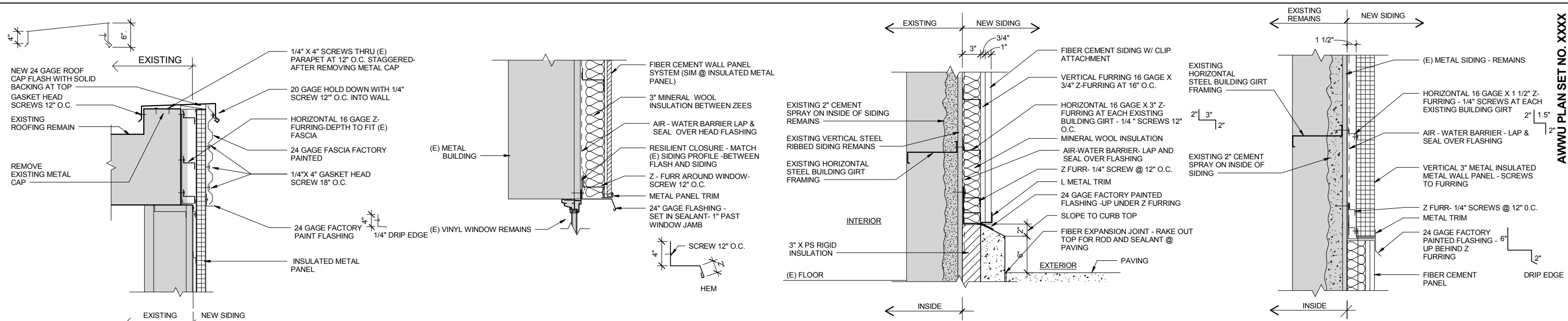
MUNICIPALITY OF ANCHORAGE
WATER & WASTEWATER UTILITY
KING STREET MAIN BUILDING UPGRADE ARCHITECTURAL
KING STREET MAIN BUILDING UPGRADES
ROOF & WALL DETAILS

HORZ SCALE: AS NOTED
VERT SCALE: AS NOTED
04-29-2016
GRID: 2431
PROJ. ID.: 2015022.05

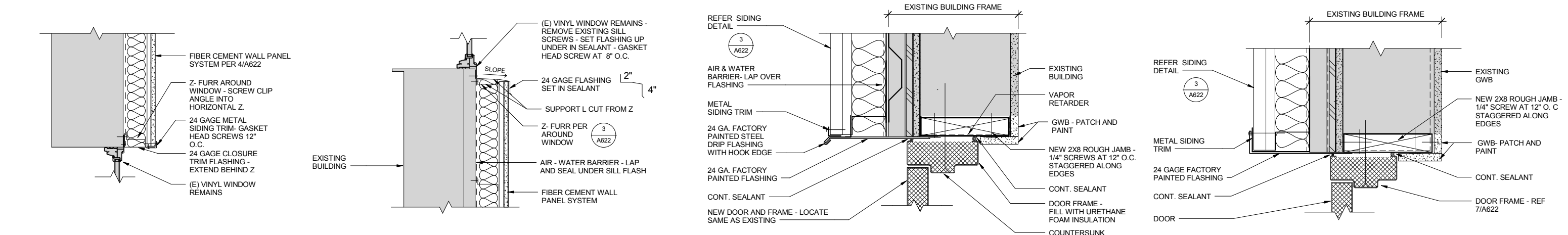
CONSULTANT SEAL SHEET A621 of

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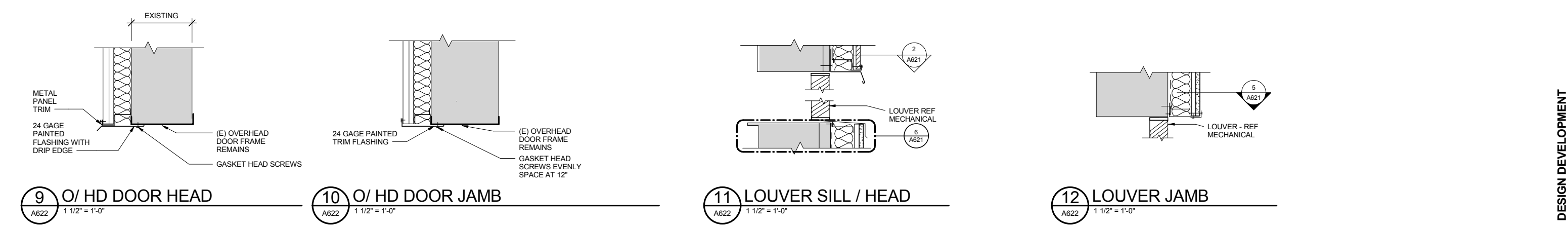
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1 PARAPET 3/4" = 1'-0"
2 WINDOW HEAD 1 1/2" = 1'-0"
3 FIBER CEMENT WALL PANEL ATTACH 1 1/2" = 1'-0"
4 INSULATED METAL PANEL ATTACH 1 1/2" = 1'-0"



5 WINDOW JAMB 1 1/2" = 1'-0"
6 WINDOW SILL 1 1/2" = 1'-0"
7 EXTERIOR DOOR HEAD AT SIDING 3" = 1'-0"
8 EXTERIOR DOOR JAMB AT SIDING 3" = 1'-0"



VERIFY SCALE THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING. 0" = 1" IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.		FULL SIZE SCALE HORZ SCALE: 1 1/2" = 1'-0" VERT SCALE: 1 1/2" = 1'-0"																																																					
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CONSULTANT		SEAL																																																					
MCG PROJ # - 2015022.05		SHEET A622 of																																																					

AWWU PLAN SET NO. XXXX

DESIGN DEVELOPMENT

ROOM FINISH SCHEDULE - BUILDING											
NUMBER	NAME	FLOOR MATERIAL	FLOOR FINISH	BASE	WEST	WALLS			CEILING MATERIALS	CEILING FINISH	REMARKS
						NORTH	EAST	SOUTH			
100	VEST.	CONC	WOM	CB	P	P	P	P	SAC	FF	(1) (2) (3)
101	WAITING	CONC	WOM	CB	P	P	P	P	SAC	FF	(1) (2) (3)
102	LOBBY	CONC	(E)	(E)	(E)	(E)	(E)	(E)	(E)	(E)	(4)
107	STORAGE	CONC	(E)	CB	(E)	(E)	(E)	(E)	SAC	FF	(2) (3)
114	MECH	CONC	(E)	(E)	(E)	(E)	(E)	(E)	(E)	(E)	(2) (3)

DOOR SCHEDULE									
NUMBER	WIDTH	HEIGHT	DOOR TYPE	DOOR MATERIAL	FRAME MATERIAL	RATING	HEAD	JAMB	REMARKS
100	6' - 0"	7' - 0"	B	AL	AL			2/A203	ED
101	3' - 0"	7' - 0"	A	AL	AL				PP
101A	3' - 0"	7' - 0"	A	AL	AL				PP
102A	3' - 0"	7' - 0"	C	FG	FG		7/A622	8/A622	ED
114	3' - 0"	7' - 0"	C	FG	FG		7/A622	8/A622	ED
121	3' - 0"	7' - 0"	C	FG	FG		7/A622	8/A622	ED

FINISH SCHEDULE ABBREVIATIONS

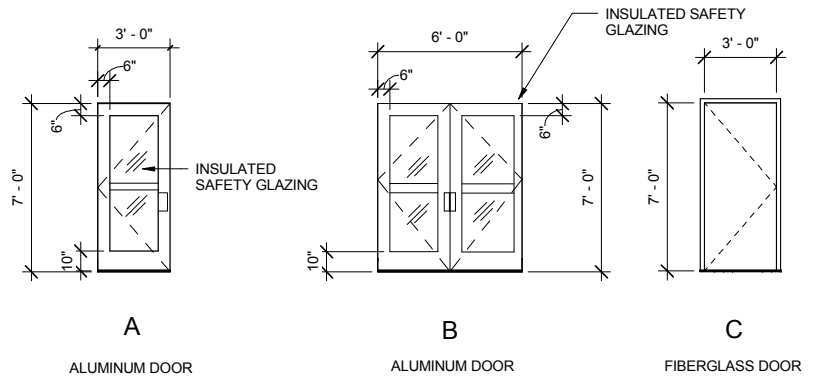
- CB RUBBER COVE BASE 4" HIGH UNLESS SCHEDULED OTHERWISE
- CAR CARPET TILE
- GWB GYPSUM WALL BOARD
- (E) EXISTING CONSTRUCTION
- FF FACTORY FINISH
- N NONE / NOT APPLICABLE
- P PAINT
- SAC SUSPENDED ACOUSTICAL CEILING
- VT VINYL TILE
- WOM WALK OFF ENTRY CARPET

ROOM SPECIFIC REMARKS

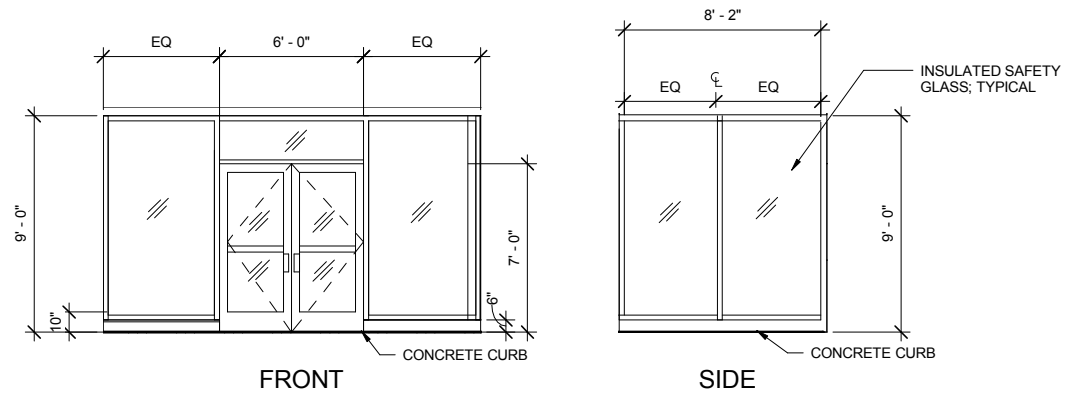
- (1) RUBBER BASE ALL NEW GWB WALLS
- (2) PATCH AND PAINT WORK AREAS TO MATCH EXISTING
- (3) PATCH FLOOR TO SMOOTH / EVEN APPEARANCE
- (4) REUSE EXISTING FLOORING

DOOR ABBREVIATIONS

- (1) SEE NOTES
- FG FIBERGLASS
- AL ALUMINUM
- (E) EXISTING
- NONE - NOT APPLICABLE
- ED EXIT DEVICE
- PP PUSH PULL NO LOCK



DOOR TYPES



VESTIBULE ELEVATIONS

DATA	DATE	REV	DATE	DESCRIPTION	BY
BASE	---	---	---	TELEPHONE	---
TOPOGRAPHY	---	---	---	ELECTRIC	---
PROFILE	---	---	---	CABLE TV	---
SANITARY SEWER	---	---	---	TRAFFIC SIGNAL	---
STORM SEWER	---	---	---	DESIGN	---
WATER	---	---	---	QUANTITIES	---
GAS	---	---	---	MUN. FINAL CHECK	---

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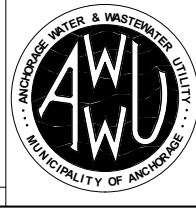
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MUNICIPALITY OF ANCHORAGE
 WATER & WASTEWATER UTILITY
 KING STREET MAIN BUILDING UPGRADE ARCHITECTURAL
 KING STREET MAIN BUILDING UPGRADES
 FINISH, DOOR SCHEDULES & WINDOW TYPES

HORIZ SCALE: AS NOTED
 VERT SCALE: 04-29-2016
 GRID: 2431
 PROJ. ID.: 2015022.05

CONSULTANT SEAL SHEET A701 of

GENERAL STRUCTURAL NOTES

(APPLY UNLESS NOTED OTHERWISE)

DESIGN CRITERIA:

1. 2009 EDITION OF THE INTERNATIONAL BUILDING CODE, WITH LOCAL AMENDMENTS.

LOADS:

1. BUILDING OCCUPANCY CATEGORY II.

2. DEAD LOADS ARE BASED ON ACTUAL WEIGHTS OF MATERIALS

3. SNOW LOADS:

- A. GROUND SNOW LOAD, $P_g = 50$ PSF
- B. MINIMUM FLAT ROOF SNOW LOAD, $P_f = 42$ PSF
- C. SNOW EXPOSURE FACTOR, $C_e = 1.0$
- D. SNOW THERMAL FACTOR, $C_t = 1.2$ (COLD ROOFS)
- E. SNOW IMPORTANCE FACTOR, $I_s = 1.0$
- F. DRIFTS AND UNBALANCED LOADING AS NOTED ON THE DRAWINGS

4. WIND LOADS:

- A. DESIGN WIND SPEED (3 SECOND GUST) 110 MPH, EXPOSURE B.
- B. WIND IMPORTANCE FACTOR, $I_w = 1.0$
- C. ENCLOSED BUILDING, INTERNAL PRESSURE COEFFICIENT, $G_{Cpi} = +/-0.18$,
- D. COMPONENT AND CLADDING PRESSURES (BASED ON 10 SF TRIBUTARY AREA):
 -54.9 PSF (ROOF, WITHIN 3 FEET OF BUILDING CORNERS)
 -36.5 PSF (ROOF, WITHIN 3 FEET OF BUILDING EDGES)
 -21.8 PSF (ROOF, ALL OTHER LOCATIONS)
 -26.5 PSF (WALLS, WITHIN 3 FEET OF BUILDING CORNERS)
 -21.6 PSF (WALLS, ALL OTHER LOCATIONS)

5. SEISMIC LOADS:

- A. $S_s = 1.50g$
- B. $S_1 = 0.55g$
- C. SOILS SITE CLASS D
- D. $S_d = 1.00$
- E. $S_d1 = 0.55g$
- F. SEISMIC DESIGN CATEGORY D
- G. SEISMIC IMPORTANCE FACTOR, $I_e = 1.0$
- H. SEISMIC FORCE RESISTING SYSTEMS: CANTILEVERED COLUMN, $R=1.5$
- I. ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE PROCEDURE
- J. 20% OF FLAT ROOF SNOW LOAD SHALL BE COMBINED WITH SEISMIC LOADS
- K. SEISMIC WEIGHTS "W" IN ACCORDANCE WITH ASCE 7-05 SECTION 12.7.2

6. ALL LOADS INDICATED ON THE DRAWINGS ARE WORKING STRESS LOADS U.N.O.

GENERAL:

1. THE STRUCTURAL CONSTRUCTION DOCUMENTS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE METHOD OR SEQUENCE OF CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR AND PROVIDE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, SHORING FOR LOADS DUE TO CONSTRUCTION EQUIPMENT, ETC. THE STRUCTURAL ENGINEER SHALL NOT BE RESPONSIBLE FOR THE CONTRACTOR'S MEANS, METHODS, TECHNIQUES, SEQUENCES FOR PROCEDURE OF CONSTRUCTION, OR THE SAFETY PRECAUTIONS AND THE PROGRAMS INCIDENT THERETO (NOR SHALL OBSERVATION VISITS TO THE SITE INCLUDE INSPECTION OF THESE ITEMS). THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND IMPLEMENTATION OF ALL SCAFFOLDING, BRACING AND SHORING.

2. CONSTRUCTION MATERIALS SHALL BE SPREAD OUT IF PLACED ON FRAMED CONSTRUCTION. LOAD SHALL NOT EXCEED THE DESIGN LIVE LOAD PER SQUARE FOOT.

3. WHERE REFERENCE IS MADE TO VARIOUS TEST STANDARDS FOR MATERIALS, SUCH STANDARDS SHALL BE THE LATEST EDITION AND/OR ADDENDA.

4. ESTABLISH AND VERIFY ALL OPENINGS AND INSERTS FOR ARCHITECTURAL, MECHANICAL, PLUMBING AND ELECTRICAL WITH APPROPRIATE TRADES, DRAWINGS AND SUBCONTRACTORS PRIOR TO CONSTRUCTION.

5. OPTIONS ARE FOR CONTRACTOR'S CONVENIENCE. IF AN OPTION IS CHOSEN, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL NECESSARY CHANGES AND SHALL COORDINATE ALL DETAILS WITH ALL TRADES.

6. NOTES AND DETAILS ON DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL STRUCTURAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT. FOR BIDDING PURPOSES, WHERE ANY MEMBER IS SHOWN BUT NOT CALLED OUT, THE LARGEST SIMILAR MEMBER SHALL BE UTILIZED.

7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ALL DIMENSIONS WITH ARCHITECTURAL DRAWINGS PRIOR TO START OF CONSTRUCTION. RESOLVE ANY DISCREPANCY WITH THE ARCHITECT. DO NOT USE SCALED DIMENSIONS.

8. ALL DETAILS SHALL BE INCORPORATED INTO THE PROJECT AT ALL APPROPRIATE LOCATIONS, WHETHER SPECIFICALLY CUT OR NOT. TYPICAL DETAILS MAY NOT NECESSARILY BE CUT ON PLANS, BUT APPLY UNLESS NOTED OTHERWISE. FOR CLARITY, DETAILS MAY SHOW ONLY ONE SIDE OF FRAMING CONDITION.

9. WHERE DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL STRUCTURAL NOTES AND SPECIFICATIONS, THE GREATER REQUIREMENTS SHALL GOVERN.

10. ANY ENGINEERING DESIGN, PROVIDED BY OTHERS AND SUBMITTED FOR REVIEW, SHALL BEAR THE SEAL OF AN ENGINEER REGISTERED IN THE STATE OF ALASKA.

EXISTING STRUCTURES:

1. THESE PLANS HAVE BEEN PREPARED BASED ON LIMITED VISUAL OBSERVATIONS AND/OR LIMITED AS-BUILT DOCUMENTS. CERTAIN CHANGES MAY BE REQUIRED BECAUSE OF POSSIBLE AMBIGUITIES OR INCONSISTENCIES IN RECORD DRAWINGS.

2. IF FIELD CONDITIONS DIFFER FROM THOSE DEPICTED, NOTIFY THE STRUCTURAL ENGINEER THROUGH THE ARCHITECT PRIOR TO PROCEEDING. THE CONTRACTOR (INCLUDING ALL SUBCONTRACTORS) SHALL REPORT ALL DIFFERENCES AND DEFECTS PROMPTLY TO THE ARCHITECT.

3. VERIFY EXISTING CONDITIONS PRIOR TO CONSTRUCTION.

4. IT IS RECOMMENDED THAT THE OWNER HAVE APPROPRIATE CONTINGENCIES TO ACCOUNT FOR BOTH DESIGN AND CONSTRUCTION CONDITIONS THAT MAY ARISE FROM THE DISCOVERY OF CONCEALED OR UNKNOWN CONDITIONS IN THE EXISTING STRUCTURE.

FOUNDATIONS: [NO SOILS REPORT. CONFORMS TO MOA AMENDMENTS.]

1. NO SOILS REPORT PROVIDED. FOUNDATION DESIGN IS BASED ON MAXIMUM ALLOWABLE SOIL BEARING PRESSURE = 1,500 PSF PER IBC TABLE 1804.2. SPREAD FOOTINGS SHALL BEAR ON UNDISTURBED SOIL OR COMPACTED FILL MATERIAL.

2. MINIMUM FOOTING BEARING DEPTH SHALL BE AS FOLLOWS:

UNHEATED EXTERIOR FOOTINGS ----- 60" BELOW FINISHED GRADE*
 HEATED PERIMETER FOOTINGS ----- 42" BELOW FINISHED GRADE
 INTERIOR FOOTINGS ----- 12" BELOW FINISHED FLOOR

* IF NON-FROST-SUSCEPTIBLE MATERIAL CANNOT BE VERIFIED, INCREASE FOOTING DEPTH TO 120" BELOW FINISHED GRADE

3. COMPACTED FILL MATERIAL SHALL BE PLACED IN MAXIMUM 12" LIFTS AND SHALL BE COMPACTED TO MINIMUM 95% MODIFIED PROCTOR IN ACCORDANCE WITH ASTM D1557. COMPACTION SHALL BE VERIFIED BY A QUALIFIED INSPECTOR APPROVED BY THE BUILDING OFFICIAL.

4. PROVIDE POSITIVE DRAINAGE SLOPES, BOTH DURING AND AFTER CONSTRUCTION, FOR SURFACE AND ROOF RUNOFF, MINIMUM 10'-0" FROM BUILDING FOUNDATIONS.

5. DO NOT BACKFILL AGAINST BASEMENT OR RESTRAINED WALLS UNTIL FRAMING TO SUPPORT WALL IS PERMANENTLY ATTACHED. DO NOT EXCEED 1'-0" DIFFERENTIAL IN FILL LEVEL ON OPPOSITE SIDES OF FOUNDATION WALLS.

6. THE BUILDING OFFICIAL SHALL INSPECT THE FOOTINGS AND FOUNDATIONS PER IBC 110.3 PRIOR TO PLACEMENT OF FOUNDATION CONCRETE.

7. THE STRUCTURAL ENGINEER IS NOT RESPONSIBLE FOR ANY GEOTECHNICAL ASPECTS OF THIS PROJECT. IT IS RECOMMENDED THAT THE OWNER RETAIN A REGISTERED GEOTECHNICAL ENGINEER TO CONDUCT A GEOTECHNICAL INVESTIGATION AND PREPARE A REPORT WITH RECOMMENDATIONS FOR FOUNDATION DESIGN AND EARTHWORK PROCEDURES.

8. SEE ARCHITECTURAL/CIVIL DRAWINGS FOR EXTERIOR SLABS AND SIDEWALKS.

CONCRETE:

1. ALL CONCRETE WORK SHALL CONFORM TO THE REQUIREMENTS OF ACI 301 AND ACI 318. CEMENT SHALL CONFORM TO ASTM C150, TYPE II. AGGREGATE SHALL CONFORM TO ASTM C33. CONCRETE SHALL BE READY MIXED IN ACCORDANCE WITH ASTM C94 AND SHALL BE DESIGNED FOR A MINIMUM 28-DAY COMPRESSIVE STRENGTH AS FOLLOWS:

SLABS ON GRADE ----- 3,000 PSI
 FOUNDATIONS ----- 4,500 PSI

2. NO FLY ASH ADDITIVES SHALL BE USED IN FLATWORK OR ARCHITECTURALLY EXPOSED CONCRETE. CONCRETE SHALL BE FREE OF CHLORIDE. MAXIMUM SLUMP 4 1/2" FOR CONCRETE WITHOUT PLASTICIZER. IF PLASTICIZER IS USED, AN 8" MAXIMUM SLUMP IS ALLOWED AT PLACEMENT. ALL MIX DESIGNS SHALL BE DESIGNED BY THE CONCRETE PRODUCTION FACILITY IN ACCORDANCE WITH ACI 301 AND SHALL BE REVIEWED BY THE STRUCTURAL ENGINEER PRIOR TO PLACEMENT.

3. MECHANICALLY VIBRATE ALL CONCRETE WHEN PLACED, EXCEPT THAT SLABS ON GRADE NEED BE VIBRATED ONLY AROUND UNDER-FLOOR DUCTS, ETC. DO NOT DROP CONCRETE MORE THAN FIVE FEET WITH OUT THE USE OF TREMIES. UNLESS APPROVED OTHERWISE IN WRITING BY THE ARCHITECT, ALL CONCRETE SLABS ON GRADE SHALL BE BOUND BY CONTROL JOINTS (KEYED OR SAW CUT), SUCH THAT THE JOINT SPACING DOES NOT EXCEED 36 TIMES THE SLAB THICKNESS AND THE ASPECT RATIO OF THE ENCLOSED AREA DOES NOT EXCEED 1.5 TO 1.0. SAW CUTS SHALL BE 1/8" WIDE AND 1/4 TIMES THE SLAB THICKNESS IN DEPTH. KEYED CONTROL JOINTS NEED ONLY OCCUR AT EXPOSED EDGES DURING POURING, ALL OTHER JOINTS MAY BE SAW CUT. CAST CLOSURE POUR AROUND COLUMNS AFTER COLUMN DEAD LOAD IS APPLIED.

4. PROVIDE SLEEVES FOR ALL UTILITY OPENINGS. DO NOT CUT ANY REINFORCING AT OPENINGS. CONCRETE WHICH HAS CONTAINED WATER FOR MORE THAN 90 MINUTES (60 MINUTES IF AIR TEMPERATURE EXCEEDS 85 DEGREES) SHALL NOT BE USED. RETEMPERING OF CONCRETE AFTER INITIAL SET IS NOT ALLOWED. CURE EXPOSED CONCRETE PER ACI 301 FOR A MINIMUM OF 7 DAYS.

5. TESTING OF COMPRESSIVE STRENGTH AND SLUMP SHALL CONFORM TO ASTM C31, C39 AND C143. PROVIDE A MINIMUM OF 3 CYLINDERS FOR EACH DAY'S PLACEMENT U.N.O. A QUALIFIED TESTING LABORATORY SHALL TEST ONE CYLINDER AT 7 DAYS AND TWO CYLINDERS AT 28 DAYS.

INTERPRETATION OF DRAWINGS

PLAN LEGEND		
SYMBOL	DESCRIPTION	REMARKS
	DETAIL CUTS SHOWN ON PLANS	FOUNDATION DETAILS ARE 100 SERIES NUMBERS. FRAMING DETAILS ARE 200 SERIES NUMBERS. BRACED FRAME DETAILS ARE 300 SERIES NUMBERS. STAIR FRAMING DETAILS ARE 400 SERIES NUMBERS.
	KEYNOTE	
	CONCRETE WALL U.N.O.	SEE PLANS AND SCHEDULES FOR SIZE AND REINFORCING
	8" MASONRY WALL U.N.O.	
	CURTAIN WALL U.N.O.	SEE PLANS AND SCHEDULES FOR SIZE
	RIGID (MOMENT) CONNECTION	
	REVISION SYMBOL	

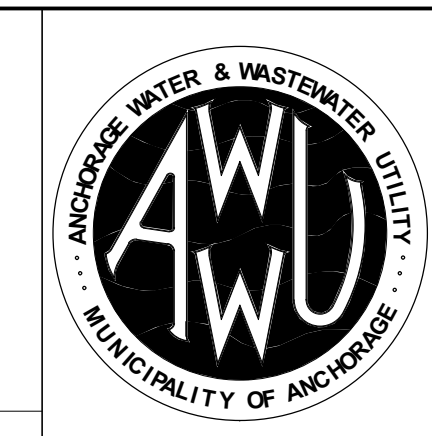
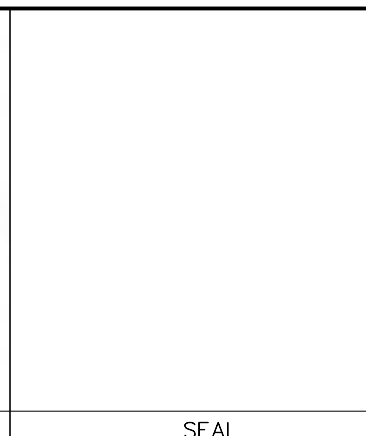
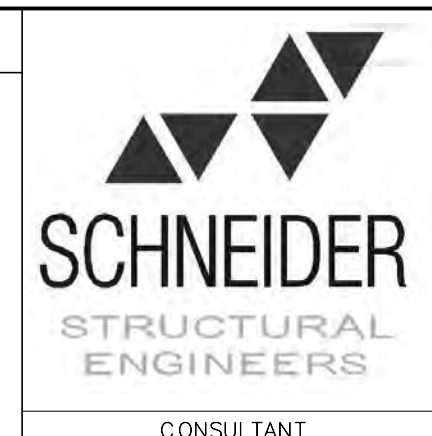
ABBREVIATIONS

A.B.C. ----- AGGREGATE BASE COURSE	L.L. ----- LIVE LOAD
A.F.F. ----- ABOVE FINISHED FLOOR	LBS ----- POUNDS
ALT ----- ALTERNATE	L.L.H. ----- LONG LEG HORIZONTAL
A.B. ----- ANCHOR BOLT	L.L.V. ----- LONG LEG VERTICAL
B.F.F. ----- BELOW FINISHED FLOOR	MFR (S) ----- MANUFACTURER(S)
B.O.B. ----- BOTTOM OF BEAM	M.C.J. ----- MASONRY CONTROL JOINT
B.O.D. ----- BOTTOM OF DECK	MECH. ----- MECHANICAL
B.O.F. ----- BOTTOM OF FOOTING	N/A ----- NOT APPLICABLE
B.O.S. ----- BOTTOM OF STEEL	N.F.S. ----- NON-FROST SUSCEPTIBLE
BOT ----- BOTTOM	N.T. ----- NOT TO SCALE
BRBF ----- BUCKLING-RESTRAINED BRACED FRAME	O.C. ----- ON CENTER
BRG ----- BEARING	OPP ----- OPPOSITE (MIRRORED)
C.I.P. ----- CAST IN PLACE	P.A.F. ----- POWDER ACTUATED FASTENER
C.L. ----- CENTERLINE	P.C. ----- PRECAST CONCRETE
CLR ----- CLEAR	PCF ----- POUNDS PER CUBIC FOOT
CONC. ----- CONCRETE	PLF ----- POUNDS PER LINEAR FOOT
CONC. C.J. ----- CONCRETE CONTROL JOINT	PREFAB ----- PREFABRICATED
C.M.U. ----- CONCRETE MASONRY UNIT	PSF ----- POUNDS PER SQUARE FOOT
CONN. ----- CONNECTION	PSI ----- POUNDS PER SQUARE INCH
CONT. ----- CONTINUOUS	REINF. ----- REINFORCING
D.L. ----- DEAD LOAD	SCH ----- SCHEDULE
DIA. ----- DIAMETER	SIM ----- SIMILAR
DN ----- DOWN	SLRS ----- SEISMIC LOAD RESISTING SYSTEM
DWG (S) ----- DRAWING(S)	SP ----- SPACES
EBF ----- ECCENTRIC BRACED FRAME	STD ----- STANDARD
E.F. ----- EACH FACE	T&B ----- TOP AND BOTTOM
E.O.S. ----- EDGE OF SLAB	T.L. ----- TOTAL LOAD
EQ ----- EQUAL	T.O.B. ----- TOP OF BEAM
EQUIP. ----- EQUIPMENT	T.O.C. ----- TOP OF CONCRETE
EXP. BOLT ----- EXPANSION BOLT	T.O.D. ----- TOP OF DECK
E.J. ----- EXPANSION JOINT	T.O.F. ----- TOP OF FOOTING
E.W. ----- EACH WAY	T.O.L. ----- TOP OF LEDGER
F.F.E. ----- FINISHED FLOOR ELEVATION	T.O.M. ----- TOP OF MASONRY
GA ----- GAGE	T.O.P.L. ----- TOP OF PLATE
GALV ----- GALVANIZED	T.O.S. ----- TOP OF STEEL
G.S.N. ----- GENERAL STRUCTURAL NOTES	T.O.W. ----- TOP OF WALL
GLB (GLULAM) ----- GLUED-LAMINATED BEAM	TYP ----- TYPICAL
HORIZ. ----- HORIZONTAL	U.N.O. ----- UNLESS NOTED OTHERWISE.
I.B.C. ----- INTERNATIONAL BUILDING CODE	VERT. ----- VERTICAL
I.C.C. ----- INTERNATIONAL CODE COUNCIL	W.W.F. ----- WELDED WIRE FABRIC
K (KIP) ----- 1000 POUNDS	W/ ----- WITH
	W/O ----- WITHOUT

VERIFY SCALE		THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING.		IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.		FULL SIZE SCALE HORZ SCALE: VERT SCALE:	
0"	1"						
DATA	REVISION	DATE	DESCRIPTION	BY	DATE	REVISION	DESCRIPTION
BASE	---		TELEPHONE	---			
TOPOGRAPHY	---		ELECTRIC	---			
PROFILE	---		CABLE TV	---			
SANITARY SEWER	---		TRAFFIC SIGNAL	---			
STORM SEWER	---		DESIGN	---			
WATER	---		QUANTITIES	---			
GAS	---		MUN. FINAL CHECK	---			
PLAN CHECK				REVISIONS			

RECORD DRAWING		Note: To be filled out on original drawings upon project completion.	
1. DATA PROVIDED BY: _____	This will serve to certify that these Record Drawings are a true and accurate representation of the project as constructed.	3. 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.	
CONTRACTOR: _____	BY: _____ TITLE: _____	DATE: _____	DATA TRANSFER CHECKED BY: _____
2. DATA TRANSFERRED BY: _____	COMPANY: _____	DATE: _____	BY: _____ TITLE: _____
	DATE: _____		DATE: _____

REUSE OF DOCUMENTS	
THIS DOCUMENT AND THE IDEAS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF AWWU AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT WRITTEN AUTHORIZATION OF AWWU.	



MUNICIPALITY OF ANCHORAGE WATER & WASTEWATER UTILITY			
KING STREET MAIN BUILDING UPGRADE STRUCTURAL			
GENERAL STRUCTURAL NOTES AND I.O.D.			
HORZ SCALE: AS NOTED	04-29-2016	GRID: 2431	S100 of
PROJ. ID.: 215163			SHEET

GENERAL STRUCTURAL NOTES (CONTINUED)

(APPLY UNLESS NOTED OTHERWISE)

MASONRY:

1. CONCRETE MASONRY UNITS SHALL CONFORM TO ASTM C90, NORMAL WEIGHT, WITH A MINIMUM NET COMPRESSIVE STRENGTH OF 2,800 PSI PER ASTM C140. EXPOSED UNITS SHALL HAVE NATURAL SMOOTH GROUND FACE.
2. MORTAR SHALL BE TYPE S, WITH AN AVERAGE COMPRESSIVE STRENGTH AT 28 DAYS OF 2,800 PSI PER ASTM C270. PRE-MIXED MORTAR AND RETARDANT ADDITIVES SHALL NOT BE USED.
3. GROUT SHALL CONFORM TO ASTM C476, FINE OR COARSE, WITH A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS OF 2,000 PSI PER ASTM C1019. GROUT SHALL BE FREE OF FLY ASH AND CHLORIDE.
4. DESIGN COMPRESSIVE STRENGTH OF MASONRY ASSEMBLIES, $f_m = 2,000$ PSI.
5. LAY UNITS IN RUNNING BOND. SOLID GROUT ALL CELLS U.N.O.
6. SEE DRAWINGS FOR SIZE AND SPACING OF REINFORCING. ACCURATELY LOCATE AND SECURE REINFORCING PRIOR TO AND DURING GROUTING. DOWEL ALL VERTICAL REINFORCING TO THE FOUNDATION WITH DOWELS TO MATCH SIZE AND SPACING OF VERTICAL REINFORCING. PROVIDE BENT BARS TO MATCH HORIZONTAL REINFORCING AT CORNERS AND WALL INTERSECTIONS. LAP SPLICE ALL MASONRY REINFORCING BY 48 BAR DIAMETERS.
7. MECHANICALLY VIBRATE GROUT IN VERTICAL SPACES IMMEDIATELY AFTER PLACEMENT AND AGAIN ABOUT 5 MINUTES LATER. DO NOT INTERRUPT GROUTING FOR MORE THAN ONE HOUR.

REINFORCING STEEL:

1. ALL BARS #4 AND LARGER SHALL BE ASTM A615 ($F_y = 60$ KSI) DEFORMED BARS. ALL BARS #3 AND SMALLER SHALL BE ASTM A615 ($F_y = 40$ KSI) DEFORMED BARS. REINFORCING TO BE WELDED SHALL BE ASTM A706. EPOXY COATED REINFORCING BARS SHALL BE ASTM A775. WELDED WIRE FABRIC SHALL BE ASTM A185 DEFORMED WIRE. TACK WELDING OF REINFORCING BARS SHALL NOT BE ALLOWED WITHOUT PRIOR REVIEW OF THE PROCEDURE WITH THE STRUCTURAL ENGINEER. LATEST ACI CODE AND DETAILING MANUAL APPLY.
2. ACCURATELY PLACE OR SUPPORT ALL REINFORCING, INCLUDING WELDED WIRE FABRIC, WITH GALVANIZED METAL CHAIRS, SPACERS OR HANGERS FOR THE FOLLOWING CLEAR CONCRETE COVERAGES:
 - CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH ---- 3"
 - EXPOSED TO EARTH OR WEATHER
 - #6 OR LARGER ----- 2"
 - #5 AND SMALLER ----- 1 1/2"
 - COLUMNS (TO TIES) ----- 1 1/2"
 - BEAMS (TO STIRRUPS) ----- 1 1/2"
 - FLAT SLAB ----- 3/4"
 - ALL OTHER PER LATEST EDITION OF ACI 318.
3. SEE DRAWINGS FOR SIZE AND SPACING OF REINFORCING. LAP SPLICE ALL CONCRETE REINFORCING 60 BAR DIAMETERS MINIMUM. LAPS IN WELDED WIRE FABRIC SHALL BE MADE SUCH THAT THE OVERLAP, MEASURED BETWEEN OUTERMOST CROSS WIRES OF EACH FABRIC SHEET, IS NOT LESS THAN THE SPACING OF CROSS WIRES PLUS 2 INCHES.
4. ALL SPLICE LOCATIONS ARE SUBJECT TO APPROVAL BY THE STRUCTURAL ENGINEER. SPLICED BARS SHALL BE PLACED AT THE SAME EFFECTIVE DEPTH U.N.O. ALL REINFORCING NOTED AS "CONTINUOUS" SHALL BE FULLY CONTINUOUS AND SPLICED. PROVIDE BENT CORNER BARS TO MATCH AND LAP WITH HORIZONTAL BARS AT ALL CORNERS AND INTERSECTIONS PER TYPICAL DETAILS.
5. REINFORCING BAR SPACING GIVEN ARE MAXIMUM ON CENTERS. ALL BARS PER CRSI SPECIFICATIONS AND HANDBOOK. DOWEL ALL VERTICAL REINFORCING TO FOUNDATION WITH STANDARD 90 DEGREE HOOKS UNLESS NOTED OTHERWISE. SKEW HOOKS AS REQUIRED TO MAINTAIN CONCRETE COVER. SECURELY TIE ALL BARS IN LOCATION BEFORE PLACING CONCRETE.

STRUCTURAL STEEL:

1. ALL STRUCTURAL STEEL CONSTRUCTION SHALL CONFORM WITH THE LATEST AISC HANDBOOK. STRUCTURAL STEEL MATERIALS SHALL BE AS FOLLOWS U.N.O.:
 - W SECTIONS ----- ASTM A992 ($F_y = 50$ KSI)
 - RECTANGULAR HSS ----- ASTM A500, GRADE B ($F_y = 46$ KSI)
 - ROUND HSS ----- ASTM A500, GRADE B ($F_y = 42$ KSI)
 - PIPES ----- ASTM A53, GRADE B ($F_y = 35$ KSI)
 - ALL OTHER STRUCTURAL SHAPES AND PLATES -- ASTM A36 ($F_y = 36$ KSI)
2. BEAMS, COLUMNS, AND BRACES SHALL NOT BE SPLICED WITHOUT THE PRIOR APPROVAL OF THE STRUCTURAL ENGINEER.
3. SHOP PAINT ALL STEEL SURFACES WITH FABRICATOR'S STANDARD RUST-INHIBITING PRIMER, EXCEPT AT SURFACES ENCASED IN CONCRETE, SURFACES TO RECEIVE FIREPROOFING, TOP FLANGES OF BEAMS TO RECEIVE HEADED STUDS, AND FAYING SURFACES OF BOLTED CONNECTIONS.
4. BOLTS SHALL BE ASTM A307, UNLESS NOTED OTHERWISE. ANCHOR BOLTS SHALL BE ASTM A36 OR A307, GRADE A. ANCHOR RODS SHALL BE ASTM F1554, GRADE 55. THREADED RODS SHALL BE ASTM A36.
5. HIGH-STRENGTH BOLTS SHALL BE ASTM A325N, TYPE 1 U.N.O. ALL STEEL-TO-STEEL CONNECTIONS SHALL BE MADE WITH HIGH-STRENGTH BOLTS U.N.O. BOLTS MAY BE TIGHTENED USING ANY AISC APPROVED METHOD. ALL HIGH STRENGTH BOLTING SHALL BE INSPECTED BY AN INDEPENDENT TESTING LABORATORY TO ENSURE BOLT TENSION.
6. ALL WELDING PER LATEST AMERICAN WELDING SOCIETY STANDARDS. ALL WELDING SHALL BE PERFORMED BY WELDERS HOLDING VALID CERTIFICATES AND HAVING CURRENT EXPERIENCE IN THE TYPE OF WELD SHOWN ON THE DRAWINGS OR NOTES. CERTIFICATES SHALL BE THOSE ISSUED BY AN ACCEPTED TESTING AGENCY. ALL WELDING DONE BY E70 SERIES LOW HYDROGEN RODS UNLESS NOTED OTHERWISE. FOR GRADE 60 REINFORCING BARS, USE E80 SERIES. THESE DRAWINGS DO NOT DISTINGUISH BETWEEN SHOP AND FIELD WELDS; THE CONTRACTOR MAY SHOP WELD OR FIELD WELD AT HIS DISCRETION. SHOP WELDS AND FIELD WELDS SHALL BE SHOWN ON THE SHOP DRAWINGS SUBMITTED FOR REVIEW. ALL FULL (COMPLETE) PENETRATION WELDS SHALL BE TESTED AND CERTIFIED BY AN INDEPENDENT TESTING LABORATORY.
7. DRYPACK (NON-SHRINK GROUT) SHALL BE 5,000 PSI, FIVE STAR, SIKA 212 OR EQUIVALENT. INSTALL DRYPACK UNDER BEARING PLATES BEFORE FRAMING MEMBER IS INSTALLED. AT COLUMNS, INSTALL DRYPACK UNDER BASEPLATES AFTER COLUMN HAS BEEN PLUMBED BUT PRIOR TO FLOOR OR ROOF INSTALLATION.

8. FOR CONNECTIONS THAT ARE INDICATED AS PART OF THE SEISMIC LOAD RESISTING SYSTEM (SLRS), THE FOLLOWING REQUIREMENTS SHALL BE MET:
 - A. FOR BOLTED CONNECTIONS, PREPARE FAYING SURFACES AS FOR CLASS A OR BETTER SLIP CRITICAL JOINT. PRETENSION BOLTS.
 - B. FOR WELDED CONNECTIONS, FILLER METAL SHALL HAVE A MINIMUM CHARPY V-NOTCH TOUGHNESS OF 20 FT-LBS AT -20 DEGREES F AND 40 FT-LBS AT 70 DEGREES F.

STEEL DECK:

1. STEEL ROOF DECK SHALL BE 1.5" DEEP, 36" WIDE, 18 GAGE GALVANIZED G60 STEEL, WITH MINIMUM YIELD STRESS OF 38 KSI, WITH MINIMUM +S = 0.322 IN*3 AND I = 0.302 IN*4 PER FOOT OF WIDTH. DECK SHALL BE ERRECTED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AS 3 SPAN MINIMUM AND SHALL BE ATTACHED FOR A MINIMUM DIAPHRAGM SHEAR CAPACITY OF 1384 PLF USING THE FOLLOWING MINIMUM ATTACHMENTS:
 - WELD DECK TO SUPPORTING MEMBERS WITH (7) 3/4" DIAMETER (1/2" EFFECTIVE FUSION) PUDDLE WELDS PER SHEET AT ENDS, END LAPS AND AT INTERMEDIATE SUPPORTS, AND AT 12" O.C.
 - AT PERIMETER BEAMS AND OPENING EDGES RUNNING PARALLEL TO THE DECK. SIDE SEAM ATTACHMENT SHALL BE VERCO SIDELAP CONNECTIONS (VSC) MADE WITH THE "PUNCHLOK" TOOL AT 24" O.C., U.N.O. OR 1-1/2" SIDE SEAM WELDS AT 24" O.C.
2. ALL WELDING SHALL BE PERFORMED BY WELDERS EXPERIENCED IN LIGHT GAGE STEEL DECK WORK. WELD DECK WITH E60 SERIES RODS.
3. CONCENTRATED/HANGING LOADS ON STEEL ROOF DECK SHALL BE LIMITED TO SUSPENDE ACOUNSTICAL CEILINGS AND LIGHT DUCT WORK. NO OTHER CONCENTRATED/HANGING LOADS ARE ALLOWED WITHOUT PRIOR WRITTEN AUTHORIZATION BY THE ENGINEER.

POST-INSTALLED ANCHORS:

1. INSTALL POST-INSTALLED ANCHORS ONLY AS INDICATED ON THE DRAWINGS AND/OR WITH SPECIFIC WRITTEN APPROVAL OF THE ENGINEER PRIOR TO INSTALLATION.
2. EPOXY ANCHORS IN CONCRETE SHALL BE THREADED ROD OR REINFORCING STEEL, INSTALLED WITH HIT-HY 200 ADHESIVE BY HILTI PER I.C.C. REPORT ESR-3187.
3. EPOXY ANCHORS IN MASONRY SHALL BE THREADED ROD OR REINFORCING STEEL, INSTALLED WITH HIT-HY 70 ADHESIVE BY HILTI PER I.C.C. REPORT ESR-3342.
4. EXPANSION ANCHORS IN CONCRETE SHALL BE KWIK BOLT TZ BY HILTI, INSTALLED PER I.C.C. REPORT ESR-1917. EXPANSION ANCHORS SHALL NOT BE USED IN MASONRY UNLESS SPECIFICALLY NOTED.
5. SCREW ANCHORS IN CONCRETE OR MASONRY SHALL BE TITEN HD BY SIMPSON, INSTALLED PER ICC REPORT ESR-2713 (CONCRETE) OR ESR-1056 (MASONRY).
6. THE CONTRACTOR MAY NOT USE SUBSTITUTES FOR POST-INSTALLED ANCHORS WITHOUT PRIOR APPROVAL OF THE ENGINEER.
7. SEE DRAWINGS FOR ANCHOR EMBEDMENT DEPTHS. INSTALL ANCHORS AS OUTLINED IN THE MANUFACTURER'S SPECIFICATIONS, UTILIZING PROPER SIZE AND TYPE OF DRILL AND PROPER HOLE CLEANING, DRIVING, AND TIGHTENING TECHNIQUES.
8. SPECIAL INSPECTION OF ALL POST-INSTALLED ANCHORS IS REQUIRED, IN ACCORDANCE WITH THE APPLICABLE PRODUCT EVALUATION REPORT.

LIGHT GAGE STEEL / STEEL STUD FRAMING:

1. ALL LIGHT GAGE STEEL FRAMING SHALL BE FABRICATED AND ERRECTED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND IN ACCORDANCE WITH THE LATEST EDITION OF "SPECIFICATIONS FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS" BY THE AMERICAN IRON AND STEEL INSTITUTE.
2. STEEL FOR 12, 14 AND 16 GAGE STUDS AND JOISTS, AND FOR ALL DIAGONAL TENSION STRAPS SHALL HAVE A MINIMUM YIELD STRENGTH OF 50 KSI AND SHALL CONFORM TO ASTM A653, GRADE 50 CLASS 1 OR 3 STRUCTURAL STEEL, OR ASTM 1011, GRADE 50 STRUCTURAL STEEL FOR PAINTED OR GALVANIZED STEEL. STEEL FOR ALL 18 AND 20 GAGE STUDS AND JOISTS, AND FOR ALL GAGES OF TRACK, ACCESSORIES AND BRIDGING SHALL HAVE A MINIMUM YIELD STRENGTH OF 33 KSI AND SHALL CONFORM TO ASTM A1008, GRADE 33 FOR PAINTED OR GALVANIZED STEEL. STUDS, JOISTS, TRACKS AND ACCESSORIES SHALL BE PRIME PAINTED WITH RUST INHIBITIVE PAINT PER PERFORMANCE STANDARD TT-P-636C. STEEL SHALL BE GALVANIZED AT LOCATIONS EXPOSED TO WEATHER AND WHEREVER NOTED.
3. ALL STUDS SHALL BE SECURELY SEATED FOR FULL END BEARING ON TOP AND BOTTOM TRACK. DO NOT SPLICE OR NOTCH FLANGES OF STUDS, JOISTS OR TENSION STRAPS UNLESS NOTED. UNLESS NOTED OTHERWISE, PROVIDE DOUBLE STUDS AT ALL JAMBS, CORNERS, INTERSECTIONS, BEAM BEARINGS AND JOIST BEARINGS WHERE JOIST SPACING EXCEEDS 4'-0" O.C. DOUBLE UP JOISTS BELOW PARTITIONS AND AT ROOF (AND FLOOR) OPENINGS WHICH INTERRUPT ANY MEMBERS UNLESS NOTED OTHERWISE.
4. BRIDGING SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATION WITH THE FOLLOWING MINIMUM REQUIREMENTS: FOR WALLS WITH NO AXIAL LOAD, PROVIDE BRIDGING AT MID-HEIGHT FOR WALLS LESS THAN OR EQUAL TO 10'-0" HIGH, AND 5'-0" O.C. MAXIMUM FOR WALLS GREATER THAN 10'-0" HIGH. FOR AXIAL LOAD BEARING WALLS, PROVIDE BRIDGING EQUALLY SPACED AT 4'-0" MAXIMUM. IN ADDITION, BLOCKING OR BRIDGING SHALL BE PROVIDED AT ROOF (AND FLOOR) LINES AND ELSEWHERE AS NOTED ON THE DRAWINGS. SOLID BLOCKING SHALL BE INSTALLED IN LIEU OF BRIDGING WHERE NOTED ON THE DRAWINGS. WELDING SHALL BE PERFORMED BY WELDERS EXPERIENCED IN LIGHT GAGE STEEL FRAMING CONSTRUCTION.

5. STUD WALLS SHALL BE 33 MIL THICK AT 16" O.C. UNLESS NOTED OTHERWISE. BLOCKING SHALL BE THE SAME GAGE AS THE STUDS. PLACE 1/2" DIAMETER ANCHOR BOLTS IN TRACKS WITH SPACINGS NOT TO EXCEED 4'-0" O.C. AND AT ALL JAMBS, INTERSECTIONS, CORNERS, AND WALL ENDS (2 ANCHOR BOLTS MINIMUM PER TRACK).
6. MEMBERS SHALL HAVE THE FOLLOWING MINIMUM PROPERTIES BASED ON ICBO ER-4943P:

SIZE	STUDS---	600S162-33*
TRACKS---	600T125-33*	

* USE 43 MIL THICKNESS WHERE REQUIRED FOR WELDING

SHOP DRAWINGS AND PRODUCT DATA SUBMITTALS:

1. SUBMIT SHOP DRAWINGS AND/OR PRODUCT DATA FOR THE FOLLOWING ITEMS, PRIOR TO FABRICATION:
 - CONCRETE MATERIALS
 - CONCRETE REINFORCING STEEL
 - MASONRY MATERIALS
 - MASONRY REINFORCING STEEL
 - STRUCTURAL STEEL FRAMING
 - STEEL DECK
 - STRUCTURAL LIGHT-GAGE STEEL FRAMING
2. PROVIDE SUBMITTALS IN A TIMELY MANNER TO ALLOW FIVE WORKING DAYS FOR THE ENGINEER'S REVIEW. FOR HARD COPY SUBMITTALS, PROVIDE NO MORE THAN FOUR SETS FOR REVIEW (ONE COPY TO BE RETAINED BY THE ENGINEER). FOR ELECTRONIC SUBMITTALS, PROVIDE PDF FILES ONLY. ALL SUBMITTALS WITH A REQUESTED REVIEW TIME OF LESS THAN FIVE WORKING DAYS MAY BE RETURNED WITHOUT REVIEW AT THE ENGINEER'S DISCRETION.
3. CONSTRUCTION DOCUMENTS SHALL NOT BE REPRODUCED FOR USE AS SHOP DRAWINGS. THE MANUFACTURER OR FABRICATOR SHALL CLOUD ANY CHANGES, SUBSTITUTIONS, AND/OR DEVIATIONS FROM THE CONTRACT DOCUMENTS. ANY CHANGES, SUBSTITUTIONS, AND/OR DEVIATIONS THAT ARE NOT CLOUDED OR FLAGGED SHALL NOT BE CONSIDERED ALLOWED AFTER THE ENGINEER'S REVIEW, UNLESS NOTED ACCORDINGLY BY THE ENGINEER.
4. THE CONTRACTOR SHALL REVIEW ALL SHOP DRAWINGS PRIOR TO SUBMITTAL TO THE ENGINEER. CLEARLY INDICATE ITEMS NOT IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. VERIFY DIMENSIONS WITH THE ARCHITECT.
5. THE ENGINEER'S REVIEW IS INTENDED ONLY AS AN AID TO THE CONTRACTOR IN OBTAINING CORRECT SHOP DRAWINGS. RESPONSIBILITY FOR CORRECTNESS AND COMPLETENESS SHALL REST WITH THE CONTRACTOR. SHOP DRAWINGS WILL BE RETURNED FOR RESUBMITTAL IF SIGNIFICANT ERRORS ARE FOUND DURING REVIEW.
6. THE SHOP DRAWINGS DO NOT REPLACE THE CONTRACT DOCUMENTS. SHOP DRAWINGS PROCESSED BY THE ENGINEER SHALL NOT BE CONSIDERED CHANGE ORDERS. ITEMS THAT ARE OMITTED OR SHOWN INCORRECTLY AND THAT ARE NOT FLAGGED BY THE ENGINEER ARE NOT TO BE CONSIDERED CHANGES TO CONTRACT DOCUMENTS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONSTRUCT ITEMS ACCORDING TO THE CONTRACT DOCUMENTS. SHOULD A DISCREPANCY EXIST BETWEEN THE PROCESSED SHOP DRAWINGS AND THE CONTRACT DOCUMENTS, THE CONTRACT DOCUMENTS SHALL GOVERN.
7. THE ENGINEER RESERVES THE RIGHT TO MAKE CHANGES TO THE CONTRACT DOCUMENTS, AT ANY TIME BEFORE OR AFTER SHOP DRAWING REVIEW.
8. THE ADEQUACY OF ENGINEERING DESIGNS AND LAYOUT PERFORMED BY OTHERS RESTS WITH THE DESIGNING OR SUBMITTING PARTY.

DEFERRED SUBMITTALS: (PER 2009 IBC 107.3.4.2)

1. FOR THE PURPOSES OF THIS SECTION, DEFERRED SUBMITTALS ARE DEFINED AS THOSE PORTIONS OF THE DESIGN THAT ARE NOT SUBMITTED AT THE TIME OF THE APPLICATION AND WHICH ARE TO BE SUBMITTED TO THE BUILDING OFFICIAL WITHIN A SPECIFIED PERIOD.
2. DEFERRAL OF ANY SUBMITTAL ITEMS SHALL HAVE PRIOR APPROVAL OF THE BUILDING OFFICIAL. THE ARCHITECT OR ENGINEER OF RECORD SHALL LIST THE DEFERRED SUBMITTALS ON THE PLANS AND THE CONTRACTOR SHALL SUBMIT THE DEFERRED SUBMITTAL DOCUMENTS FOR REVIEW BY THE BUILDING OFFICIAL.
3. SUBMITTAL DOCUMENTS FOR DEFERRED SUBMITTAL ITEMS SHALL BE SUBMITTED TO THE ARCHITECT OR ENGINEER OF RECORD A MINIMUM OF 30 DAYS PRIOR TO FABRICATION. THE DOCUMENTS SHALL BE REVIEWED FOR GENERAL CONFORMANCE WITH THE DRAWINGS. A COPY OF THE DEFERRED SUBMITTAL DOCUMENTS SHALL BE SUBMITTED TO THE BUILDING OFFICIAL WITH A NOTATION INDICATING THAT THE DEFERRED SUBMITTAL DOCUMENTS HAVE BEEN REVIEWED. THE DEFERRED SUBMITTAL ITEMS SHALL NOT BE INSTALLED UNTIL THEIR DESIGN AND SUBMITTAL DOCUMENTS HAVE BEEN APPROVED BY THE BUILDING OFFICIAL.
4. DEFERRED SUBMITTAL ITEMS:
 - STORE FRONT/GLAZING ASSEMBLIES
 - ROOFING ATTACHMENT

VERIFY SCALE	THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING.	0"=====1"	IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.	FULL SIZE SCALE HORZ SCALE: VERT SCALE:					
DATA	REQ'D	CHK'D	DATA	REQ'D	CHK'D	REV	DATE	DESCRIPTION	BY
BASE	---	---	TELEPHONE	---	---				
TOPOGRAPHY	---	---	ELEC TRIC	---	---				
PROFILE	---	---	CABLE TV	---	---				
SANITARY SEWER	---	---	TRAFFIC SIGNAL	---	---				
STORM SEWER	---	---	DESIGN	---	---				
WATER	---	---	QUANTITIES	---	---				
GAS	---	---	MUN. FINAL CHECK	---	---				
PLAN CHECK					REVISIONS				

RECORD DRAWING

Note: To be filled out on original drawings upon project completion.

1. DATA PROVIDED BY:

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BY: _____ TITLE: _____

DATE: _____
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COMPANY: _____

DATE: _____
3. 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.

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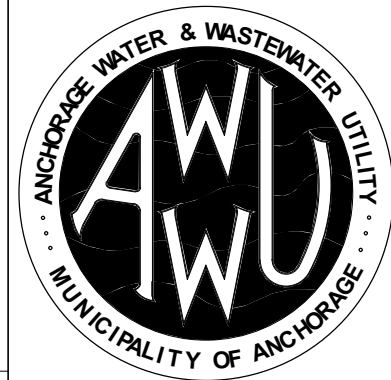
COMPANY: _____

BY: _____ TITLE: _____

DATE: _____

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MUNICIPALITY OF ANCHORAGE WATER & WASTEWATER UTILITY			
KING STREET MAIN BUILDING UPGRADE STRUC TURAL			
GENERAL STRUCTURAL NOTES			
HORZ SCALE: AS NOTED	04-29-2016	GRID: 2431	S101 of
PROJ. ID.:	215163		SHEET



GENERAL STRUCTURAL NOTES (CONTINUED)

(APPLY UNLESS NOTED OTHERWISE)

SPECIAL INSPECTIONS AND TESTING:

1. THE OWNER (OR REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE ACTING AS THE OWNER'S AGENT) SHALL EMPLOY ONE OR MORE SPECIAL INSPECTORS TO PROVIDE INSPECTION AND TESTING DURING CONSTRUCTION OF THE TYPES OF WORK REQUIRING SPECIAL INSPECTION AS INDICATED ON THE DRAWINGS.
2. EACH SPECIAL INSPECTOR SHALL BE A QUALIFIED PERSON WHO SHALL DEMONSTRATE COMPETENCE, TO THE SATISFACTION OF THE BUILDING OFFICIAL AND STRUCTURAL ENGINEER OF RECORD, FOR INSPECTION OF THE PARTICULAR TYPE OF CONSTRUCTION OR OPERATION REQUIRING SPECIAL INSPECTION.
3. THE CONTRACTOR SHALL CONVENE A MEETING WITH THE SPECIAL INSPECTION AGENCY (AGENCIES), THE BUILDING OFFICIAL, THE ARCHITECT, AND THE STRUCTURAL ENGINEER OF RECORD TO REVIEW INSPECTION REQUIREMENTS AND PROCEDURES, PRIOR TO COMMENCING WITH CONSTRUCTION.
4. DUTIES AND RESPONSIBILITIES OF THE SPECIAL INSPECTOR:
 - A. THE SPECIAL INSPECTOR SHALL OBSERVE THE WORK ASSIGNED FOR CONFORMANCE TO THE APPROVED CONSTRUCTION DOCUMENTS.
 - B. THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE BUILDING OFFICIAL, AND TO THE ENGINEER OR ARCHITECT OF RECORD. REPORTS SHALL INDICATE THAT WORK INSPECTED WAS DONE IN CONFORMANCE TO APPROVED CONSTRUCTION DOCUMENTS. DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION, THEN, IF UNCORRECTED, TO THE ENGINEER OR ARCHITECT OF RECORD AND THE BUILDING OFFICIAL.
 - C. UPON COMPLETION OF THE ASSIGNED WORK, THE SPECIAL INSPECTOR SHALL COMPLETE AND SIGN THE APPROPRIATE FORMS CERTIFYING THAT, TO THE BEST OF HIS KNOWLEDGE, THE WORK IS IN CONFORMANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS, AND THE APPLICABLE WORKMANSHIP PROVISIONS OF THE CODE.
5. DEFINITIONS:
 - A. "CONTINUOUS" SPECIAL INSPECTION: CONTINUOUS SPECIAL INSPECTION IS THE FULL TIME OBSERVATION OF THE WORK BY THE SPECIAL INSPECTOR PRESENT IN THE WORK AREA WHENEVER WORK IS BEING PERFORMED. PERFORM CONTINUOUS SPECIAL INSPECTION WHERE SPECIFIED FOR ITEMS AS INDICATED IN THE SPECIAL INSPECTION TABLES.
 - B. "PERIODIC" SPECIAL INSPECTION: PERIODIC SPECIAL INSPECTION IS THE INTERMITTENT OBSERVATION OF THE WORK BY A SPECIAL INSPECTOR PRESENT IN THE WORK AREA WHILE WORK IS BEING PERFORMED. THE INTERMITTENT OBSERVATION PERIODS SHALL BE: AT TIMES OF SIGNIFICANT WORK; RECURRENT OVER THE COMPLETE WORK PERIOD; AND TOTAL AT LEAST 25 PERCENT OF THE TOTAL WORK TIME FOR A GIVEN TASK. PERFORM PERIODIC SPECIAL INSPECTION WHERE SPECIFIED FOR ITEMS AS INDICATED IN THE SPECIAL INSPECTION TABLES.

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AWWU PLAN SET NO. XXXX

DESIGN DEVELOPMENT

VERIFY SCALE		THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING.		0" = 1"		IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.		FULL SIZE SCALE	
DATA	REVISION	DATE	DESCRIPTION	BY	DATE	DESCRIPTION	BY	DATE	DESCRIPTION
BASE	---		TELEPHONE	---					
TOPOGRAPHY	---		ELECTRIC	---					
PROFILE	---		CABLE TV	---					
SANITARY SEWER	---		TRAFFIC SIGNAL	---					
STORM SEWER	---		DESIGN	---					
WATER	---		QUANTITIES	---					
GAS	---		MUN. FINAL CHECK	---					
PLAN CHECK					REVISIONS				

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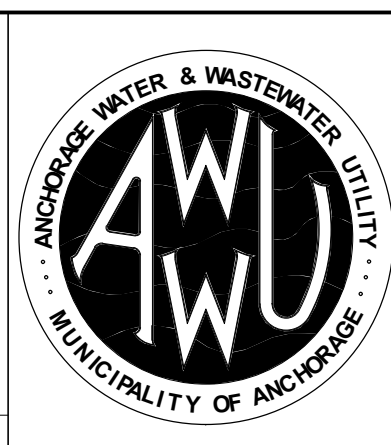
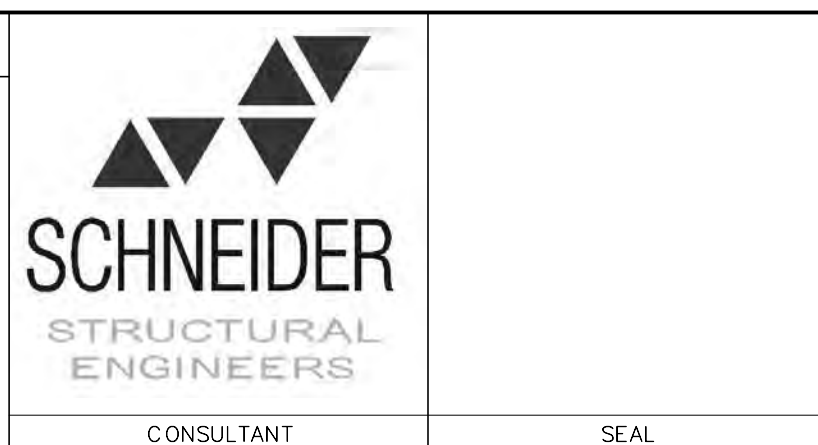
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 COMPANY: _____ DATE: _____

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 COMPANY: _____ BY: _____ TITLE: _____
 DATE: _____

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MUNICIPALITY OF ANCHORAGE
 WATER & WASTEWATER UTILITY
 KING STREET MAIN BUILDING UPGRADE
 STRUCTURAL

GENERAL STRUCTURAL NOTES

HORZ SCALE: AS NOTED	04-29-2016	GRID: 2431	S102 of
PROJ. ID.: 215163			SHEET

TABLE 2: REQUIRED STRUCTURAL SPECIAL INSPECTIONS (CONTINUED)						
SYSTEM OR MATERIAL	INSPECTION				REMARKS	
	IBC CODE REFERENCE	CODE OR STANDARD REFERENCE	FREQUENCY			
			CONTINUOUS	PERIODIC		
3. STRUCTURAL STEEL						
FABRICATION OF STRUCTURAL ELEMENTS	1704.2.5	AISC 360 N7		X	INSPECTION MAY BE WAIVED WHEN PERFORMED IN A PRE-APPROVED SHOP	
INSPECTION PRIOR TO WELDING						
WELDING PROCEDURE SPECIFICATIONS AVAILABLE	1705.2	AISC 360 N5.4-1	X		THE FABRICATOR OR ERECTOR, AS APPLICABLE, SHALL MAINTAIN A SYSTEM BY WHICH A WELDER WHO HAS WELDED A JOINT OR MEMBER CAN BE IDENTIFIED. STAMPS, IF USED, SHALL BE THE LOW-STRESS TYPE	
MANUFACTURER CERTIFICATIONS FOR WELDING CONSUMABLES AVAILABLE	1705.2		X			
MATERIAL IDENTIFICATION (TYPE/GRADE)				X		
WELDER IDENTIFICATION SYSTEM				X		
FIT-UP OF GROOVE WELDS (INCLUDING JOINT GEOMETRY)				X		
JOINT PREPERATION				X		
CLEANLINESS (CONDITION OF STEEL SURFACE)				X		
TRACKING (TACK WELD QUALITY AND LOCATION)				X		
BACKING TYPE AND FIT (IF APPLICABLE)				X		
CONFIGURATION AND FINISH OF ACCESS HOLES				X		
FIT-UP OF FILLET WELDS			X			
DIMENSIONS (ALIGNMENT, GAPS AT ROOT)			X			
CHECK WELDING EQUIPMENT			X			
INSPECTION DURING WELDING						
USE OF QUALIFIED WELDERS		AISC 360 N5.4-2		X		
CONTROL AND HANDLING OF WELDING CONSUMABLES				X		
PACKAGING				X		
EXPOSURE CONTROL				X		
NO WELDING OVER CRACKED TACK WELDS				X		
ENVIRONMENTAL CONDITIONS				X		

TABLE 1: REQUIRED GEOTECHNICAL SPECIAL INSPECTIONS					
SYSTEM OR MATERIAL	INSPECTION				REMARKS
	IBC CODE REFERENCE	CODE OR STANDARD REFERENCE	FREQUENCY		
			CONTINUOUS	PERIODIC	
1. SOILS					
VERIFY FOOTING BEARING CAPACITY AND SUBGRADE PREPARATION FOR FILLS	1705.6	GEOTECHNICAL REPORT		X	BY THE GEOTECHNICAL ENGINEER
FILL MATERIAL VERIFICATION			X		
FILL PLACEMENT & COMPACTION			X		
LIFT THICKNESS			X		

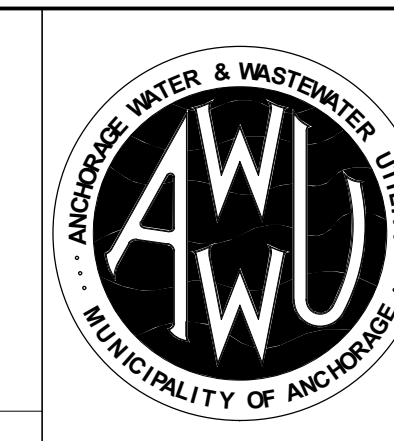
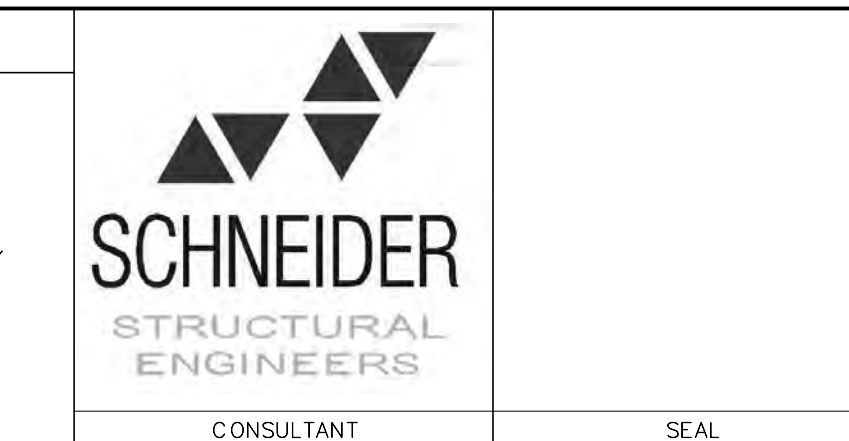
TABLE 2: REQUIRED STRUCTURAL SPECIAL INSPECTIONS					
SYSTEM OR MATERIAL	INSPECTION				REMARKS
	IBC CODE REFERENCE	CODE OR STANDARD REFERENCE	FREQUENCY		
			CONTINUOUS	PERIODIC	
1. FABRICATORS					
FABRICATED SYSTEMS AND ELEMENTS	1704.2.5			X	SPECIAL INSPECTIONS APPLY TO VERIFICATION OF DETAILED FABRICATION AND QUALITY CONTROL PROCEDURES, INCLUDING REVIEW FOR COMPLETENESS AND ADEQUACY RELATIVE TO THE CODE REQUIREMENTS. SPECIAL INSPECTIONS ARE NOT REQUIRED FOR WORK DONE ON THE PREMISES OF A FABRICATOR REGISTERED AND APPROVED TO PERFORM SUCH WORK WITHOUT SPECIAL INSPECTION. APPROVED FABRICATOR'S, UPON COMPLETION OF COMPONENT MANUFACTURING, SHALL SUBMIT A CERTIFICATE OF COMPLIANCE TO THE BUILDING OFFICIAL STATING THAT THE WORK WAS PERFORMED IN ACCORDANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS.
2. CONCRETE					
REINFORCING STEEL AND PRESTRESSING TENDON PLACEMENT	1705.3 1910.4	ACI 318 3.5 ACI 318 7.1.7.7		X	
PLACEMENT OF CAST-IN-PLACE ANCHOR BOLTS	1705.3 1908.5 1909.1	ACI 318 8.1.3 21.2.8		X	ALL BOLTS VISUALLY INSPECTED
VERIFY USE OF REQUIRED MIX DESIGN(S)	1705.3 1904.2 1910.2 1910.3	ACI 318, CHAPTER 4 ACI 318 5.2-5.4		X	
CONCRETE PLACEMENT	1705.3	ACI 318 5.9, 5.10	X		
CONCRETE/SHOTCRETE CURING	1705.3 1910.9	ACI 318 5.11-5.13		X	

VERIFY SCALE		THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING.		0" = 1"		IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.		FULL SIZE SCALE HORZ SCALE: VERT SCALE:	
DATA	DATE	DESCRIPTION	BY	DATE	DESCRIPTION	BY	DATE	DESCRIPTION	BY
BASE	---	TELEPHONE	---						
TOPOGRAPHY	---	ELECTRIC	---						
PROFILE	---	CABLE TV	---						
SANITARY SEWER	---	TRAFFIC SIGNAL	---						
STORM SEWER	---	DESIGN	---						
WATER	---	QUANTITIES	---						
GAS	---	MUN. FINAL CHECK	---						
PLAN CHECK					REVISIONS				

RECORD DRAWING		Note: To be filled out on original drawings upon project completion.	
1. DATA PROVIDED BY:	2. DATA TRANSFERRED BY:	3. 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.	
CONTRACTOR:	DATE:	DATA TRANSFER CHECKED BY:	DATE:
BY: _____	TITLE: _____	COMPANY: _____	BY: _____
DATE: _____		DATE: _____	

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SPECIAL INSPECTION TABLES			
HORZ SCALE: AS NOTED	04-29-2016	GRID: 2431	S103 of
PROJ. ID.: 215163			SHEET

PLOT DATE: 4/29/2016 4:08:16 PM
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 PLOT SCALE:

FILE PATH AND NAME: C:\Users\branch\Documents\215163-16_branch.rvt

TABLE 2: REQUIRED STRUCTURAL SPECIAL INSPECTIONS (CONTINUED)					
SYSTEM OR MATERIAL	INSPECTION				REMARKS
	IBC CODE REFERENCE	CODE OR STANDARD REFERENCE	FREQUENCY		
			CONTINUOUS	PERIODIC	
3. STRUCTURAL STEEL (CONTINUED)					
INSPECTION AFTER WELDING (CONTINUED)					
WELD SIZE		AISC 360 N5.4-3	X		WHEN WELDING OF DOUBLE PLATES, CONTINUITY PLATES OR STIFFENERS HAS BEEN PERFORMED IN THE K-AREA, VISUALLY INSPECT THE WEB K-AREA FOR CRACKS WITHIN 3 INCHES (75 MM) OF WELD
UNDERCUT			X		
POROSTY			X		
ARC STRIKES			X		
K-AREA			X		
BACKING REMOVED AND WELD TABS REMOVED (IF REQUIRED)			X		
REPAIR ACTIVITIES			X		
DOCUMENT ACCEPTANCE OR REJECTION OF WELDED JOINT MEMBER			X		
4. POST-INSTALLED ANCHORS					
INSTALLATION IN HARDENED CONCRETE AND COMPLETED MASONRY	1705.3 1909.1	ACI 318, 3.8.6, 8.1.3, 21.2.8 ICC EVALUATION REPORT		X	SPECIAL INSPECTIONS APPLY TO ANCHOR PRODUCT NAME, TYPE, AND DIMENSIONS, HOLE DIMENSIONS, COMPLIANCE WITH DRILL BIT REQUIREMENTS, CLEANLINESS OF THE HOLE AND ANCHOR, ADHESIVE EXPIRATION DATE, ANCHOR/ADHESIVE INSTALLATION, ANCHOR EMBEDMENT, AND TIGHTENING TORQUE

TABLE 2: REQUIRED STRUCTURAL SPECIAL INSPECTIONS (CONTINUED)					
SYSTEM OR MATERIAL	INSPECTION				REMARKS
	IBC CODE REFERENCE	CODE OR STANDARD REFERENCE	FREQUENCY		
			CONTINUOUS	PERIODIC	
3. STRUCTURAL STEEL (CONTINUED)					
INSPECTION DURING WELDING (CONTINUED)					
WIND SPEED WITHIN LIMITS		AISC 360 N5.4-2		X	
PRECIPITATION AND TEMPERATURE				X	
WPS FOLLOWING				X	
SETTINGS ON WELDING EQUIPMENT				X	
TRAVEL SPEED				X	
SELECTED WELDING MATERIALS				X	
SHIELDING GAS TYPE/FLOW RATE				X	
PREHEAT APPLIED				X	
INTERPASS TEMPERATURE MAINTAINED (MIN./MAX.)				X	
PROPER POSITIONS (F, V, H, OH)				X	
WELDING TECHNIQUES				X	
INTERPASS AND FINAL CLEANING				X	
EACH PASS WITHIN PROFILE LIMITATIONS				X	
EACH PASS MEETS QUALITY REQUIREMENTS				X	
INSPECTION AFTER WELDING					
WELDS CLEANED		AISC 360 N5.4-3	X		
SIZE, LENGTH AND LOCATION OF WELDS			X		
WELDS MEET VISUAL ACCEPTANCE CRITERIA			X		
CRACK PROHIBITION			X		
WELD/BASE-METAL FUSION			X		
CRATER CROSS SECTION			X		
WELD PROFILES			X		

VERIFY SCALE		THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING.		0" = 1"		IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.		FULL SIZE SCALE HORZ SCALE: VERT SCALE:	
DATA	DATE	DESCRIPTION	BY	DATE	DESCRIPTION	BY	DATE	DESCRIPTION	BY
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TOPOGRAPHY	---	ELECTRIC	---						
PROFILE	---	CABLE TV	---						
SANITARY SEWER	---	TRAFFIC SIGNAL	---						
STORM SEWER	---	DESIGN	---						
WATER	---	QUANTITIES	---						
GAS	---	MUN. FINAL CHECK	---						
PLAN CHECK					REVISIONS				

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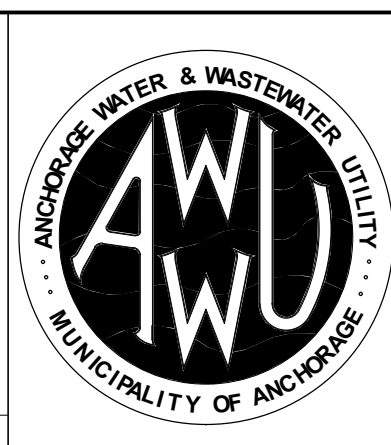
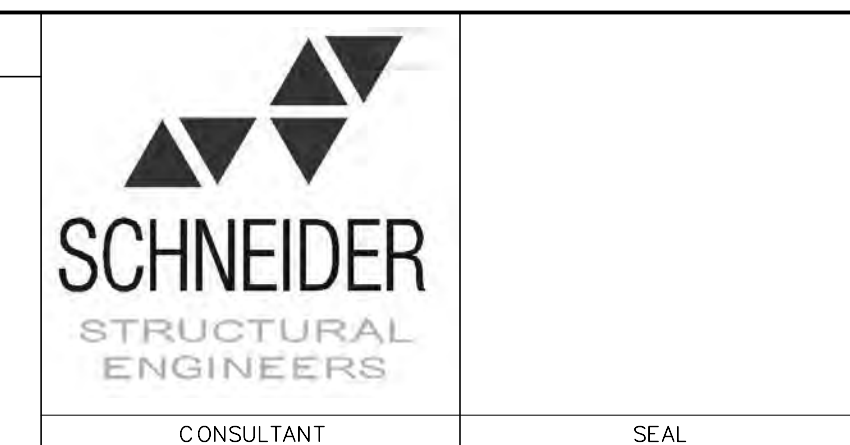
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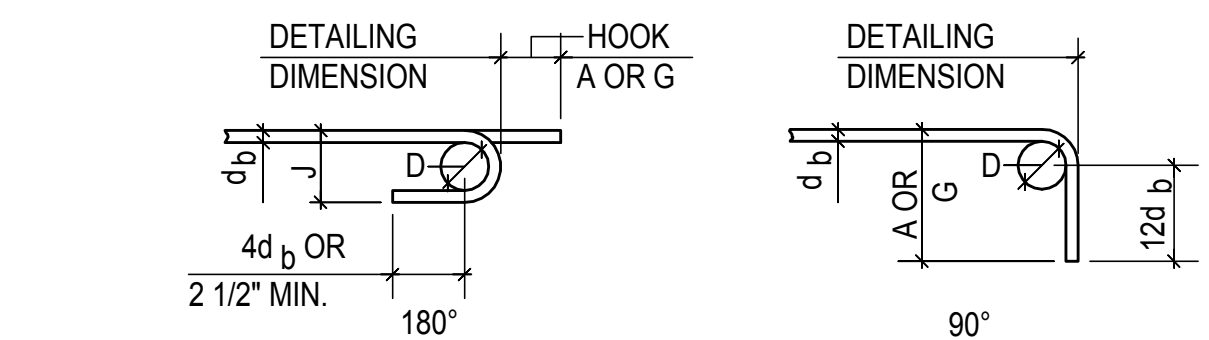
MUNICIPALITY OF ANCHORAGE
 WATER & WASTEWATER UTILITY
 KING STREET MAIN BUILDING UPGRADE
 STRUCTURAL

SPECIAL INSPECTION TABLES

HORZ SCALE: AS NOTED 04-29-2016 GRID: 2431
 VERT SCALE: AS NOTED
 PROJ. ID.: 215163 SHEET S104 of

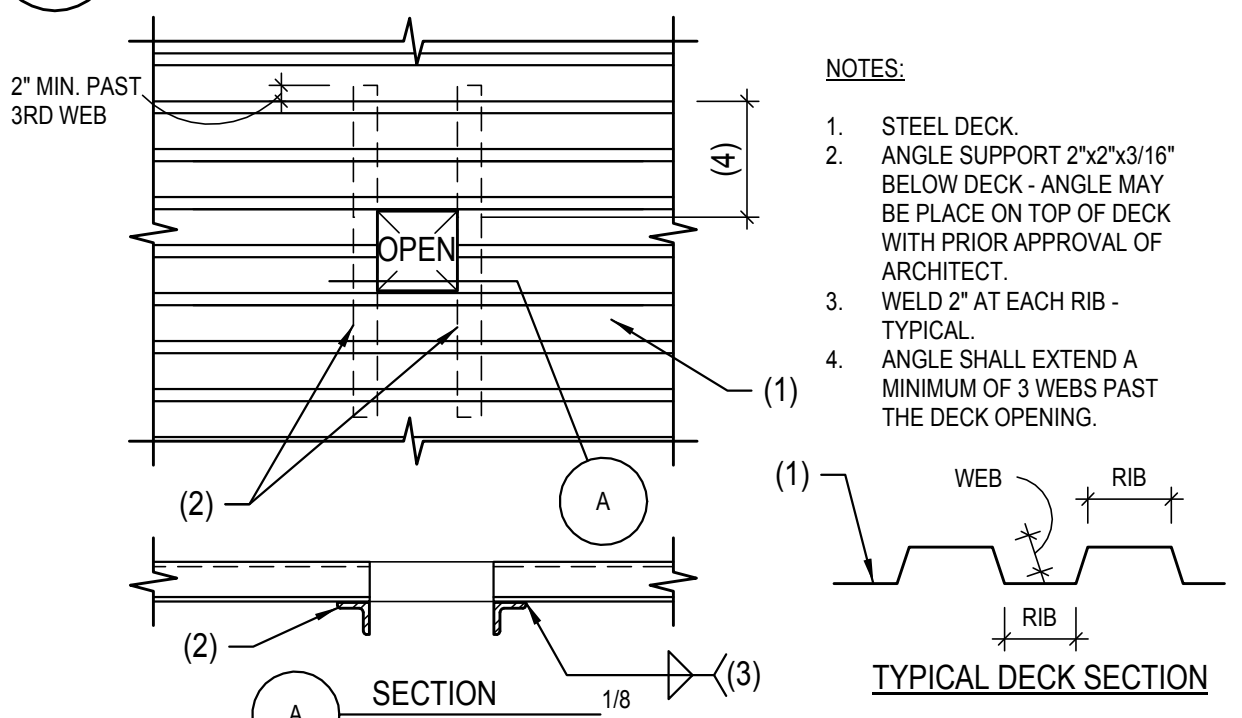
AWWU PLAN SET NO. XXXX

DESIGN DEVELOPMENT



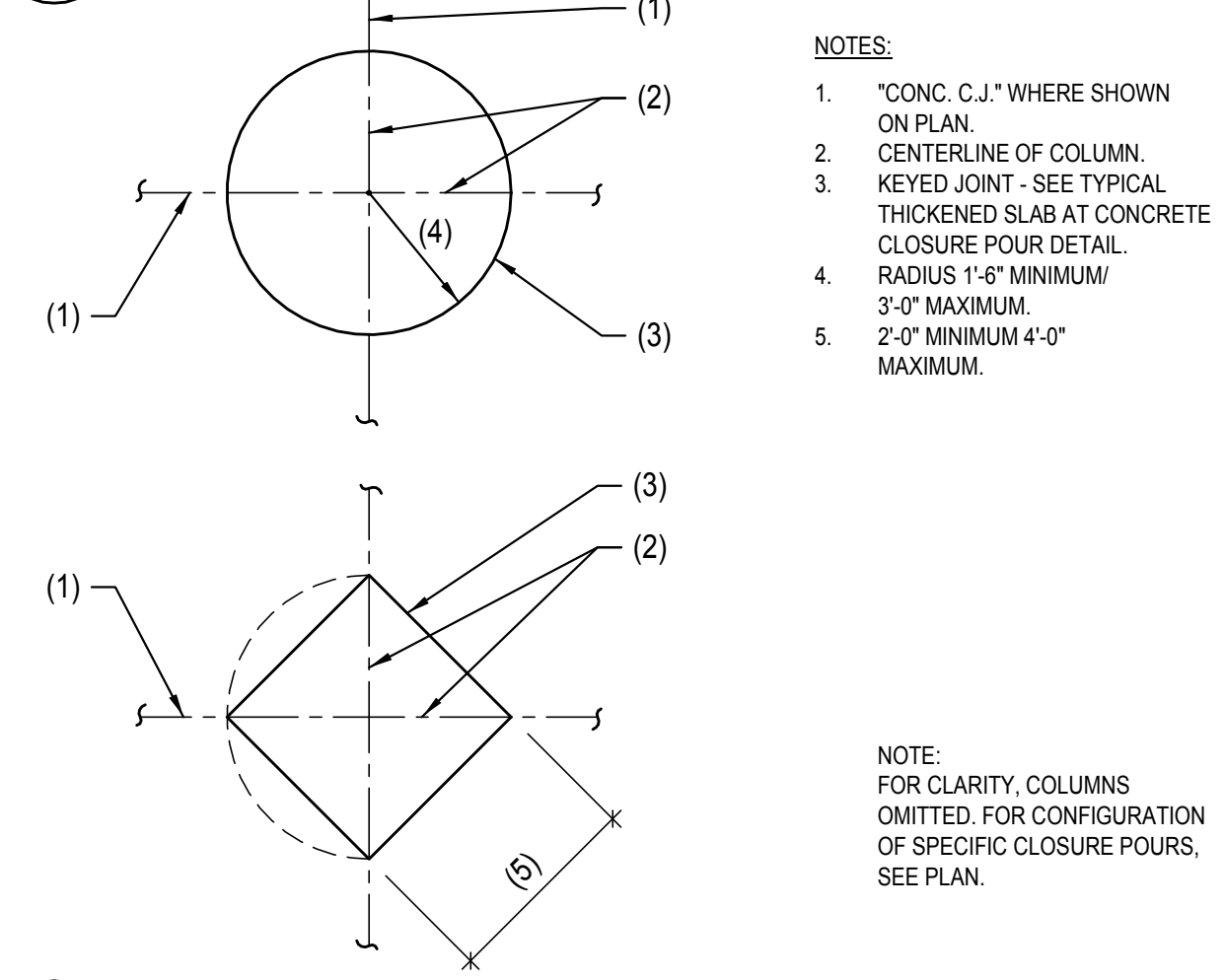
BAR SIZE	FINISHED BEND DIA. D, IN.	180-DEG HOOKS		90 DEG HOOKS
		A OR G, IN.	J, IN.	A OR G, IN.
#3	2.25	5	3	6
#4	3	6	4	8
#5	3.75	7	5	10
#6	4.5	8	6	12
#7	5.25	10	7	14
#8	6	11	8	16
#9	9.5	15	11.75	19
#10	10.75	17	13.25	22
#11	12	19	14.75	24
#14	18.25	27	21.75	31
#18	24	36	28.5	41

08 TYPICAL REINFORCING HOOK SCHEDULE
SCALE: NOT TO SCALE 200-045-TYP

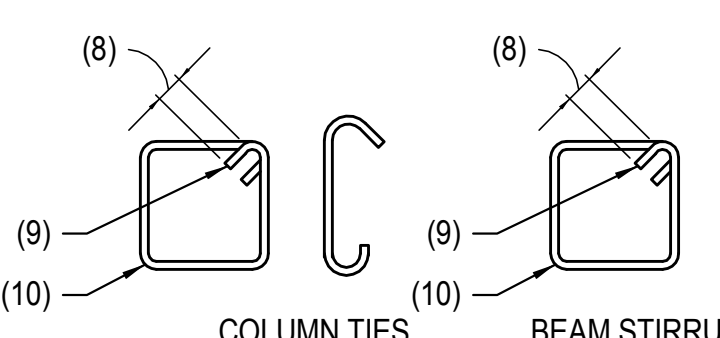
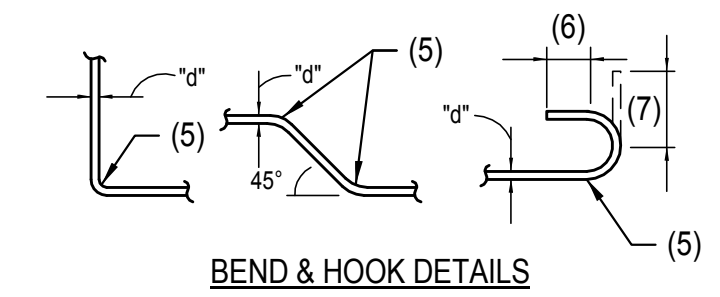
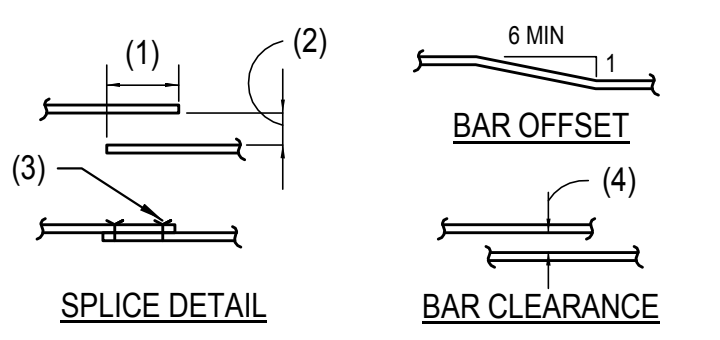


NOTE: AN OPENING WHICH CUTS ONE WEB (4" MAX DIMENSION PERPENDICULAR TO RIBS), MAY BE CUT IN DECK WITHOUT ANY SPECIAL REINFORCING.
AN OPENING WHICH CUTS TWO WEBS (8" MAX DIMENSION PERPENDICULAR TO RIBS), WILL REQUIRE ANGLE SUPPORT SHOWN ABOVE.
ANY OPENING WHICH CUTS MORE THAN TWO WEBS, FRAME OPENING WITH TYPICAL ANGLE SUPPORT FRAME, SEE TYPICAL OPENING IN STEEL DECK DETAIL.

09 TYPICAL SMALL OPENING IN STEEL DECK
SCALE: NOT TO SCALE 502-020-TYP

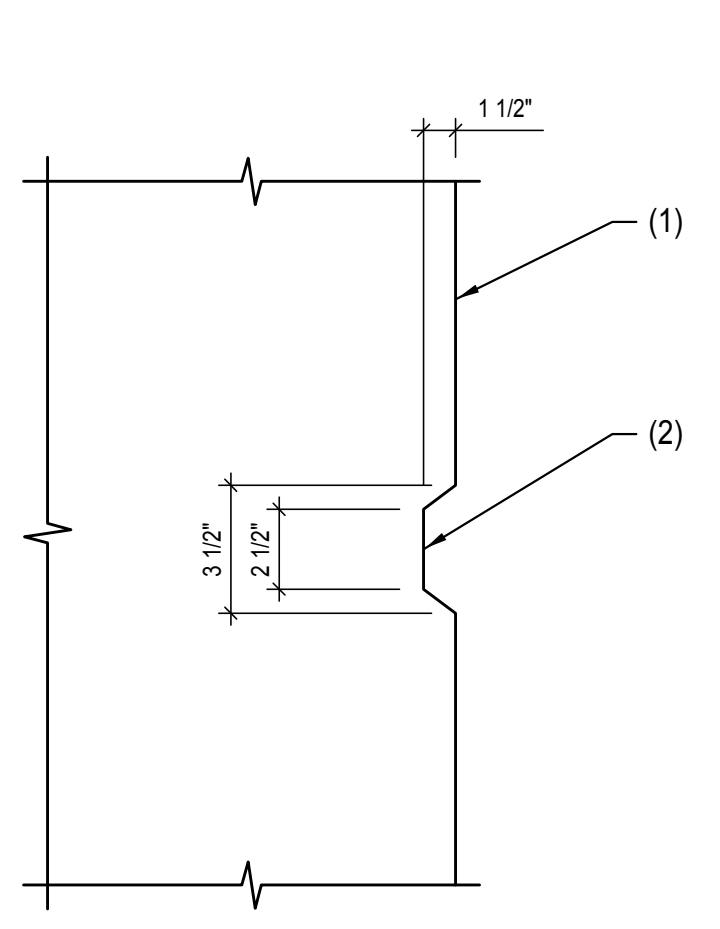


10 TYPICAL COLUMN CLOSURE POUR AT CONCRETE SLAB ON GRADE
SCALE: NOT TO SCALE 200-021-TYP



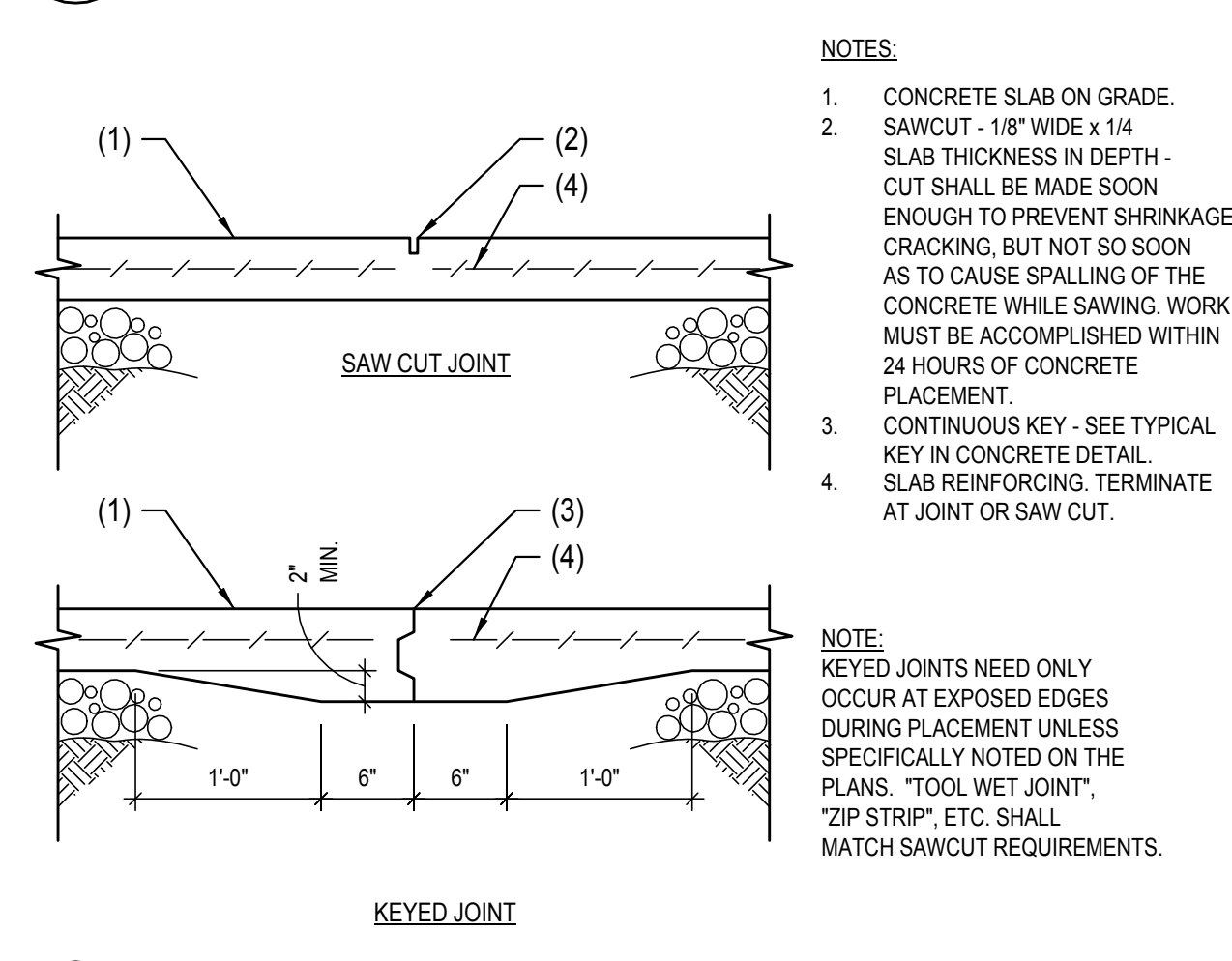
05 TYPICAL CONCRETE REINFORCING BAR DETAILS
SCALE: NOT TO SCALE 200-050-TYP

- NOTES:**
- LAP - SEE G.S.N.
 - MAXIMUM 1/6 LAP BUT NOT MORE THAN 6".
 - WIRE TIES.
 - 1d (1" MINIMUM).
 - RADIUS=3d FOR BARS NOT OVER #8; 4d FOR #9, #10 AND #11 BARS; 5d FOR #14 AND #18 BARS. 5d FOR ALL GRADE 40 BARS WITH 180 DEGREE HOOK.
 - 4d (2 1/2" MINIMUM).
 - 12d (90 DEGREE HOOK).
 - 6d.
 - 135 DEGREE BEND.
 - BEND AROUND 1 1/2" PIN FOR #3 BARS, BEND AROUND 2" PIN FOR #4 BARS, BEND AROUND 2 1/2" PIN FOR #5 BARS.



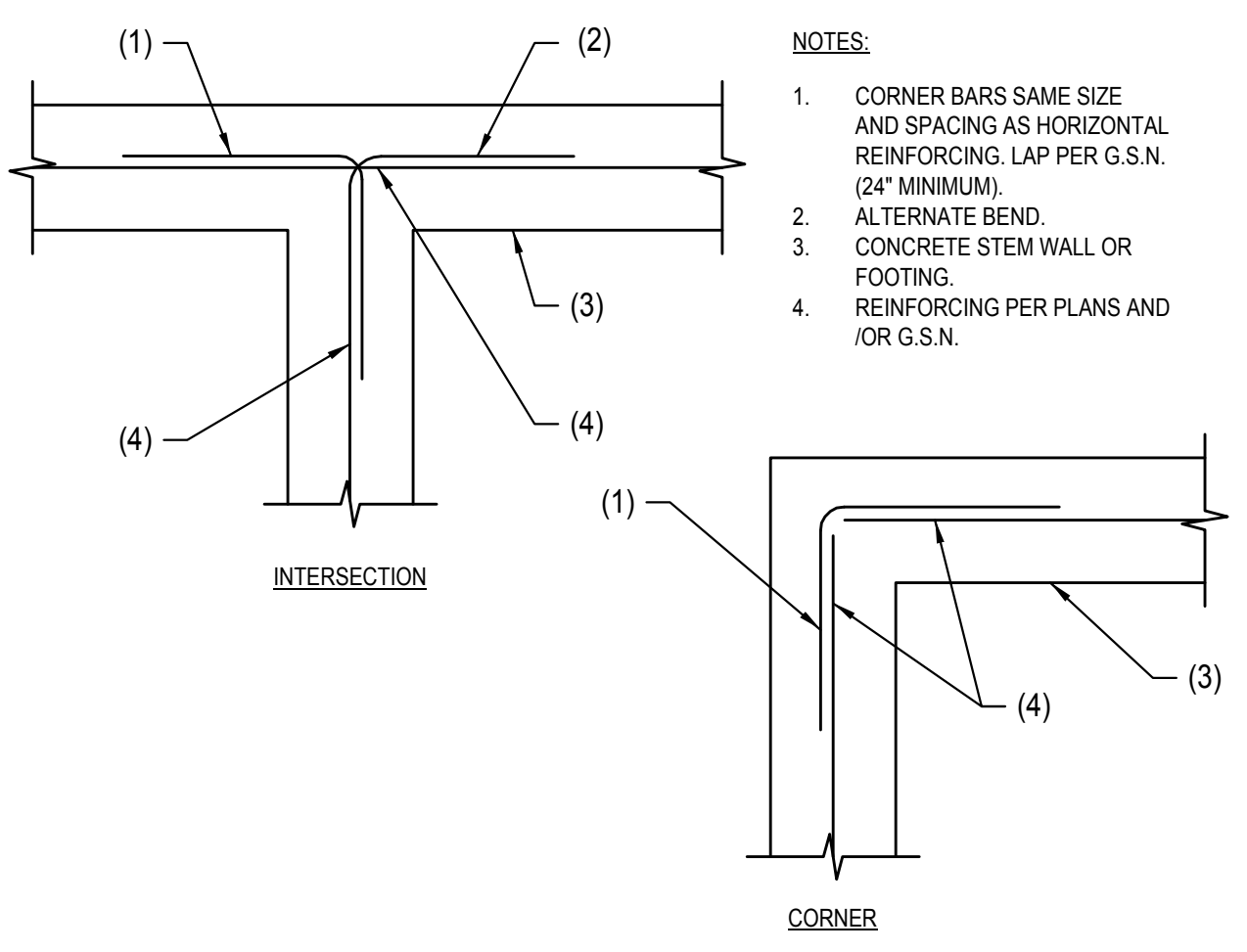
06 TYPICAL KEY IN CONCRETE
SCALE: NOT TO SCALE 215163-X-DETAILS-06

- NOTES:**
- CONCRETE.
 - KEYED JOINT - REMOVE FORM MATERIAL PRIOR TO PLACING ADJACENT CONCRETE.
- NOTE:**
A. ALL DIMENSIONS ARE ±1/2".
B. KEYS NOTED AS "INTERMITTENT" SHALL BE 12" LONG AT 24" O.C. U.N.O.



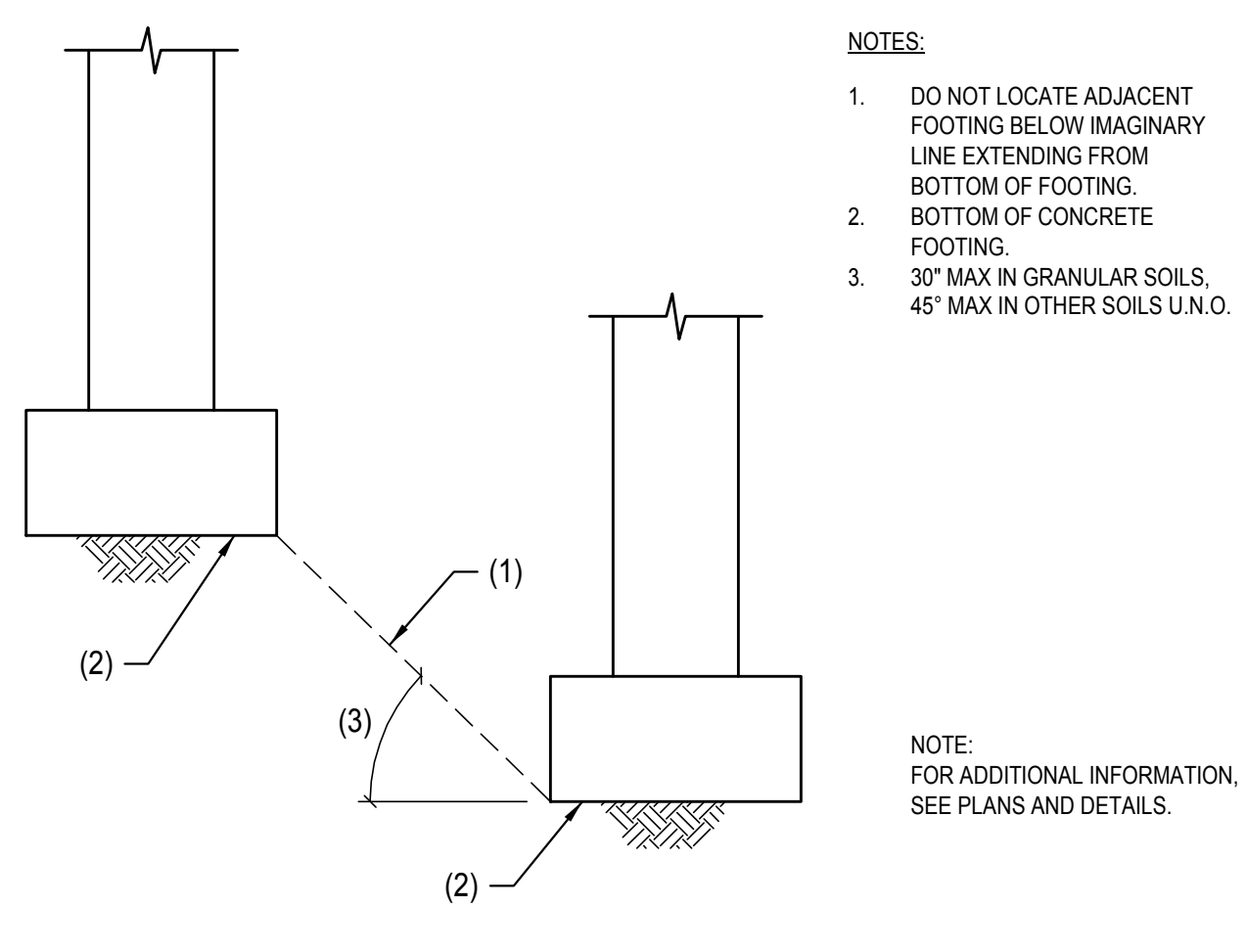
07 TYPICAL CONTROL JOINTS IN CONCRETE SLAB ON GRADE
SCALE: NOT TO SCALE 201-001-TYP

- NOTES:**
- CONCRETE SLAB ON GRADE. SAWCUT - 1/8" WIDE x 1/4" SLAB THICKNESS IN DEPTH - CUT SHALL BE MADE SOON ENOUGH TO PREVENT SHRINKAGE CRACKING, BUT NOT SO SOON AS TO CAUSE SPALLING OF THE CONCRETE WHILE SAWING. WORK MUST BE ACCOMPLISHED WITHIN 24 HOURS OF CONCRETE PLACEMENT.
 - CONTINUOUS KEY - SEE TYPICAL KEY IN CONCRETE DETAIL. SLAB REINFORCING TERMINATE AT JOINT OR SAW CUT.
- NOTE:** KEYED JOINTS NEED ONLY OCCUR AT EXPOSED EDGES DURING PLACEMENT UNLESS SPECIFICALLY NOTED ON THE PLANS. "TOOL WET JOINT", "ZIP STRIP", ETC. SHALL MATCH SAWCUT REQUIREMENTS.



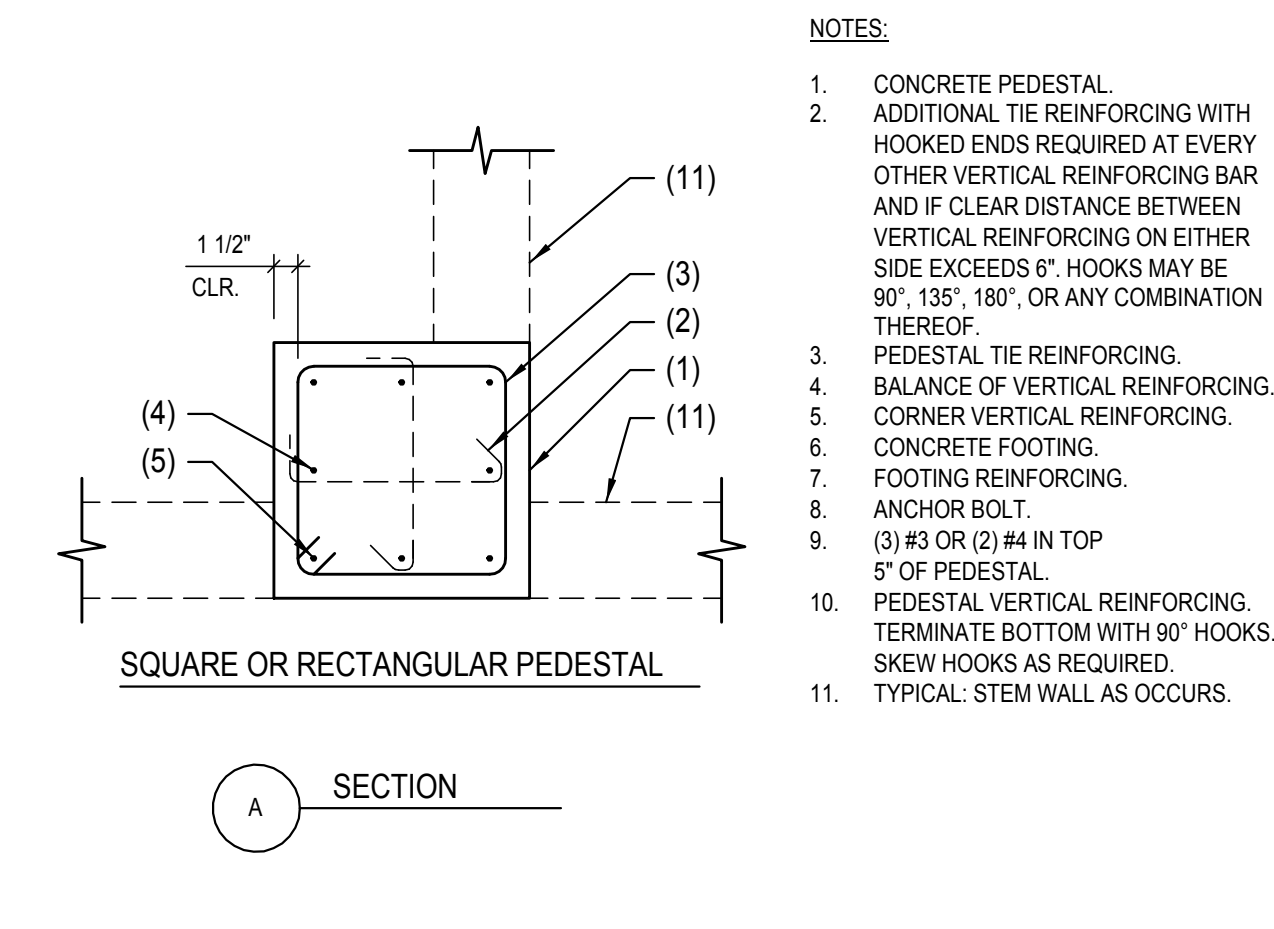
03 TYPICAL CORNER REINFORCING IN CONCRETE FOOTING AND/OR STEM WALL
SCALE: NOT TO SCALE 215163-X-DETAILS-03

- NOTES:**
- CORNER BARS SAME SIZE AND SPACING AS HORIZONTAL REINFORCING. LAP PER G.S.N. (24" MINIMUM).
 - ALTERNATE BEND.
 - CONCRETE STEM WALL OR FOOTING.
 - REINFORCING PER PLANS AND /OR G.S.N.



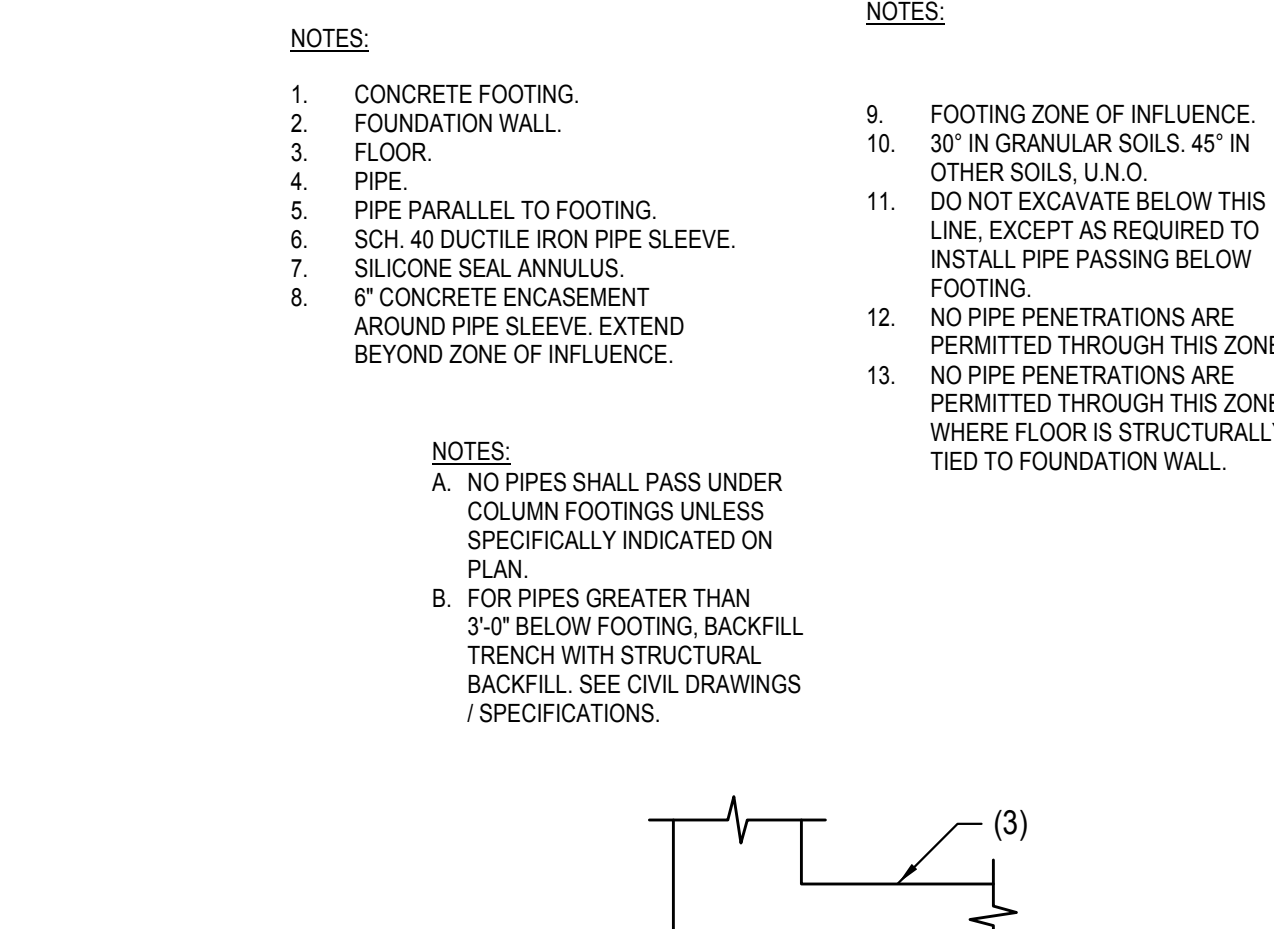
01 TYPICAL MAXIMUM SLOPE BETWEEN ADJACENT FOOTING
SCALE: NOT TO SCALE 200-004-TYP

- NOTES:**
- DO NOT LOCATE ADJACENT FOOTING BELOW IMAGINARY LINE EXTENDING FROM BOTTOM OF FOOTING.
 - BOTTOM OF CONCRETE FOOTING.
 - 30" MAX IN GRANULAR SOILS, 45" MAX IN OTHER SOILS U.N.O.
- NOTE:** FOR ADDITIONAL INFORMATION, SEE PLANS AND DETAILS.



04 TYPICAL CONCRETE PEDESTAL AT CONCRETE FOOTING
SCALE: NOT TO SCALE 215163-X-DETAILS-04

- NOTES:**
- CONCRETE PEDESTAL.
 - ADDITIONAL TIE REINFORCING WITH HOOKED ENDS REQUIRED AT EVERY OTHER VERTICAL REINFORCING BAR AND IF CLEAR DISTANCE BETWEEN VERTICAL REINFORCING ON EITHER SIDE EXCEEDS 6". HOOKS MAY BE 90°, 135°, 180°, OR ANY COMBINATION THEREOF.
 - PEDESTAL TIE REINFORCING.
 - BALANCE OF VERTICAL REINFORCING.
 - CORNER VERTICAL REINFORCING.
 - CONCRETE FOOTING.
 - FOOTING REINFORCING.
 - ANCHOR BOLT.
 - (3) #3 OR (2) #4 IN TOP 5" OF PEDESTAL.
 - PEDESTAL VERTICAL REINFORCING TERMINATE BOTTOM WITH 90° HOOKS. SKEW HOOKS AS REQUIRED.
 - TYPICAL: STEM WALL AS OCCURS.



02 TYPICAL PIPES AT FOOTING AND FOUNDATION WALL
SCALE: NOT TO SCALE 215163-X-DETAILS-02

- NOTES:**
- CONCRETE FOOTING.
 - FOUNDATION WALL.
 - FLOOR.
 - PIPE.
 - PIPE PARALLEL TO FOOTING.
 - SCH. 40 DUCTILE IRON PIPE SLEEVE.
 - SILICONE SEAL ANNULUS.
 - 6" CONCRETE ENCASEMENT AROUND PIPE SLEEVE. EXTEND BEYOND ZONE OF INFLUENCE.
 - FOOTING ZONE OF INFLUENCE.
 - 30" IN GRANULAR SOILS, 45" IN OTHER SOILS, U.N.O.
 - DO NOT EXCAVATE BELOW THIS LINE, EXCEPT AS REQUIRED TO INSTALL PIPE PASSING BELOW FOOTING.
 - NO PIPE PENETRATIONS ARE PERMITTED THROUGH THIS ZONE.
 - NO PIPE PENETRATIONS ARE PERMITTED THROUGH THIS ZONE WHERE FLOOR IS STRUCTURALLY TIED TO FOUNDATION WALL.
- NOTES:**
A. NO PIPES SHALL PASS UNDER COLUMN FOOTINGS UNLESS SPECIFICALLY INDICATED ON PLAN.
B. FOR PIPES GREATER THAN 3'-0" BELOW FOOTING, BACKFILL TRENCH WITH STRUCTURAL BACKFILL. SEE CIVIL DRAWINGS / SPECIFICATIONS.

VERIFY SCALE	THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING.	0" = 1"	IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.	FULL SIZE SCALE	HORIZ SCALE:	VERT SCALE:
BASE	---	TELEPHONE	---			
TOPOGRAPHY	---	ELECTRIC	---			
PROFILE	---	CABLE TV	---			
SANITARY SEWER	---	TRAFFIC SIGNAL	---			
STORM SEWER	---	DESIGN	---			
WATER	---	QUANTITIES	---			
GAS	---	MUN. FINAL CHECK	---			

RECORD DRAWING Note: To be filled out on original drawings upon project completion.

1. DATA PROVIDED BY:
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2. DATA TRANSFERRED BY:
COMPANY: _____ DATE: _____

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DATA TRANSFER CHECKED BY: _____
COMPANY: _____
BY: _____ TITLE: _____
DATE: _____

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SCHNEIDER STRUCTURAL ENGINEERS

CONSULTANT SEAL

MUNICIPALITY OF ANCHORAGE WATER & WASTEWATER UTILITY
KING STREET MAIN BUILDING UPGRADE STRUCTURAL

AWWU
MUNICIPALITY OF ANCHORAGE

TYPICAL DETAILS

HORIZ SCALE: AS NOTED
VERT SCALE: AS NOTED
PROJ. ID.: 215163

04-29-2016
GRID: 2431

S105 of

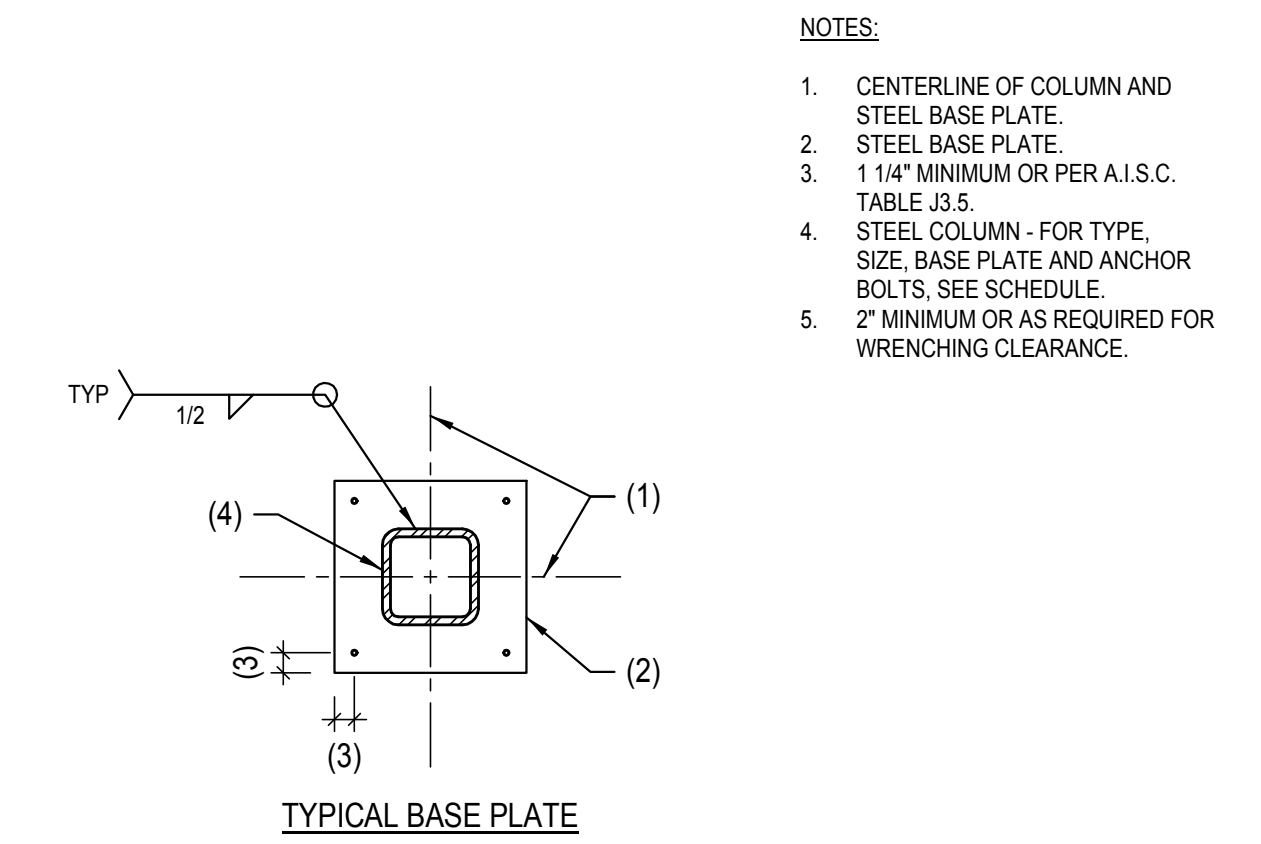
FOOTING (F) SCHEDULE					
MARK	DIMENSIONS			FOOTING REINFORCING	REMARKS
	HEIGHT	WIDTH	LENGTH		
F1	12"	1'-4"	CONT.	(2) #5 CONT.	---
F2	12"	9'-0"	9'-0"	#5 AT 12" O.C. EACH WAY, TOP AND BOTTOM	---
F3	12"	9'-0"	CONT.	#5 AT 12" O.C. EACH WAY, TOP AND BOTTOM	---

NOTES:
 1. FOR FOOTING BEARING DEPTH BELOW GRADE, SEE G.S.N. U.N.O.
 2. CENTER FOOTINGS UNDER WALLS OR COLUMNS U.N.O.

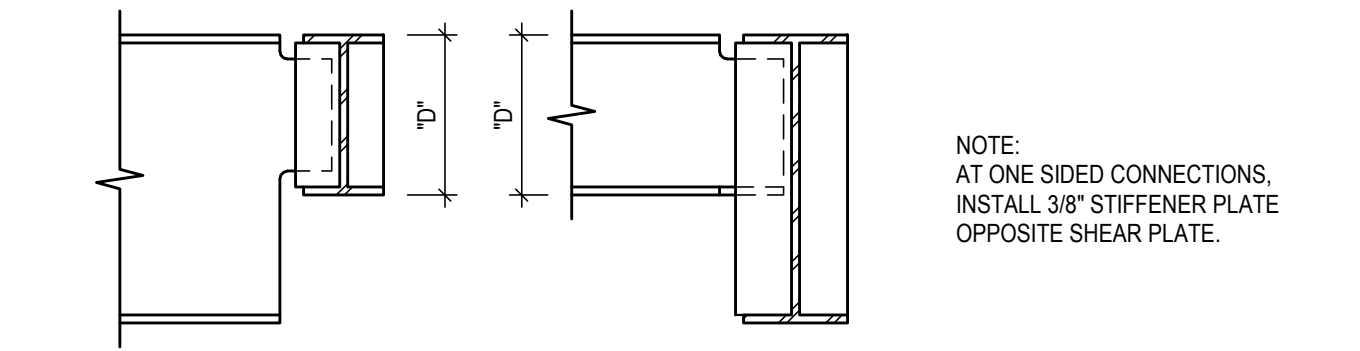
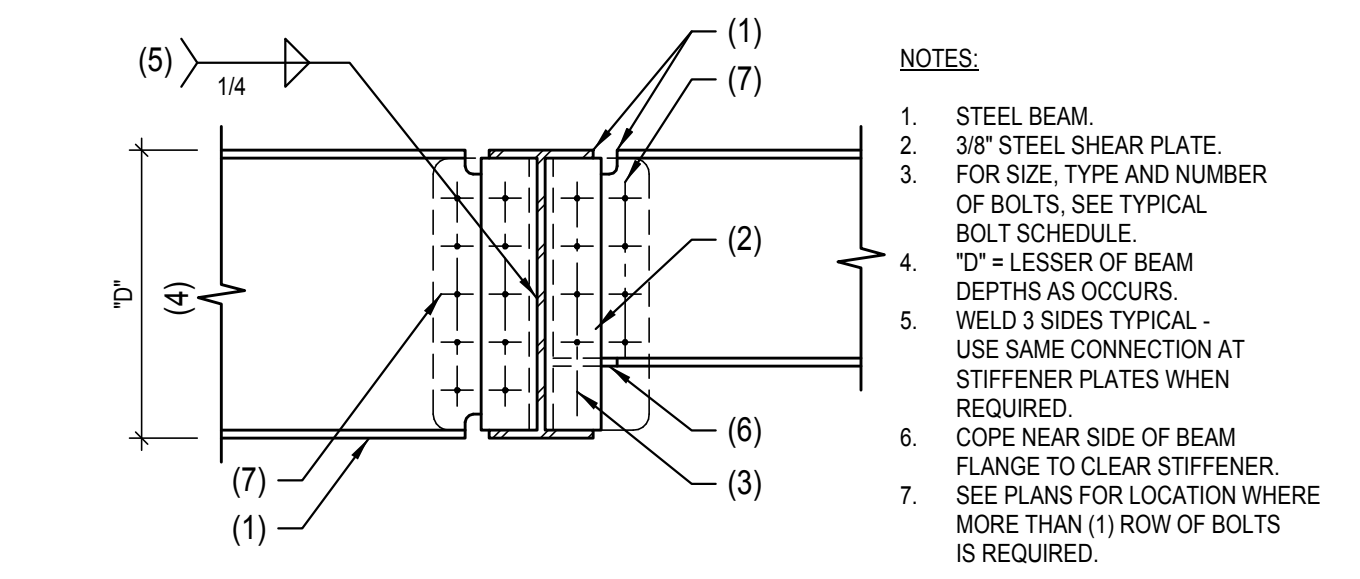
COLUMN (C) SCHEDULE			
MARK	SIZE	BASE CONNECTION	REMARKS
C1	HSS6x6x1/2	1 1/2" x 12" x 1'-0" BASE PLATE WITH (4) 1" DIA. ANCHOR RODS	---

CONCRETE PEDESTAL (CP) SCHEDULE								
MARK	PLAN DIMENSIONS				REINFORCING		TOP OF PEDESTAL ELEVATION	REMARKS
	A	a	B	b	VERTICAL	TIES		
CP1	24"	12"	24"	12"	(8) #6	#3 AT 12" O.C.	-1'-0"	---
CP2	72"	18"	24"	12"	(20) #6	#3 AT 12" O.C.	-1'-0"	---

NOTES:
 1. SEE TYPICAL DETAILS FOR REINFORCING INFORMATION.
 2. TOP OF PEDESTAL ELEVATION IS REFERENCED FROM TOP OF SLAB ELEVATION.
 3. "X" GRID REFERS TO PLAN EAST-WEST GRIDS, "Y" GRID REFERS TO PLAN NORTH-SOUTH GRIDS.



11 TYPICAL STEEL COLUMN BASE PLATE
 SCALE: NOT TO SCALE 215163-X-DETAILS-11



12 TYPICAL FRAMED BEAM TO BEAM CONNECTION
 SCALE: NOT TO SCALE 513-010-TYP

NOMINAL BEAM DEPTH "D"	NUMBER OF 3/4" DIA. ASTM, A325 BOLTS
UP TO 7"	2
8" - 11"	2
12" - 14"	3
15" - 17"	4
18" - 20"	5
21" - 23"	6
24" - 29"	7
30" - 32"	8
33" - 35"	9
36"	10

FRAMING NOTES:
 1. THE TYPICAL STEEL BEAM TO STEEL COLUMN OR STEEL BEAM TO STEEL BEAM CONNECTION CONSISTS OF 3/8" SINGLE SHEAR PLATES WITH 3/4" DIA. ASTM A325 BOLTS. USE 5/8" SHEAR PLATES WHERE "D" = 27" OR GREATER.
 2. ALL BOLTS SHALL BE INSTALLED USING SHORT SLOTTED HOLES IN EITHER THE BEAM WEB OR THE SHEAR PLATE PER LATEST AISC SPECIFICATIONS.
 3. CONNECTIONS REQUIRING DOUBLE ANGLES OR BENT PLATES WILL BE MARKED ON THE PLANS WITH AN ASTERISK (*). ALL DOUBLE ANGLES SHALL BE L4x4x1/4 AND ALL BENT PLATES SHALL BE 1/4" THICK - DETAIL PER THE LATEST AISC STEEL CONSTRUCTION MANUAL.

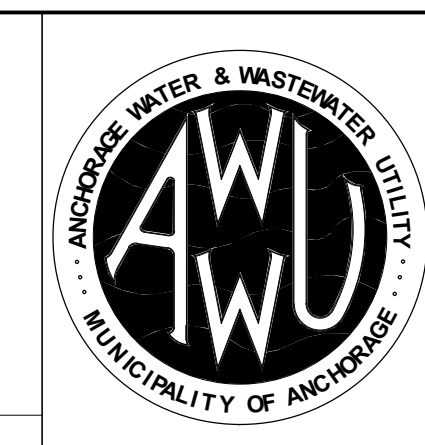
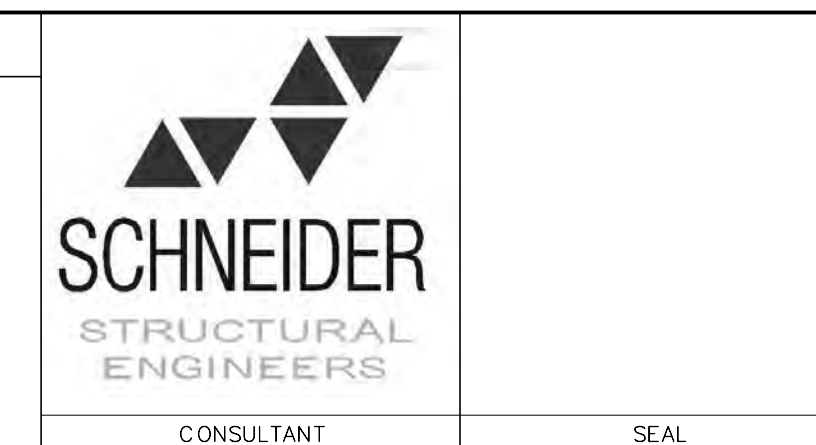
13 TYPICAL BOLT SCHEDULE FOR STEEL CONNECTIONS
 SCALE: NOT TO SCALE 512-010-TYP

VERIFY SCALE	THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING.	0" = 1"	IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.
DATA	DATE	DESCRIPTION	BY
BASE	---	TELEPHONE	---
TOPOGRAPHY	---	ELECTRIC	---
PROFILE	---	CABLE TV	---
SANITARY SEWER	---	TRAFFIC SIGNAL	---
STORM SEWER	---	DESIGN	---
WATER	---	QUANTITIES	---
GAS	---	MUN. FINAL CHECK	---
PLAN CHECK		REVISIONS	

RECORD DRAWING	
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CONTRACTOR: _____	DATA TRANSFER CHECKED BY: _____
BY: _____ TITLE: _____	COMPANY: _____
DATE: _____	BY: _____ TITLE: _____
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COMPANY: _____	
DATE: _____	

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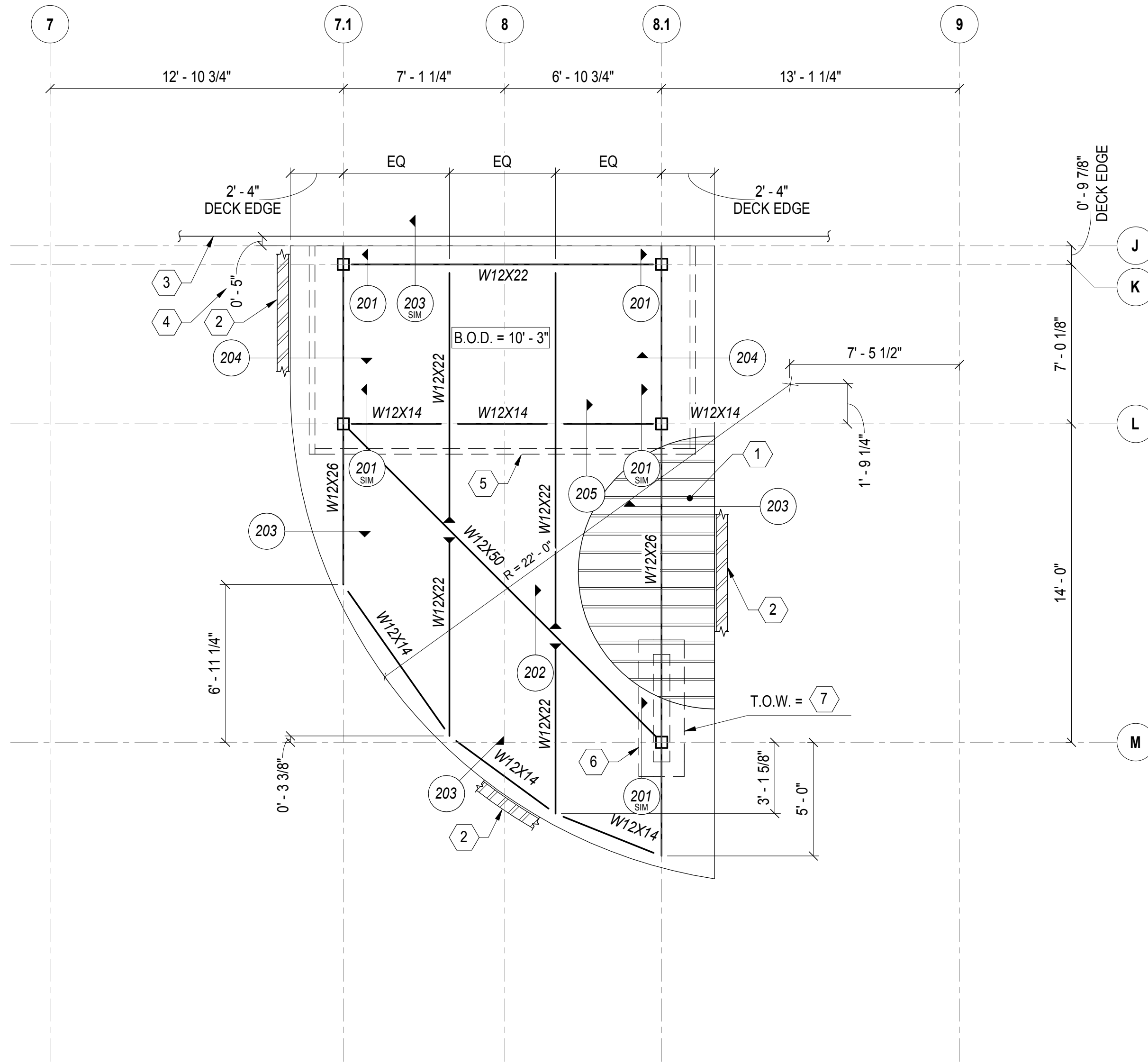
MUNICIPALITY OF ANCHORAGE WATER & WASTEWATER UTILITY			
KING STREET MAIN BUILDING UPGRADE STRUCTURAL			
TYPICAL DETAILS AND SCHEDULES			
HORZ SCALE: AS NOTED	04-29-2016	GRID: 2431	S106 of
PROJ. ID.: 215163			SHEET

FRAMING KEYNOTES:

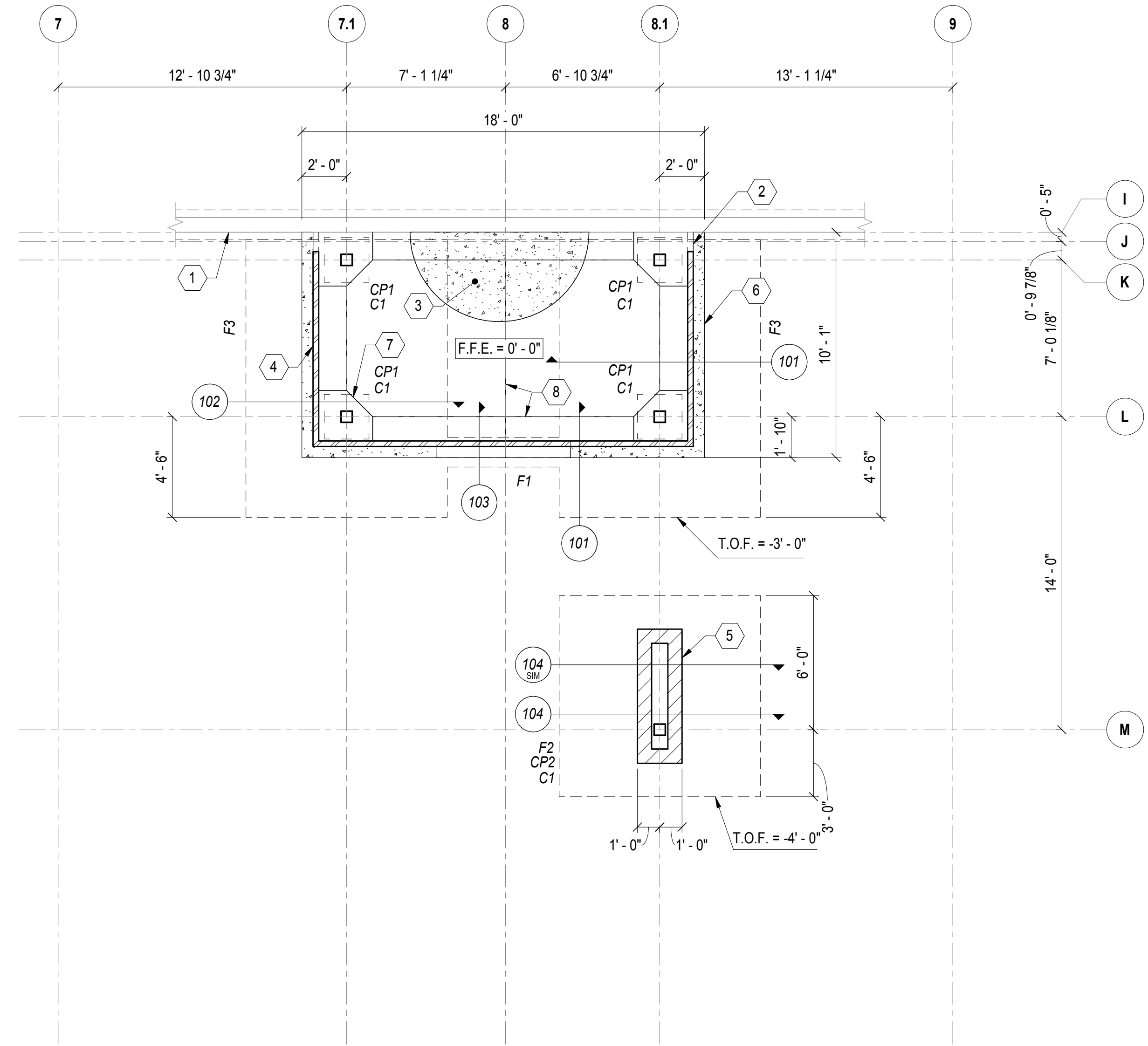
- 1 1/2" x 18 GA. ROOF DECK.
- TYPICAL: 600S162-43 STEEL STUD FRAMING AT 24" O.C. AT PARAPET.
- EXTERIOR FACE OF EXISTING BUILDING.
- SEISMIC JOINT.
- STORE FRONT/GLAZING ASSEMBLY AND SUPPORT FRAMING BELOW.
- MASONRY COLUMN BELOW.
- PER ARCHITECTURAL DRAWINGS.

FOUNDATION KEYNOTES:

- EXISTING STEM WALL AND FOOTING. DRILL AND EPOXY SET NEW STEM WALL AND FOOTING HORIZONTAL REINFORCING INTO EXISTING WITH 5" EMBEDMENT.
- SEISMIC JOINT.
- 5" CONCRETE SLAB ON GRADE. REINFORCE WITH #3 BARS AT 12" O.C., EACH WAY.
- STORE FRONT BY OTHERS.
- 8" MASONRY COLUMN REINFORCE WITH #5 BARS AT 16" O.C. VERT. AND 16" O.C. HORIZ.
- 6" CONCRETE STEM WALL REINFORCE WITH #5 BARS AT 18" O.C., EACH WAY.
- TYPICAL: CONCRETE CLOSURE POUR.
- TYPICAL: CONCRETE CONTROL JOINT.



2 CANOPY FRAMING PLAN
SCALE: 1/4" = 1'-0"



1 FOUNDATION PLAN
SCALE: 1/4" = 1'-0"

VERIFY SCALE		THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING.		IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.		FULL SIZE SCALE	
DATA	REVISION	DATE	DESCRIPTION	BY	DATE	DESCRIPTION	BY
BASE	---		TELEPHONE	---			
TOPOGRAPHY	---		ELECTRIC	---			
PROFILE	---		CABLE TV	---			
SANITARY SEWER	---		TRAFFIC SIGNAL	---			
STORM SEWER	---		DESIGN	---			
WATER	---		QUANTITIES	---			
GAS	---		MUN. FINAL CHECK	---			

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1. DATA PROVIDED BY: _____
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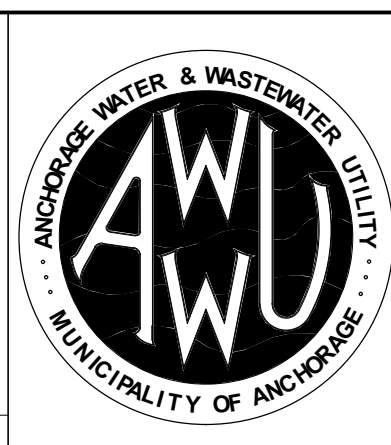
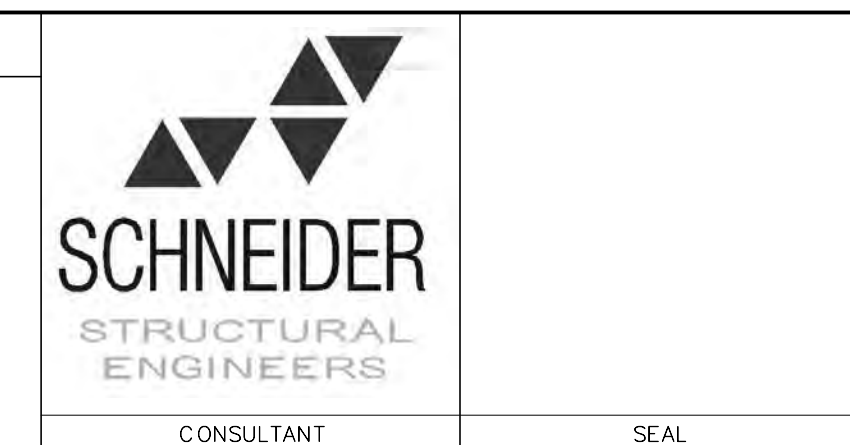
2. DATA TRANSFERRED BY: _____
COMPANY: _____
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MUNICIPALITY OF ANCHORAGE WATER & WASTEWATER UTILITY KING STREET MAIN BUILDING UPGRADE STRUCTURAL			
FOUNDATION AND CANOPY FRAMING PLANS			
HORZ SCALE: AS NOTED	04-29-2016	GRID: 2431	S200 of
PROJ. ID.: 215163			SHEET

PLOT DATE: 4/29/2016 4:08:17 PM

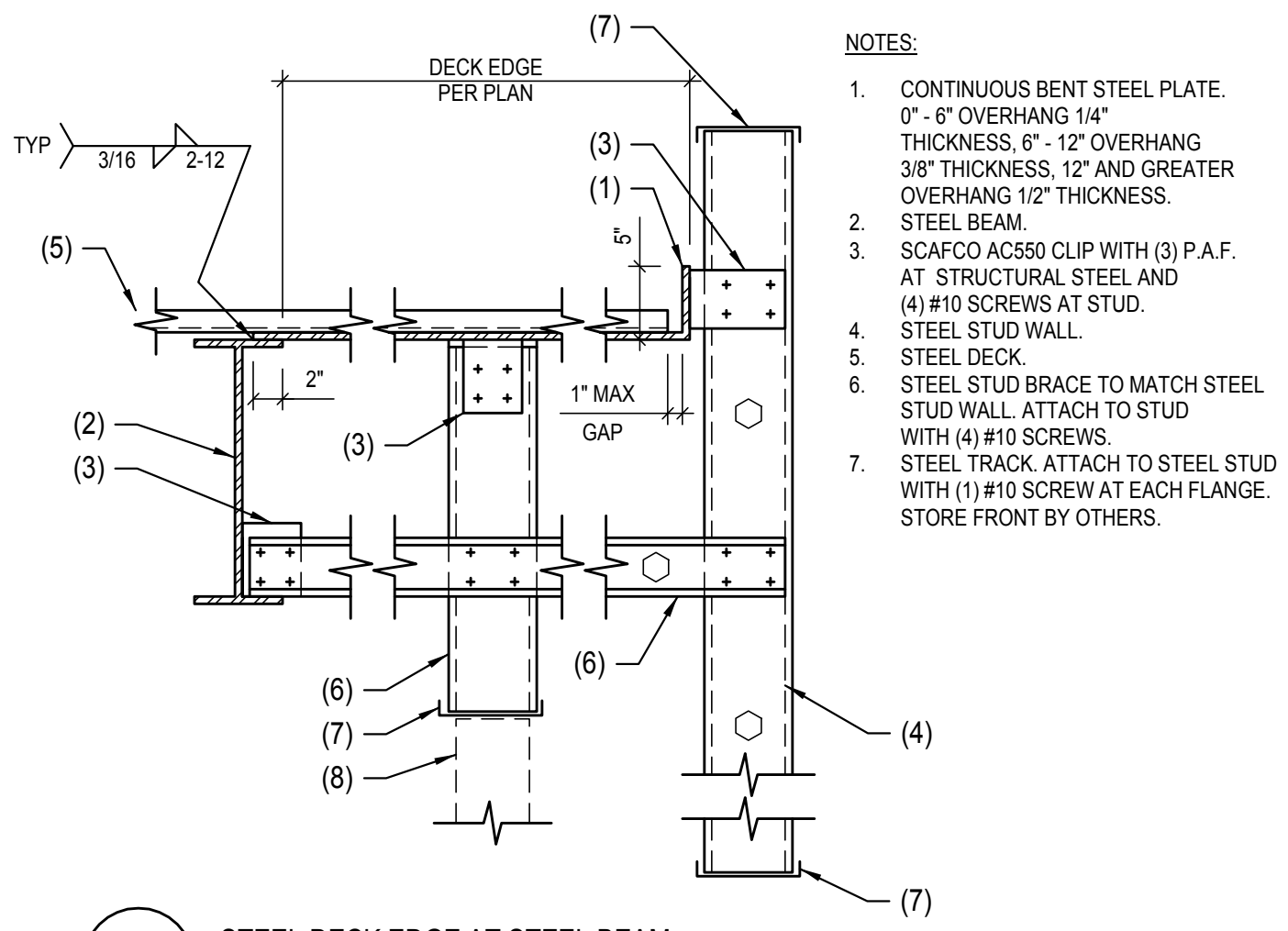
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PLOT SCALE:

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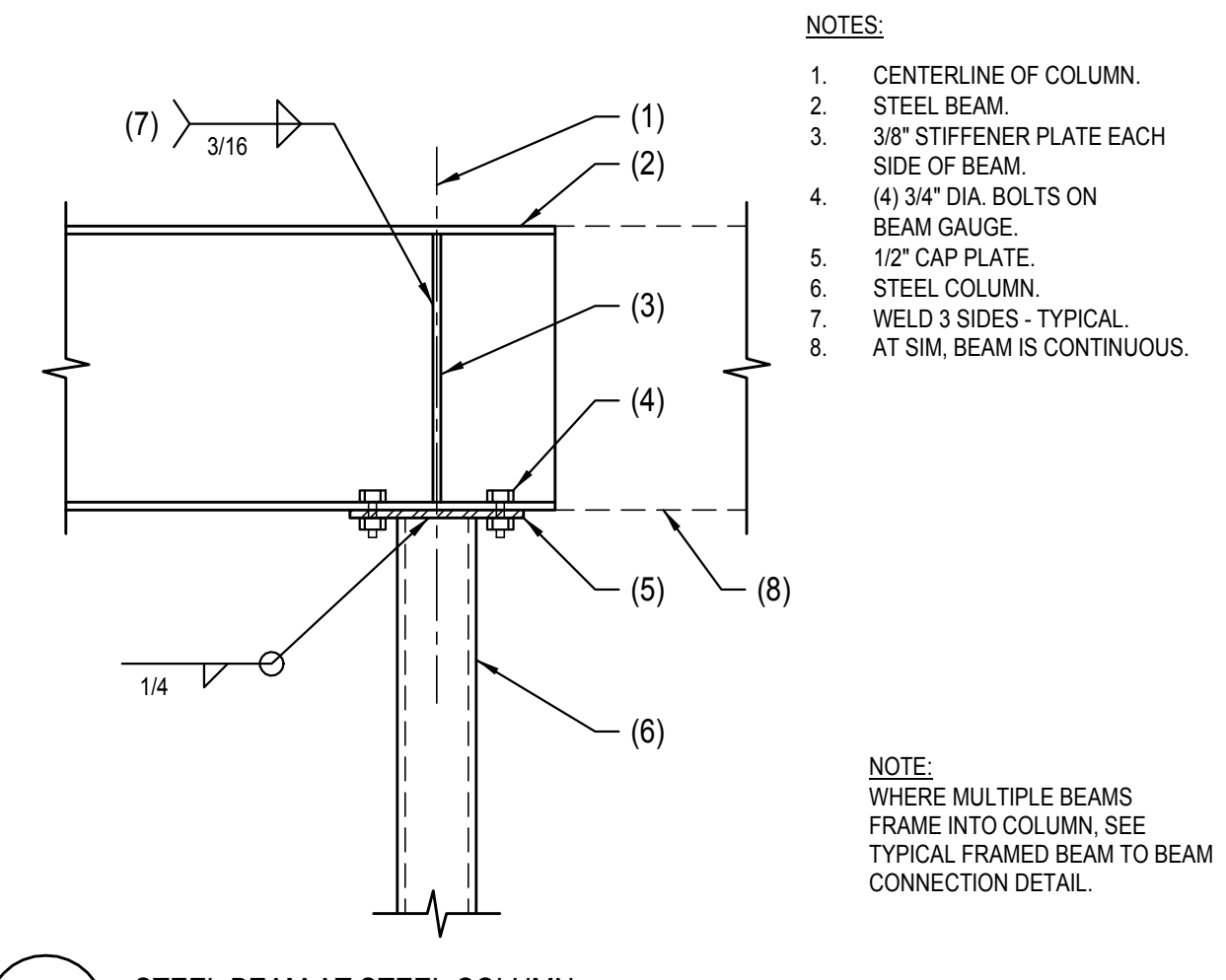
AWWU PLAN SET NO. XXXX

DESIGN DEVELOPMENT



204 STEEL DECK EDGE AT STEEL BEAM
SCALE: NOT TO SCALE 215163-X-DETAILS-204

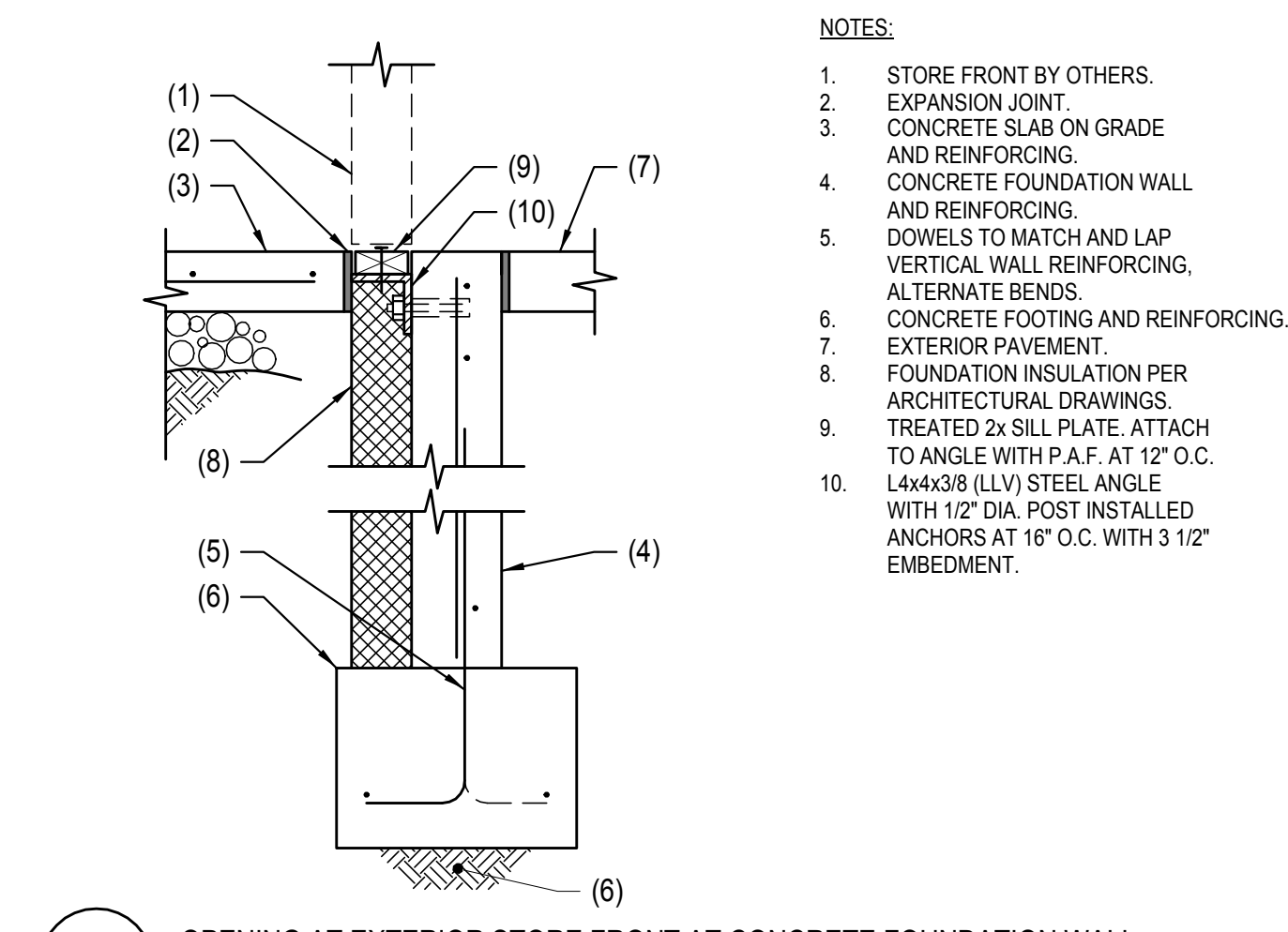
- NOTES:
1. CONTINUOUS BENT STEEL PLATE. 0" - 6" OVERHANG 1/4" THICKNESS, 6" - 12" OVERHANG 3/8" THICKNESS, 12" AND GREATER OVERHANG 1/2" THICKNESS.
 2. STEEL BEAM.
 3. SCAFCO AC550 CLIP WITH (3) P.A.F. AT STRUCTURAL STEEL AND (4) #10 SCREWS AT STUD.
 4. STEEL STUD WALL.
 5. STEEL DECK.
 6. STEEL STUD BRACE TO MATCH STEEL STUD WALL. ATTACH TO STUD WITH (4) #10 SCREWS.
 7. STEEL TRACK. ATTACH TO STEEL STUD WITH (1) #10 SCREW AT EACH FLANGE. STORE FRONT BY OTHERS.



201 STEEL BEAM AT STEEL COLUMN
SCALE: NOT TO SCALE 215163-X-DETAILS-201

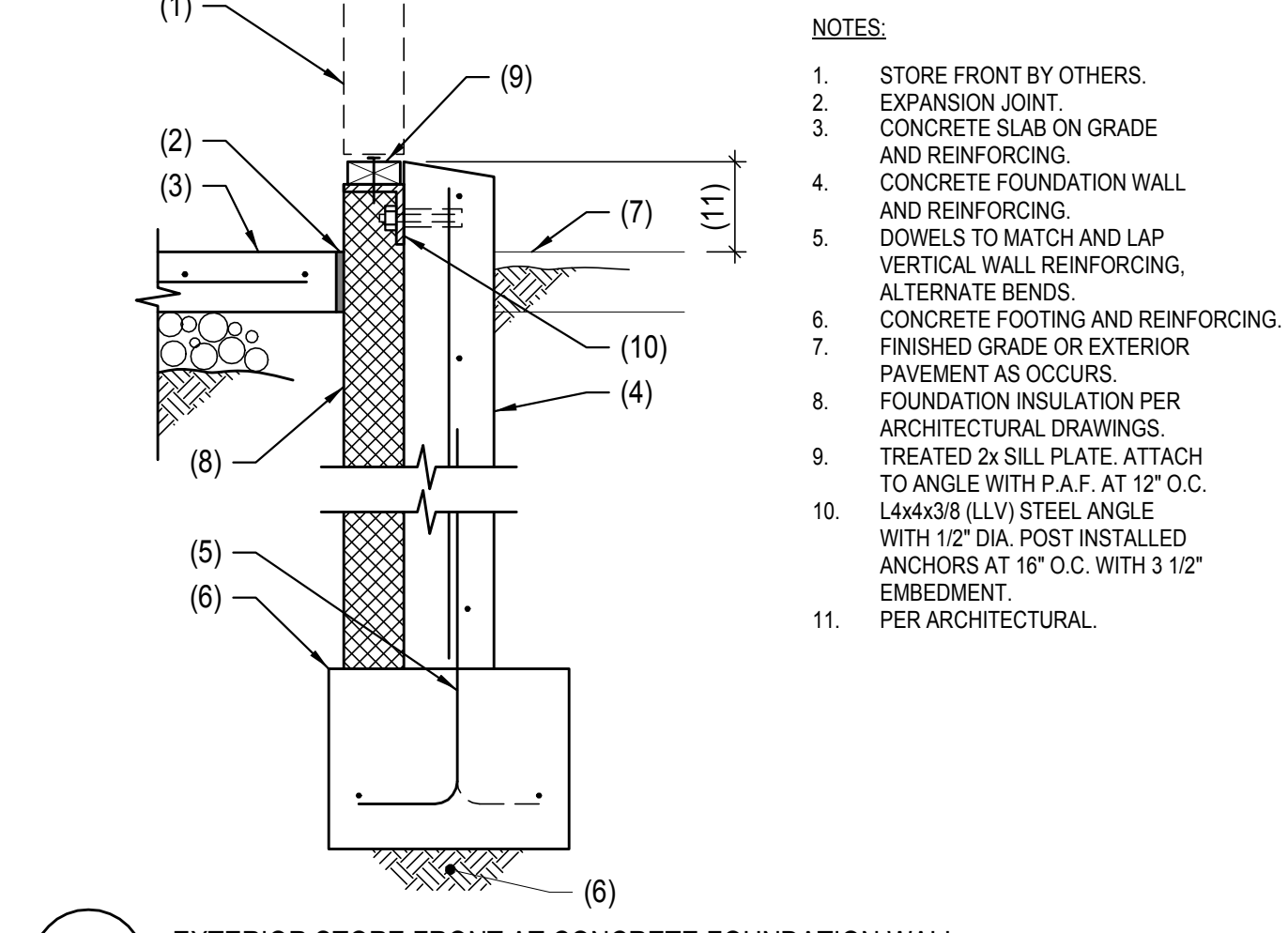
- NOTES:
1. CENTERLINE OF COLUMN.
 2. STEEL BEAM.
 3. 3/8" STIFFENER PLATE EACH SIDE OF BEAM.
 4. (4) 3/4" DIA. BOLTS ON BEAM GAUGE.
 5. 1/2" CAP PLATE.
 6. STEEL COLUMN.
 7. WELD 3 SIDES - TYPICAL.
 8. AT SIM, BEAM IS CONTINUOUS.

NOTE:
WHERE MULTIPLE BEAMS FRAME INTO COLUMN, SEE TYPICAL FRAMED BEAM TO BEAM CONNECTION DETAIL.



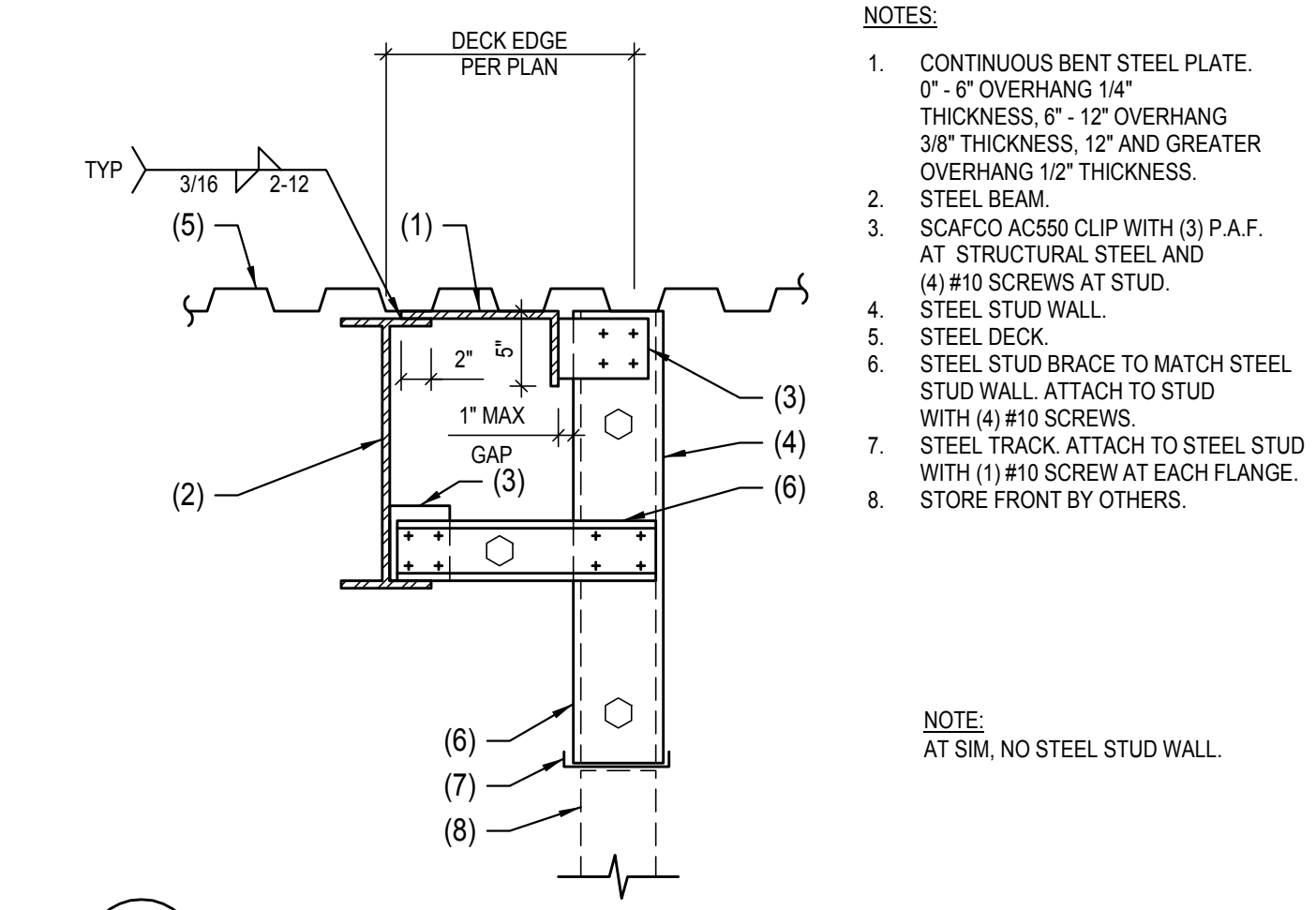
103 OPENING AT EXTERIOR STORE FRONT AT CONCRETE FOUNDATION WALL
SCALE: NOT TO SCALE 215163-X-DETAILS-103

- NOTES:
1. STORE FRONT BY OTHERS.
 2. EXPANSION JOINT.
 3. CONCRETE SLAB ON GRADE AND REINFORCING.
 4. CONCRETE FOUNDATION WALL AND REINFORCING.
 5. DOWELS TO MATCH AND LAP VERTICAL WALL REINFORCING. ALTERNATE BENDS.
 6. CONCRETE FOOTING AND REINFORCING.
 7. EXTERIOR PAVEMENT.
 8. FOUNDATION INSULATION PER ARCHITECTURAL DRAWINGS.
 9. TREATED 2x SILL PLATE. ATTACH TO ANGLE WITH P.A.F. AT 12" O.C.
 10. L4x3/8 (LLV) STEEL ANGLE WITH 1/2" DIA. POST INSTALLED ANCHORS AT 16" O.C. WITH 3 1/2" EMBEDMENT.



101 EXTERIOR STORE FRONT AT CONCRETE FOUNDATION WALL
SCALE: NOT TO SCALE 215163-X-DETAILS-101

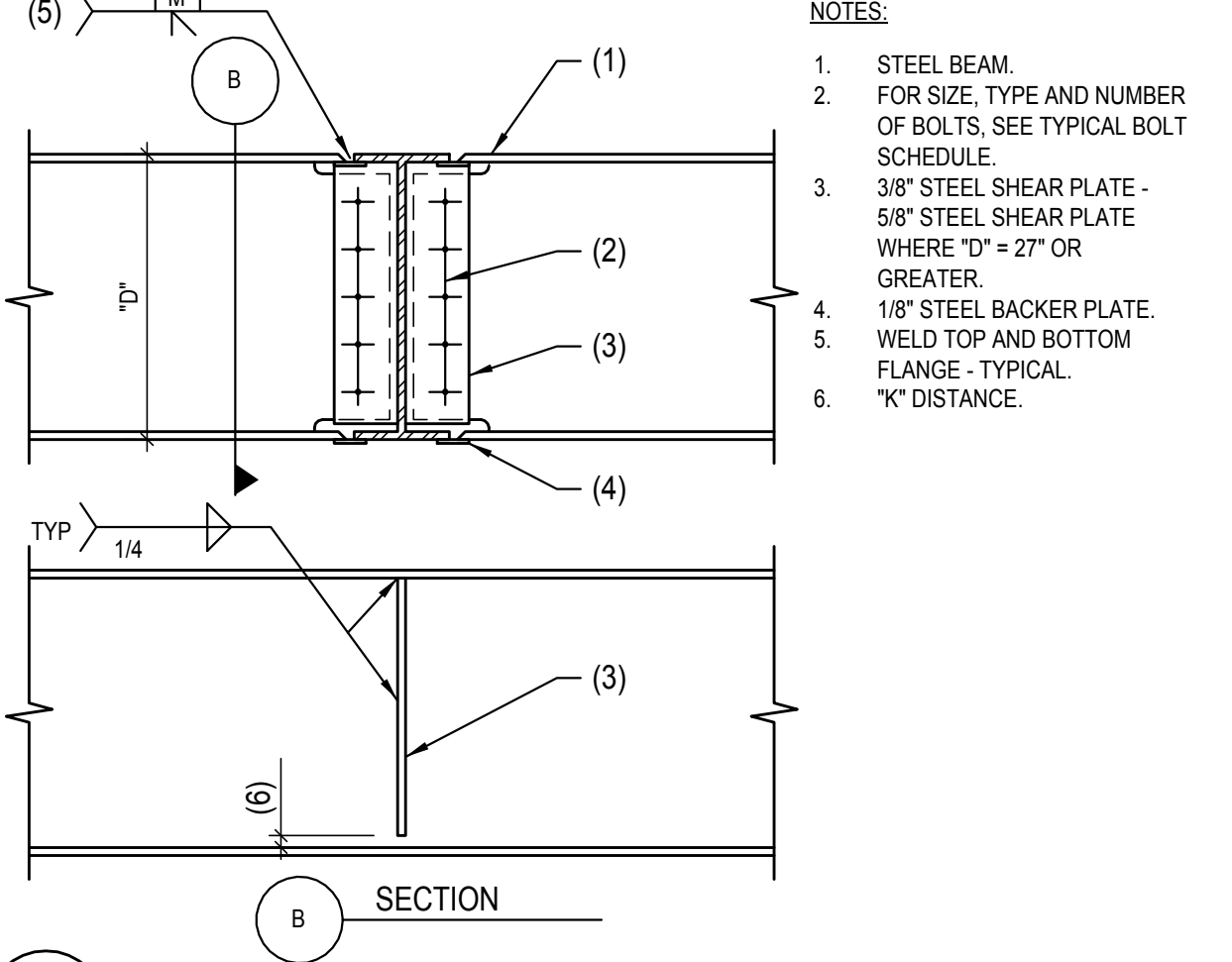
- NOTES:
1. STORE FRONT BY OTHERS.
 2. EXPANSION JOINT.
 3. CONCRETE SLAB ON GRADE AND REINFORCING.
 4. CONCRETE FOUNDATION WALL AND REINFORCING.
 5. DOWELS TO MATCH AND LAP VERTICAL WALL REINFORCING. ALTERNATE BENDS.
 6. CONCRETE FOOTING AND REINFORCING.
 7. FINISHED GRADE OR EXTERIOR PAVEMENT AS OCCURS.
 8. FOUNDATION INSULATION PER ARCHITECTURAL DRAWINGS.
 9. TREATED 2x SILL PLATE. ATTACH TO ANGLE WITH P.A.F. AT 12" O.C.
 10. L4x3/8 (LLV) STEEL ANGLE WITH 1/2" DIA. POST INSTALLED ANCHORS AT 16" O.C. WITH 3 1/2" EMBEDMENT.
 11. PER ARCHITECTURAL.



205 STEEL DECK EDGE AT STEEL BEAM
SCALE: NOT TO SCALE 215163-X-DETAILS-205

- NOTES:
1. CONTINUOUS BENT STEEL PLATE. 0" - 6" OVERHANG 1/4" THICKNESS, 6" - 12" OVERHANG 3/8" THICKNESS, 12" AND GREATER OVERHANG 1/2" THICKNESS.
 2. STEEL BEAM.
 3. SCAFCO AC550 CLIP WITH (3) P.A.F. AT STRUCTURAL STEEL AND (4) #10 SCREWS AT STUD.
 4. STEEL STUD WALL.
 5. STEEL DECK.
 6. STEEL STUD BRACE TO MATCH STEEL STUD WALL. ATTACH TO STUD WITH (4) #10 SCREWS.
 7. STEEL TRACK. ATTACH TO STEEL STUD WITH (1) #10 SCREW AT EACH FLANGE.
 8. STORE FRONT BY OTHERS.

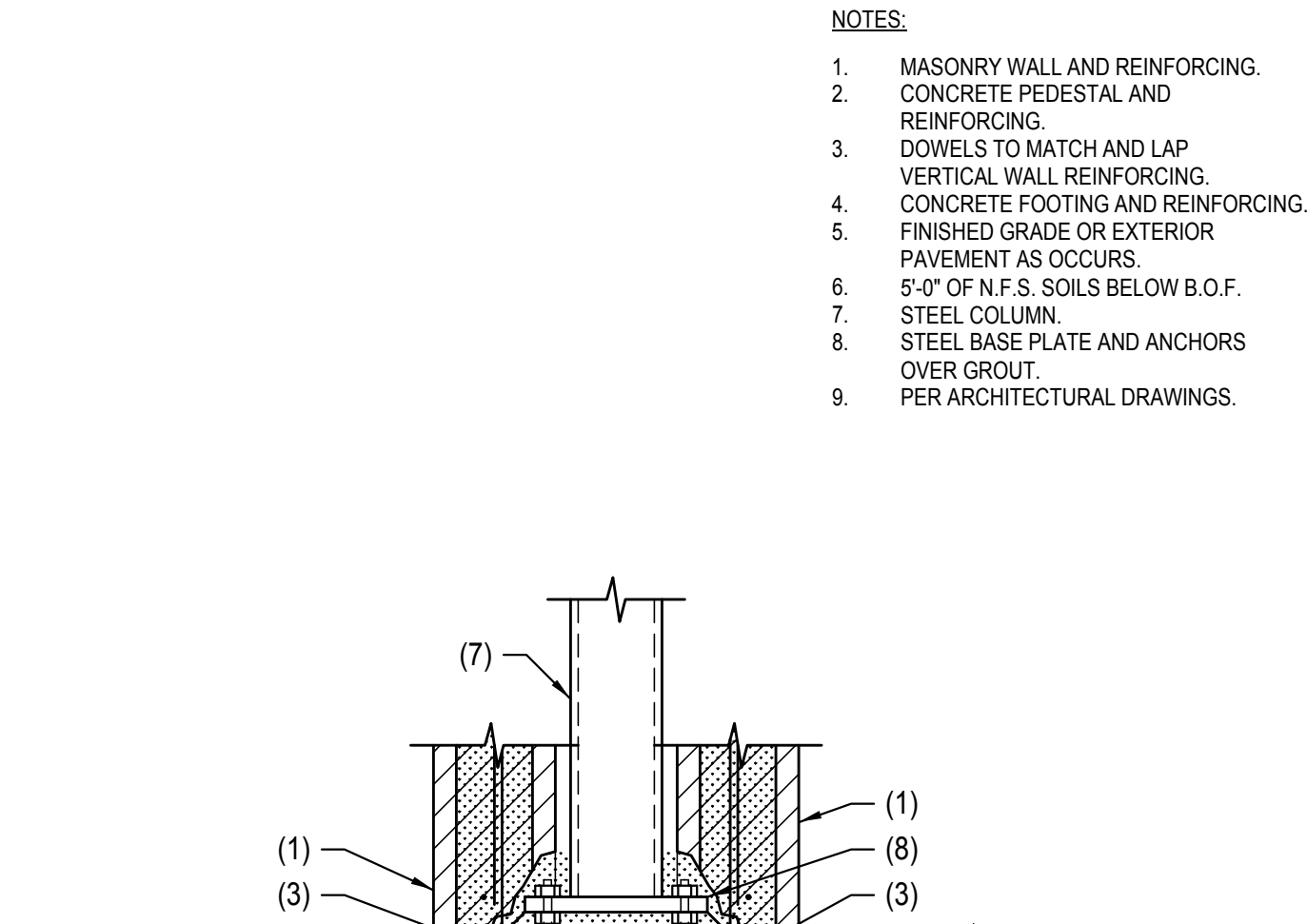
NOTE:
AT SIM, NO STEEL STUD WALL.



202 TYPICAL MOMENT CONNECTION - WIDE FLANGE BEAM TO BEAM
SCALE: NOT TO SCALE 513-050

- NOTES:
1. STEEL BEAM.
 2. FOR SIZE, TYPE AND NUMBER OF BOLTS, SEE TYPICAL BOLT SCHEDULE.
 3. 3/8" STEEL SHEAR PLATE - 5/8" STEEL SHEAR PLATE WHERE "D" = 27" OR GREATER.
 4. 1/8" STEEL BACKER PLATE.
 5. WELD TOP AND BOTTOM FLANGE - TYPICAL.
 6. "K" DISTANCE.

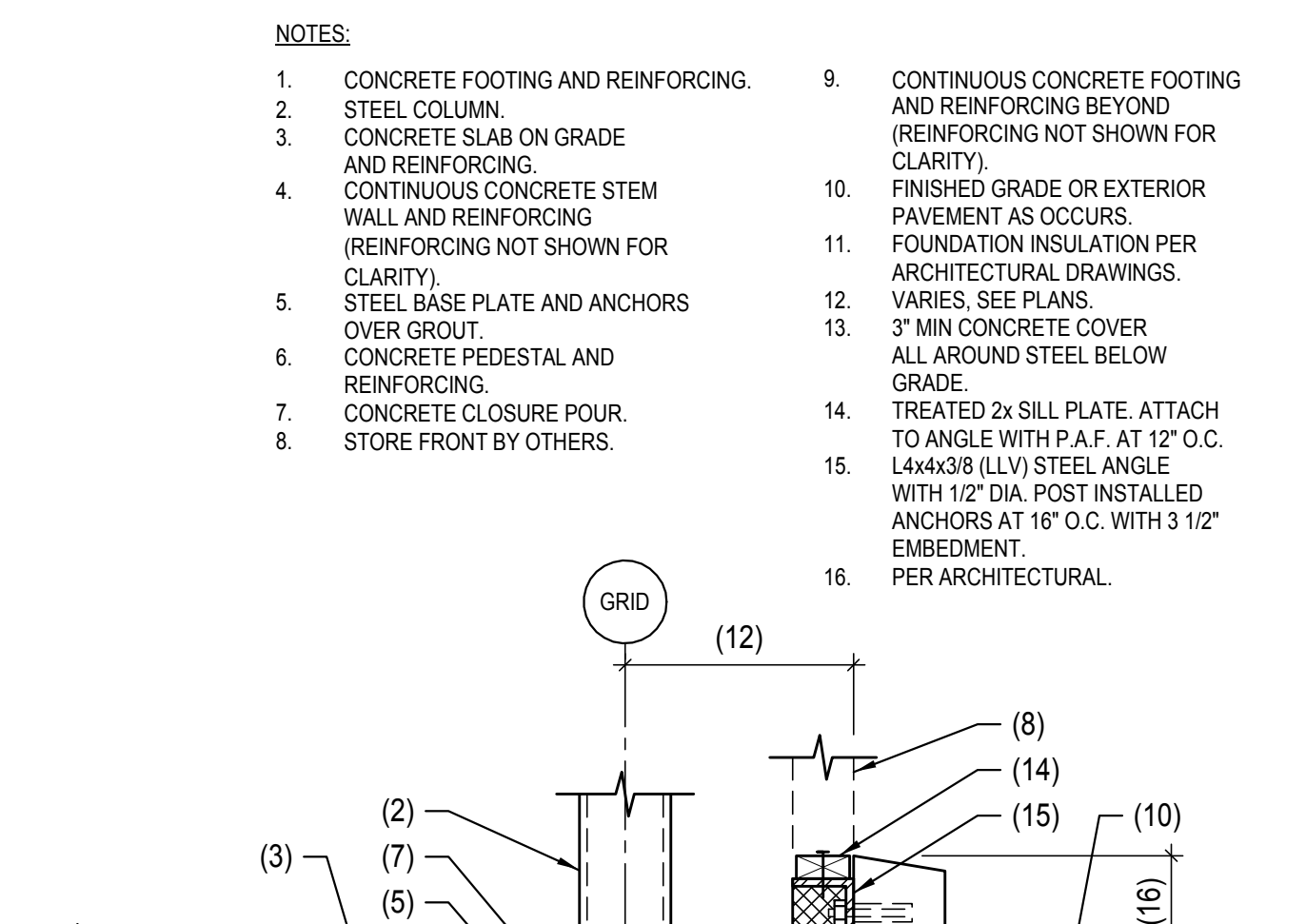
NOTE:
AT SIM, NO STEEL STUD WALL.



104 STEEL COLUMN AND MASONRY WALLS AT CONCRETE FOUNDATION
SCALE: NOT TO SCALE 215163-X-DETAILS-104

- NOTES:
1. MASONRY WALL AND REINFORCING.
 2. CONCRETE PEDESTAL AND REINFORCING.
 3. DOWELS TO MATCH AND LAP VERTICAL WALL REINFORCING.
 4. CONCRETE FOOTING AND REINFORCING.
 5. FINISHED GRADE OR EXTERIOR PAVEMENT AS OCCURS.
 6. 5'-0" OF N.F.S. SOILS BELOW B.O.F.
 7. STEEL COLUMN.
 8. STEEL BASE PLATE AND ANCHORS OVER GROUT.
 9. PER ARCHITECTURAL DRAWINGS.

NOTE:
AT SIM, NO STEEL COLUMN.



102 STEEL COLUMN AT CONCRETE FOUNDATION
SCALE: NOT TO SCALE 215163-X-DETAILS-102

- NOTES:
1. CONCRETE FOOTING AND REINFORCING.
 2. STEEL COLUMN.
 3. CONCRETE SLAB ON GRADE AND REINFORCING.
 4. CONTINUOUS CONCRETE STEM WALL AND REINFORCING (REINFORCING NOT SHOWN FOR CLARITY).
 5. STEEL BASE PLATE AND ANCHORS OVER GROUT.
 6. CONCRETE PEDESTAL AND REINFORCING.
 7. CONCRETE CLOSURE POUR.
 8. STORE FRONT BY OTHERS.
 9. CONTINUOUS CONCRETE FOOTING AND REINFORCING BEYOND (REINFORCING NOT SHOWN FOR CLARITY).
 10. FINISHED GRADE OR EXTERIOR PAVEMENT AS OCCURS.
 11. FOUNDATION INSULATION PER ARCHITECTURAL DRAWINGS.
 12. VARIES, SEE PLANS.
 13. 3" MIN CONCRETE COVER ALL AROUND STEEL BELOW GRADE.
 14. TREATED 2x SILL PLATE. ATTACH TO ANGLE WITH P.A.F. AT 12" O.C.
 15. L4x3/8 (LLV) STEEL ANGLE WITH 1/2" DIA. POST INSTALLED ANCHORS AT 16" O.C. WITH 3 1/2" EMBEDMENT.
 16. PER ARCHITECTURAL.

DATA	DATE	BY	DESCRIPTION
BASE	---	---	TELEPHONE
TOPOGRAPHY	---	---	ELECTRIC
PROFILE	---	---	CABLE TV
SANITARY SEWER	---	---	TRAFFIC SIGNAL
STORM SEWER	---	---	DESIGN
WATER	---	---	QUANTITIES
GAS	---	---	MUN. FINAL CHECK

RECORD DRAWING Note: To be filled out on original drawings upon project completion.

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CONTRACTOR: _____

BY: _____ TITLE: _____

DATE: _____

2. DATA TRANSFERRED BY: _____

COMPANY: _____

DATE: _____

3. 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.

DATA TRANSFER CHECKED BY: _____

COMPANY: _____

BY: _____ TITLE: _____

DATE: _____

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SCHNEIDER STRUCTURAL ENGINEERS

CONSULTANT SEAL

MUNICIPALITY OF ANCHORAGE WATER & WASTEWATER UTILITY

KING STREET MAIN BUILDING UPGRADE STRUCTURAL

FOUNDATION AND FRAMING DETAILS

HORIZ SCALE: AS NOTED
VERT SCALE: AS NOTED

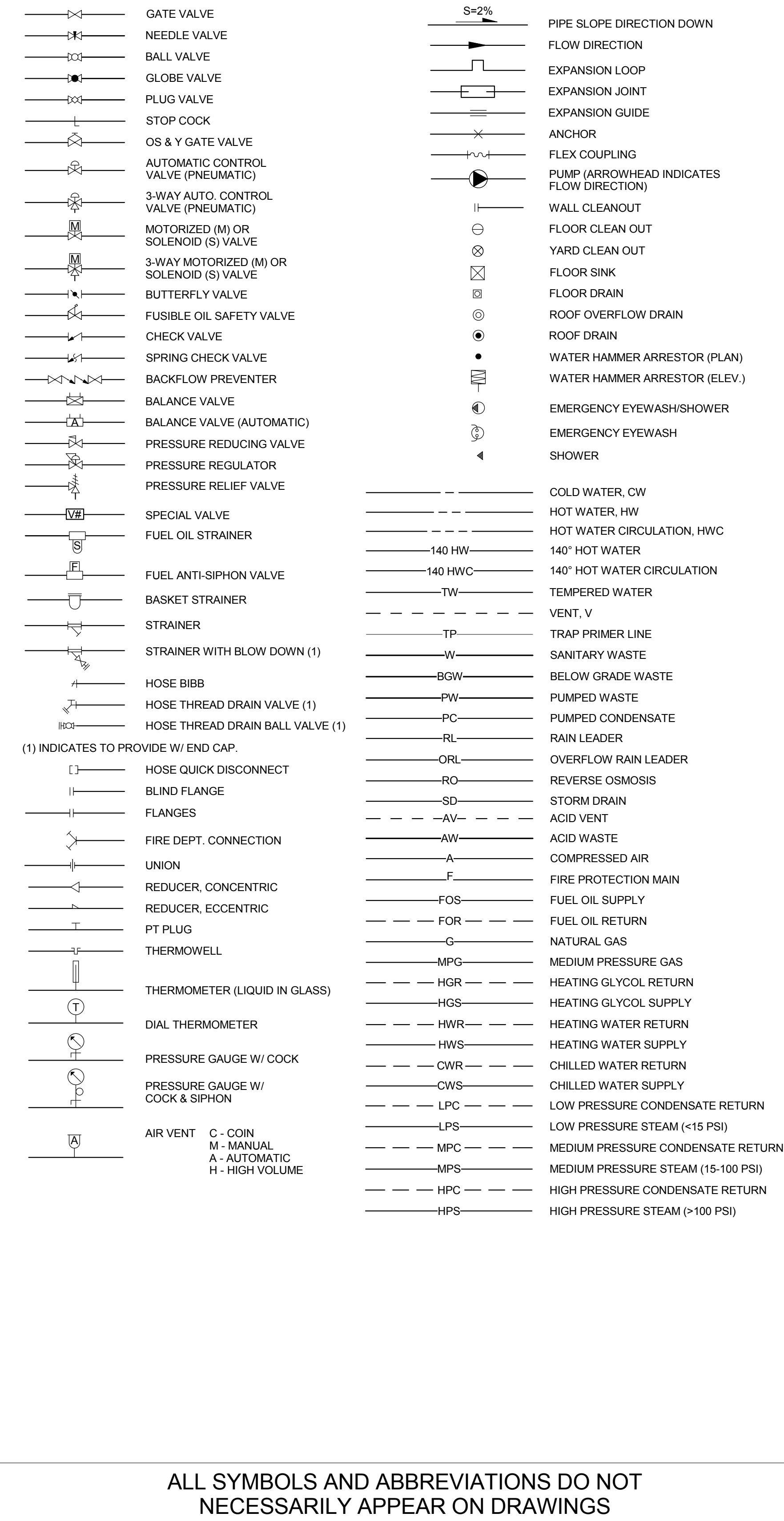
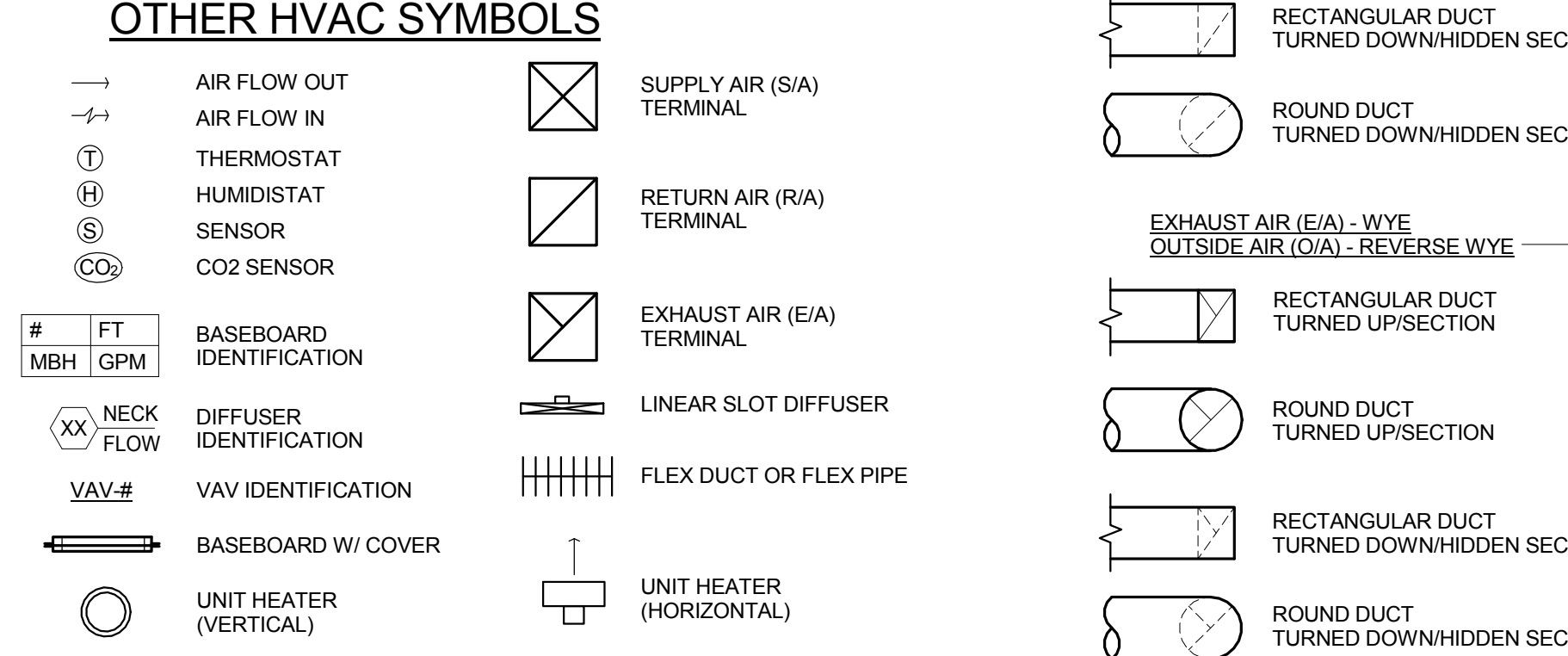
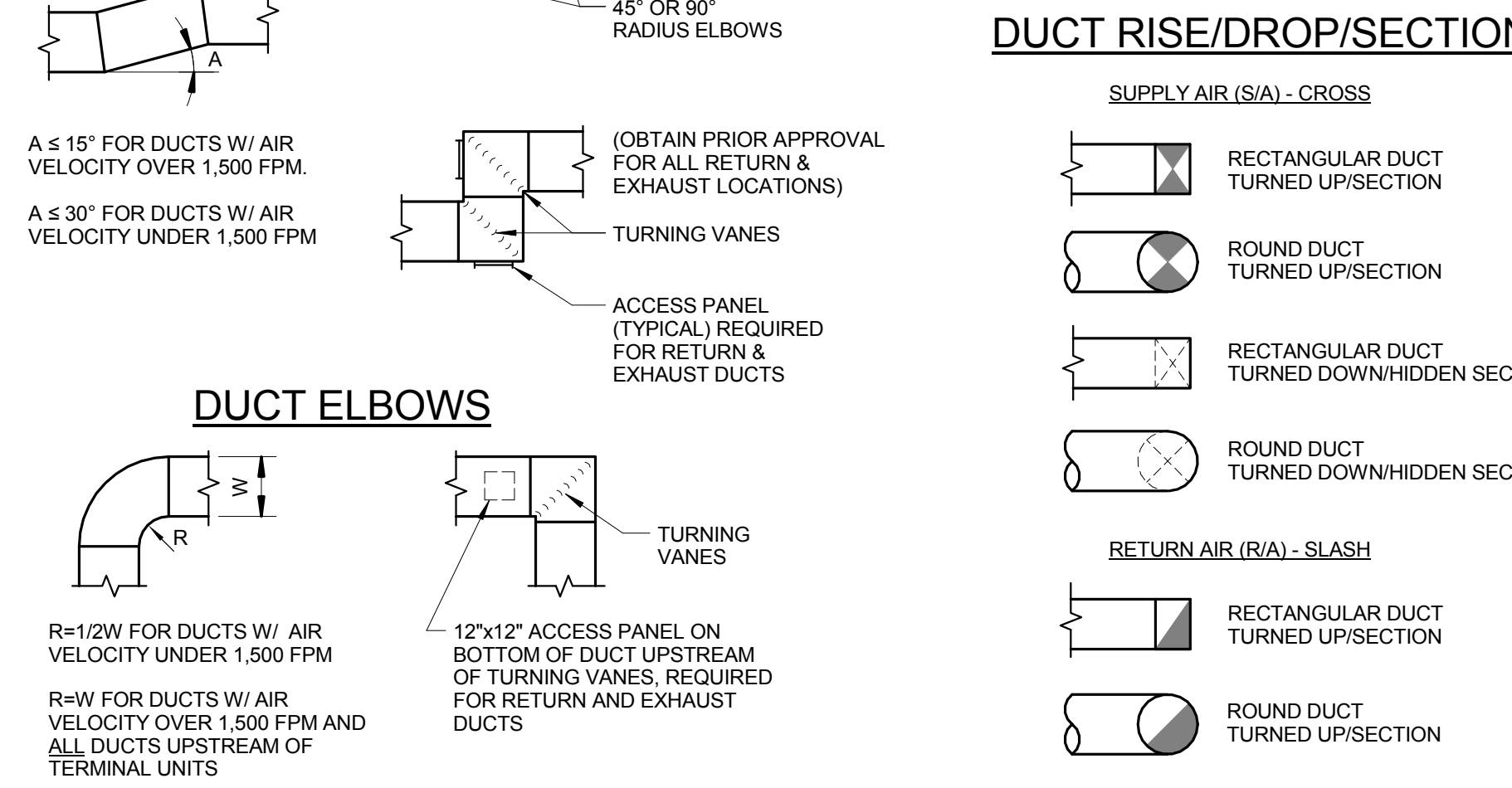
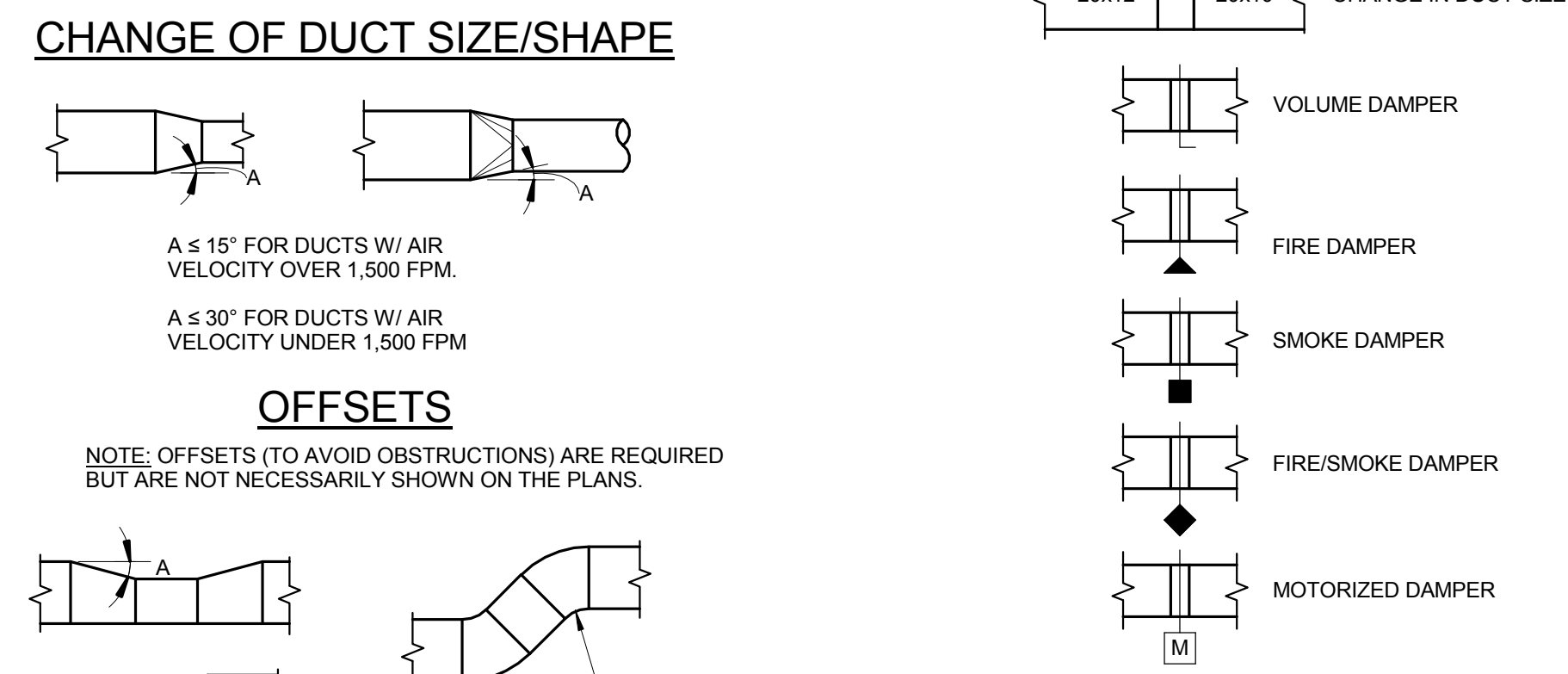
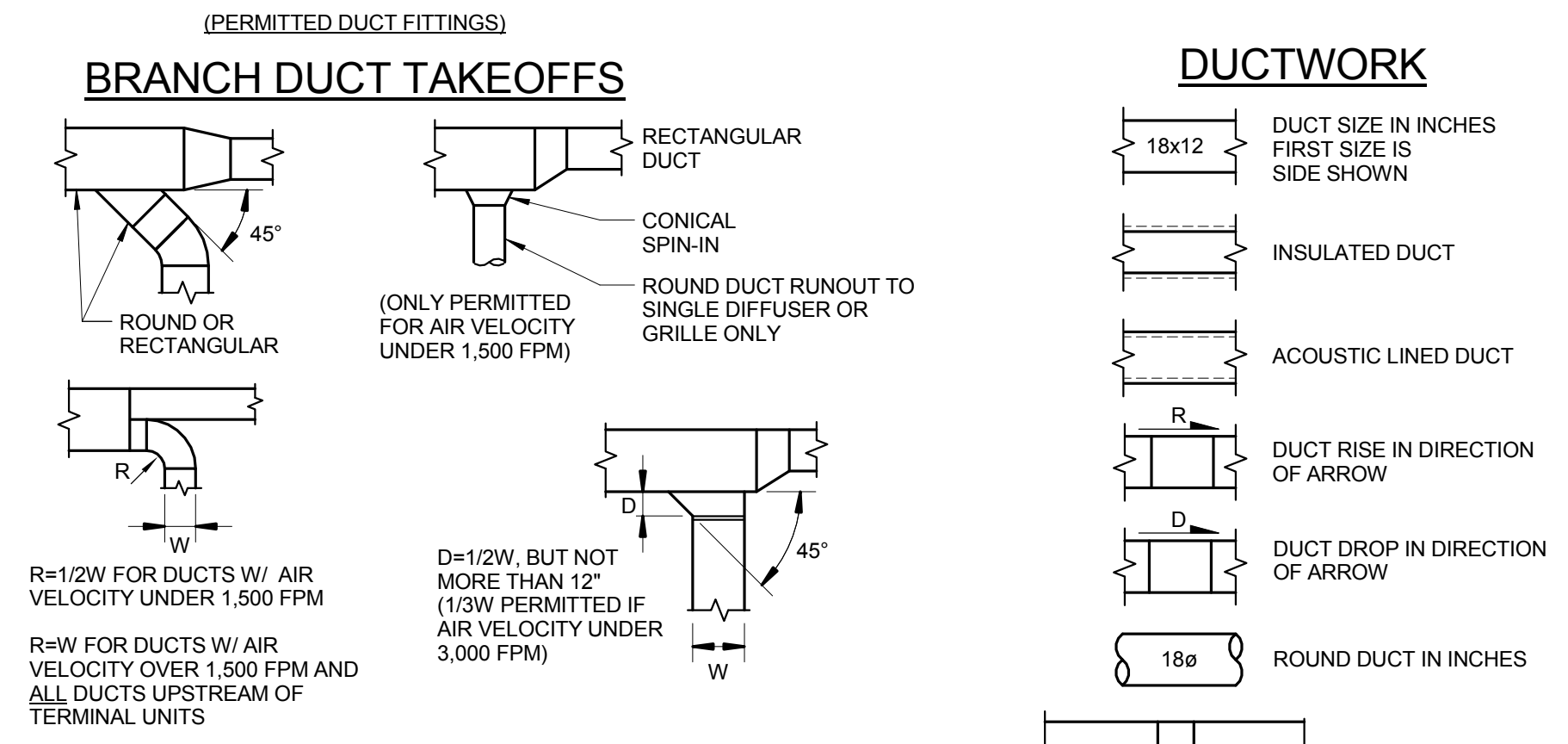
04-29-2016 GRID: 2431

PROJ. ID.: 215163 SHEET S300 of

HVAC FITTINGS & SYMBOLS

PIPING SYMBOLS

GENERAL



NOTES:

1. SPECIFIC TO LOCATION INDICATED.

1. NOTE APPLIES TO ENTIRE SHEET.

XX-X UNDERLINED DESIGNATOR HAS SCHEDULED VALUES. SEE MECHANICAL SCHEDULES.

PIPE & DUCT SIZES: INCH MARKS (*) ARE NOT USED WHEN INDICATING PIPE AND DUCT SIZES ON PLANS, DETAILS, OR DIAGRAMS, EXCEPT FOR THE NUMERAL 1.

LINETYPES

EXISTING (THIN)

NEW (MEDIUM)

EXISTING TO BE DEMOLISHED

(E) EXISTING

(N) NEW

CONNECT TO EXISTING

ABBREVIATIONS

A	COMPRESSED AIR	JP	JOCKEY PUMP
AAV	AUTOMATIC AIR VENT	JPC	JOCKEY PUMP CONTROLLER
ACM	ASBESTOS CONTAINING MATERIALS	KH	KICKSPACE HEATER
AF	AIR FLOW SWITCH	LAT	LEAVING AIR TEMPERATURE
AFB	ABOVE FINISH FLOOR	LF	LINEAL FOOT
AG	ABOVE GROUND	LPR	LOW PRESSURE CONDENSATE RETURN
AHU	AIR HANDLING UNIT	LPS	LOW PRESSURE STEAM
AL	ACOUSTIC LINED	LWT	LEAVING WATER TEMPERATURE
ARCH	ARCHITECT OR ARCHITECTURAL	MAV	MANUAL AIR VENT
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS	MAX	MAXIMUM
AV	ACID VENT	MBH	THOUSANDS BTU PER HOUR
AW	ACID WASTE	MFR	MANUFACTURER
AWT	AVERAGE WATER TEMPERATURE	MG	MEDICAL GAS
BA	BREATHING AIR	MIN	MINIMUM OR MINUTES
BB	BASEBOARD	MPG	MEDIUM PRESSURE GAS
BF	BYPASS FEEDER	MPR	MEDIUM PRESSURE CONDENSATE RETURN
BTU	BRITISH THERMAL UNIT	MPS	MEDIUM PRESSURE STEAM
BV	BALANCING VALVE	MS	MOTOR STARTER
BGW	BELOW GRADE WASTE	MUA	MAKE UP AIR
BG	BELOW GROUND	NC	NORMALLY CLOSED
CC	COOLING COIL	N.I.C.	NOT IN CONTRACT
CFM	CUBIC FEET PER MINUTE	NO	NORMALLY OPEN
CLG	CEILING	NPT	NATIONAL PIPE THREAD
CMU	CONCRETE MASONRY UNIT	NTS	NOT TO SCALE
CO	CLEANOUT	OA, O/A	OUTSIDE AIR
CU	COPPER	OW	OILY WASTE
CUH	CABINET UNIT HEATER	OZ	MEDICAL OXYGEN
CW	COLD WATER	PCW	PROCESSED COLD WATER
CWC	COLD WATER CIRCULATION	PG	PROPYLENE GLYCOL
DB	DRY BULB	PH	PHASE
ø	DIAMETER OR PHASE	PLCS	PLACES
DEMO	DEMOLISH	PRV	PRESSURE REGULATING VALVE
DN	DOWN	PSI	POUNDS PER SQUARE INCH
DPS	DIFFERENTIAL PRESSURE SWITCH	PSIG	POUNDS PER SQUARE INCH GAUGE
DWG	DRAWING	PT	PRESSURE/TEMPERATURE
(E)	EXISTING	RA, R/A	RETURN AIR
EA, E/A	EXHAUST AIR	RCP	RADIANT CEILING PANEL
EAT	ENTERING AIR TEMPERATURE	REQD	REQUIRED
EF	EXHAUST FAN	RGS	RADIANT GLYCOL SUPPLY
EG	ETHYLENE GLYCOL	RGR	RADIANT GLYCOL RETURN
ESP	EXTERNAL STATIC PRESSURE	RL	RAIN LEADER
ETR	EXISTING TO REMAIN	RO	REVERSE OSMOSIS
EWT	ENTERING WATER TEMPERATURE	R.O.	ROUGH OPENING
EXH	EXHAUST	RPBP	REDUCED PRESSURE BACKFLOW PREVENTER
EXIST	EXISTING	RPM	REVOLUTION PER MINUTE
F	FIRE PROTECTION	SA, S/A	SUPPLY AIR
FCO	FLOOR CLEANOUT	SD	SMOKE DETECTOR
F.D.	FIRE DAMPER	SL	SOUNDLINING
FD	FLOOR DRAIN	SP	STATIC PRESSURE
FDC	FIRE DEPARTMENT CONNECTION	SSTL	STAINLESS STEEL
FF	FINISH FLOOR	SW	SOCKET WELDED
FOR	FUEL OIL RETURN	T, TEMP	TEMPERATURE
FOS	FUEL OIL SUPPLY OR FUSIBLE OIL SAFETY	TAB	TEST, ADJUST & BALANCE
FP	FIRE PUMP	TB	TERMINAL BOX
FPC	FIRE PUMP CONTROLLER	THD	THREADED
FFM	FEET PER MINUTE	TP	TRAP PRIMER
FSD	FIRE SMOKE DAMPER	TSP	TOTAL STATIC PRESSURE
FT	FLASH TANK OR FEET	TYP	TYPICAL
FTR	FINNED TUBE RADIATION	UF	UNDER FLOOR
G	LOW PRESSURE GAS	UG	UNDERGROUND
GAL	GALLONS	UH	UNIT HEATER
GALV	GALVANIZED	US	UNDERSLAB
GPH	GALLONS PER HOUR	V	VENT OR VOLTS
GPM	GALLONS PER MINUTE	VAC	VOLTAGE ALTERNATING CURRENT
HB	HOSE BIBB	VAV	VARIABLE AIR VOLUME
HC	HEATING COIL	VTR	VENT THRU ROOF
HL	HIGH LIMIT	W	WASTE
HP	HORSEPOWER	WB	WET BULB
HPR	HIGH PRESSURE CONDENSATE RETURN	W	WITH
HPS	HIGH PRESSURE STEAM	WC	WATER CLOSET
HR	HOUR	W.C.	WATER COLUMN
HTG	HEATING	WCO	WALL CLEANOUT
HGR	HEATING GLYCOL RETURN	WH	WATER HEATER
HGS	HEATING GLYCOL SUPPLY	WHA	WATER HAMMER ARRESTOR
HWC	HOT WATER CIRCULATION		
HWR	HEATING WATER RETURN		
HWS	HEATING WATER SUPPLY		
HW	HOT WATER		
HX	HEAT EXCHANGER		

ALL SYMBOLS AND ABBREVIATIONS DO NOT NECESSARILY APPEAR ON DRAWINGS

FILE PATH AND NAME: C:\Users\wilson\Documents\150954-KSMBU-MEP2016-swilson\3298.rvt
 PLOT DATE: 4/29/2016 6:27:51 PM
 PLOT SCALE: AS SHOWN

AWU PLAN SET NO. XXXX
 DESIGN DEVELOPMENT

VERIFY SCALE

THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING.

0" = 1"

IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.

DATA	DRAWN BY	CHECKED BY	REV	DATE	DESCRIPTION	BY
BASE	---	TELEPHONE	---			
TOPOGRAPHY	---	ELECTRIC	---			
PROFILE	---	CABLE TV	---			
SANITARY SEWER	---	TRAFFIC SIGNAL	---			
STORM SEWER	---	DESIGN	---			
WATER	---	QUANTITIES	---			
GAS	---	MUN. FINAL CHECK	---			

RECORD DRAWING

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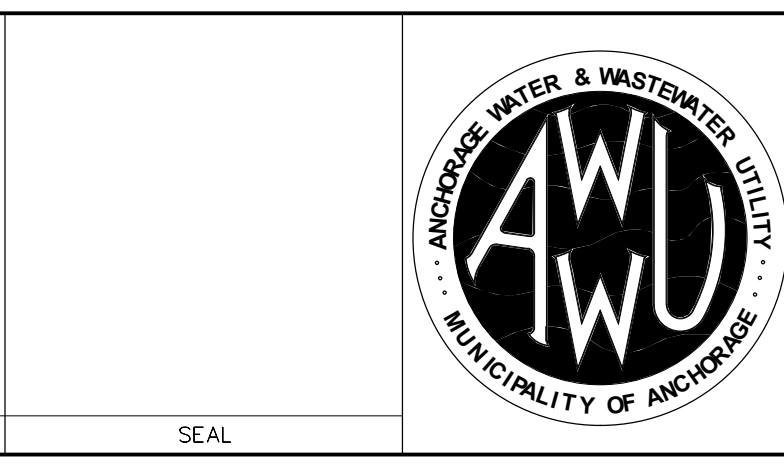
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MUNICIPALITY OF ANCHORAGE WATER & WASTEWATER UTILITY

KING STREET MAIN BUILDING UPGRADE

MECHANICAL

LEGEND AND ABBREVIATIONS

HORIZ SCALE: AS NOTED	VERT SCALE: AS NOTED	4/29/2016	GRID: 2431	M001 of
PROJ. ID: 2015022.05				SHEET

PUMP SCHEDULE

TAG	LOCATION	APPLICATION	FLOW (GPM)	HEAD (FT)	MOTOR SPEED	MOTOR			IMPELLER SIZE	BASIS OF DESIGN		NOTES
						VOLTS	PHASE	HP		MFR	MODEL	
CP-1	MECH 206	BUILDING CIRC	370	65	1750	480	3	10	8.9	TACO	FI-3009C	1,2,3
CP-2	MECH 206	BUILDING CIRC	370	65	1750	480	3	10	8.9	TACO	FI-3009C	1,2,3
CP-3	MECH 114	B-1 CIRC	404	50	1160	480	3	7.5	5.5	TACO	KV4007	1,3
CP-4	MECH 114	B-2 CIRC	404	50	1160	480	3	7.5	5.5	TACO	KV4007	1,3
CP-5	MECH 114	SNOW MELT CIRC	39.5	22	1725	480	3	3/4	-	TACO	IL133	3

NOTES:
1. PUMP TO RUN LEAD/LAG. PROVIDE EQUIPMENT INTERLOCK TO PREVENT SIMULTANEOUS OPERATION.
2. MECHANICAL TO PROVIDE VFD
3. PUMP TO RUN WITH 50% PROPYLENE GLYCOL

FAN SCHEDULE

TAG	LOCATION	SERVES	CFM	ESP (IN. W.C.)	DRIVE	MOTOR			BASIS OF DESIGN		NOTES	
						FAN RPM	MOTOR HP OR W	VOLTS	PHASE	MFR		MODEL
CF-1	MECH 114	COOLING/COMBUSTION AIR	3000	0.5	BELT	1725	1/2	120	1	COOK	SQI-B	-
(E) RF-3	FAN ROOM 300	SHOP AREA	26400	3	BELT	1765	25	480	3	TRANE	-	1
(E) SF-3	FAN ROOM 300	SHOP AREA	25400	3	BELT	1765	25	480	3	TRANE	CCDB50KW0C	1
VEF-1	VEHICLE SHOP 24	SHOP AREA	1200	3.5	DIRECT	1750	1-1/2	208	3	CAR-MON	CMW-13	-
VEF-2	VEHICLE SHOP 24	SHOP AREA	1200	3.5	DIRECT	1750	1-1/2	208	3	CAR-MON	CMW-13	-

NOTES:
1. MECHANICAL TO PROVIDE VFD

BOILER SCHEDULE

TAG	LOCATION	TYPE	FUEL TYPE	INPUT MBH	OUTPUT MBH	EGT (°F)	LGT (°F)	VENT DIAMETER (IN.)	BASIS OF DESIGN		NOTES
									MFR	MODEL	
B-1	MECH 114	CONDENSING	N.G.	4000	3680	190	160	12	LAARS	MGH4000	1,2,3
B-2	MECH 114	CONDENSING	N.G.	4000	3680	190	160	12	LAARS	MGH4000	1,2,3

NOTES:
1. PROVIDE WITH CONDENSATE NEUTRALIZER KIT
2. PROVIDE LEAD/LAG CONTROL
3. BOILER MANUFACTURER TO PROVIDE CONTROL INTERFACE WITH BMS SYSTEM

MISCELLANEOUS EQUIPMENT SCHEDULE

TAG	LOCATION	SERVES	EQUIPMENT NAME	CAPACITY	MOTOR			BASIS OF DESIGN		NOTES
					HP	VOLTS	PHASE	MFR	MODEL	
AS-1	MECH 114	BUILDING HEAT	AIR SEPARATOR	370 GPM	-	-	-	SPIROVENT	VDT-600	-
AS-2	MECH 114	SNOW MELT SYSTEM	AIR SEPARATOR	32 GPM	-	-	-	SPIROVENT	VDT-200	-
GMT-1	MECH 114	SNOW MELT SYSTEM	GLYCOL MAKEUP TANK	55 GAL	1/10	120	1	AXIOM	SF100	1

NOTES:
1. UNIT CAPABLE OF PROVIDING GLYCOL FOR (2) INDEPENDENT CLOSED SYSTEMS

HEAT EXCHANGER SCHEDULE

TAG	LOCATION	TYPE	CAPACITY (MBH)	COLD SIDE						HOT SIDE				BASIS OF DESIGN		NOTES		
				FLUID (%-TYPE)	FLOW (GPM)	Ti (F)	To (F)	MIN FOULING FACTOR	MAX PD (PSI)	FLUID (%-TYPE)	FLOW (GPM)	Ti (F)	To (F)	MIN SCALING/ FOULING FACTOR	MAX PD (PSI)		MFR	MODEL
HX-1	MECH 114	FLAT PLATE	428.8	50/PG	39.50	90.0	120.0	0.0001	3.3	50/PG	32.00	190.00	160.00	0.0001	2.0	POLARIS	SL34-BR31-50-TL-LIQUID	-

NOTES:

PLUMBING FIXTURE SCHEDULE

TAG	ITEM	CONNECTIONS				BASIS OF DESIGN		NOTES
		WASTE	VENT	C.W.	H.W.	MFR	MODEL	
RD-1	ROOF DRAIN	ON PLAN	-	-	-	ZURN	Z100	GALVANIZED SUMP, CAST IRON BODY, FLASHING CLAMP AND GRAVEL STOP. METAL DOME HEAT TRACE OVERFLOW AND ROOF DRAIN TO CLEANOUT. SEE ELECTRICAL AND CIVIL PLANS FOR ADDITIONAL INFORMATION. 8 W/L.F.
ORD-1	OVERFLOW ROOF DRAIN	ON PLAN	-	-	-	ZURN	Z100	GALVANIZED SUMP, CAST IRON BODY, FLASHING CLAMP AND GRAVEL STOP. METAL DOME. 2" WATER DAM HEAT TRACE OVERFLOW AND ROOF DRAIN TO CLEANOUT. SEE ELECTRICAL AND CIVIL PLANS FOR ADDITIONAL INFORMATION. 8 W/L.F.

NOTES:

RADIANT SNOWMELT HEATING SCHEDULE

ZONE	AREA (SF)	OUTPUT (BTU/SQFT)	TEMPERATURE		CIRCUITS REQUIRED	TUBE DIAMETER (IN.)	GPM	PRESSURE DROP MAX. (FT)	FLUID	BASIS OF DESIGN		NOTES
			EGT (F)	LGT (F)						MFR	MODEL	
SM-001	3450	113	120	90	23	5/8	39.5	22	50/PG	MR PEX	-	1,2

NOTES:
1. SNOWMELT CONTROLLER LOCATED IN BOILER ROOM.
2. REFER TO PLANS FOR MANIFOLD LOCATIONS.

UNIT HEATER SCHEDULE

TAG	LOCATION	TYPE	MIN. CAPACITY (MBH)	FLUID %/TYPE	EGT (F)	LGT (F)	FLOW (GPM)	EAT (F)	AIR THROW		FAN				BASIS OF DESIGN		NOTES	
									V (FT)	H (FT)	VOLTS	PHASE	HP	NO. FANS	CFM	MFR		MODEL
CUH-1	VEST. 100	WALL MOUNT	12.7	50/PG	190	160	1.5	65	-	-	120	1	1/20	2	250	MODINE	CW-002-08	-

NOTES:

EXPANSION TANK SCHEDULE

TAG	LOCATION	TYPE	TANK VOLUME	ACCEPT. VOLUME	SYS VOLUME	MIN. FILL TEMP (F)	MAX. SYS TEMP (F)	CHARGE PRESS.	SYSTEM PRESS.	SYS EXP	BASIS OF DESIGN		NOTES
											MFR	MODEL	
ET-1	MECH 114	BLADDER	160	100	788	35	190	30	45	46.2	TACO	CBX-600	1,2
ET-2	MECH 114	BLADDER	11	5	183	35	120	12	30	4.4	TACO	CBX-42	1,2

NOTES:
1. TANK TO BE USED WITH 50% PROPYLENE GLYCOL
2. PROVIDE VERTICAL TANK

LOUVER SCHEDULE

TAG	SERVICE	SIZE			AIR FLOW (CFM)	VELOCITY (FPM)	MATERIAL	BASIS OF DESIGN		NOTES
		WIDTH	HEIGHT	DEPTH				MFR	MODEL	
L-1	MECH 114	38	38	6	3000	525	ALUM.	RUSKIN	ELF6375DX	1

NOTES:
1. PROVIDE WITH 1"X1" BIRDSCREEN AND MOTORIZED DAMPER

AIR INLET & OUTLET SCHEDULE

TAG	PURPOSE	TYPE	NECK SIZE (IN.)	FACE SIZE (IN.)	COLOR	BORDER TYPE	BASIS OF DESIGN		NOTES
							MFR	MODEL	
A	SUPPLY	MODULAR CORE	VARIES	24X24	WHITE	LAY-IN	TITUS	MCD	1, 2
B	RETURN	PERFORATED RETURN	10	24X24	WHITE	LAY-IN	TITUS	PAR	-

NOTES:
1. ROUND CONNECTION IN 12X12 SQUARE NECK
2. PROVIDE ROUND NECK ADAPTER AS REQUIRED.


DAMPER SCHEDULE

TAG	LOCATION	SERVES	FUNCTION	CONTROL ACTION	TYPE OF ACTION	SIZE	BASIS OF DESIGN		NOTES
							MFR	MODEL	
D-7	MECH 130	CF-1	OSA SHUT-OFF DAMPER	MODULATING	OPPOSED	38X38	RUSKIN	CD60	1
D-8	MECH 130	CF-1	MIXING DAMPER	MODULATING	OPPOSED	34X12	RUSKIN	CD60	1

NOTES:
1. PROVIDE WITH BELIMO NMB24-SR DAMPER ACTUATOR, 2-10 VDC CONTROL INPUT

VERIFY SCALE

THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING.

0"  1"

IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.

DATA	DRAWN BY	CHECKED BY	DATE	REV	DESCRIPTION	BY
BASE	---	TELEPHONE	---			
TOPOGRAPHY	---	ELECTRIC	---			
PROFILE	---	CABLE TV	---			
SANITARY SEWER	---	TRAFFIC SIGNAL	---			
STORM SEWER	---	DESIGN	---			
WATER	---	QUANTITIES	---			
GAS	---	MUN. FINAL CHECK	---			

PLAN CHECK

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BY: _____ TITLE: _____ COMPANY: _____
DATE: _____

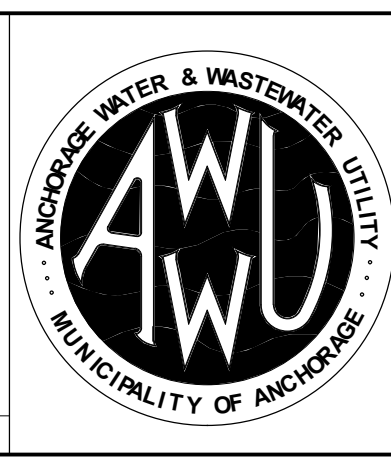
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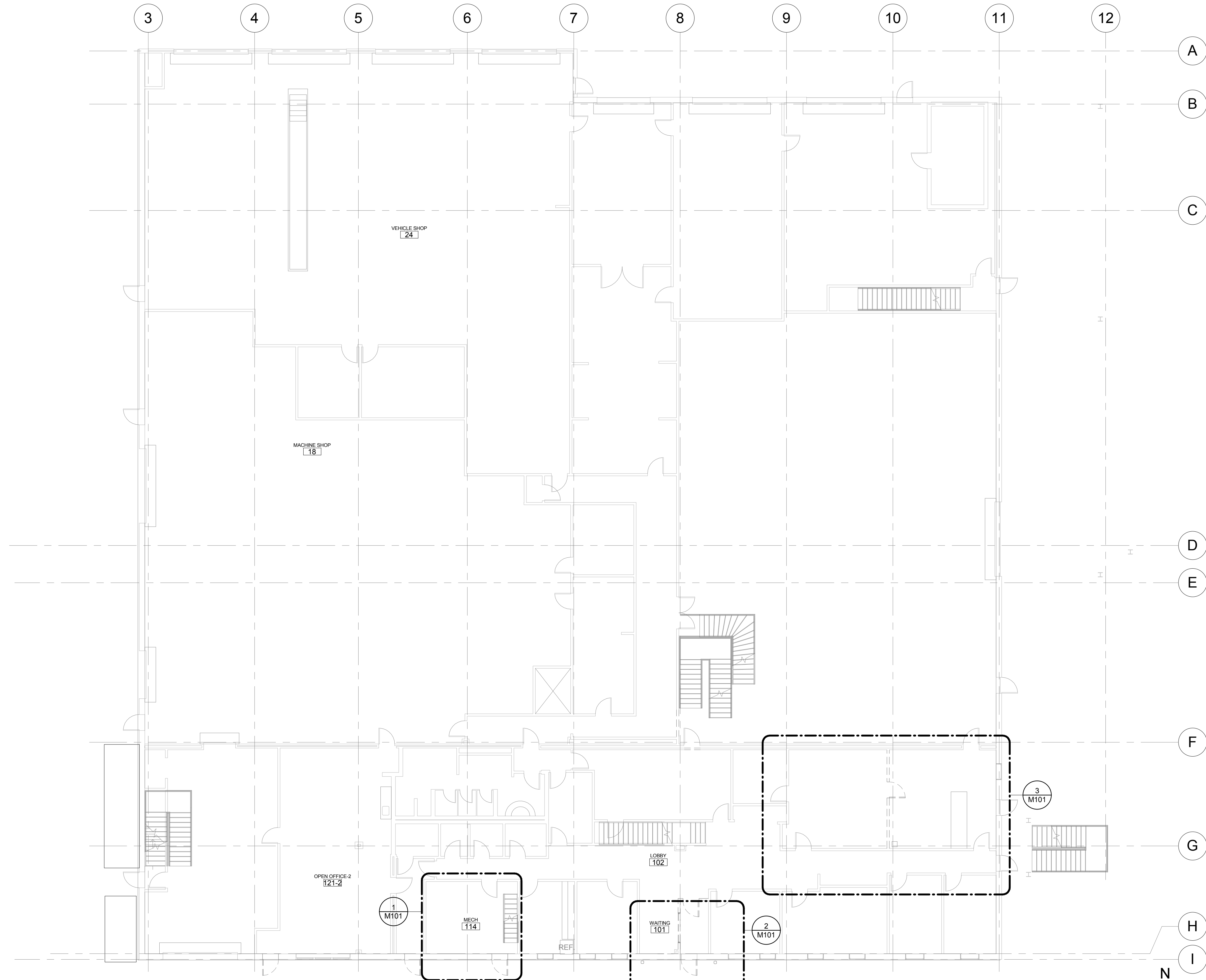
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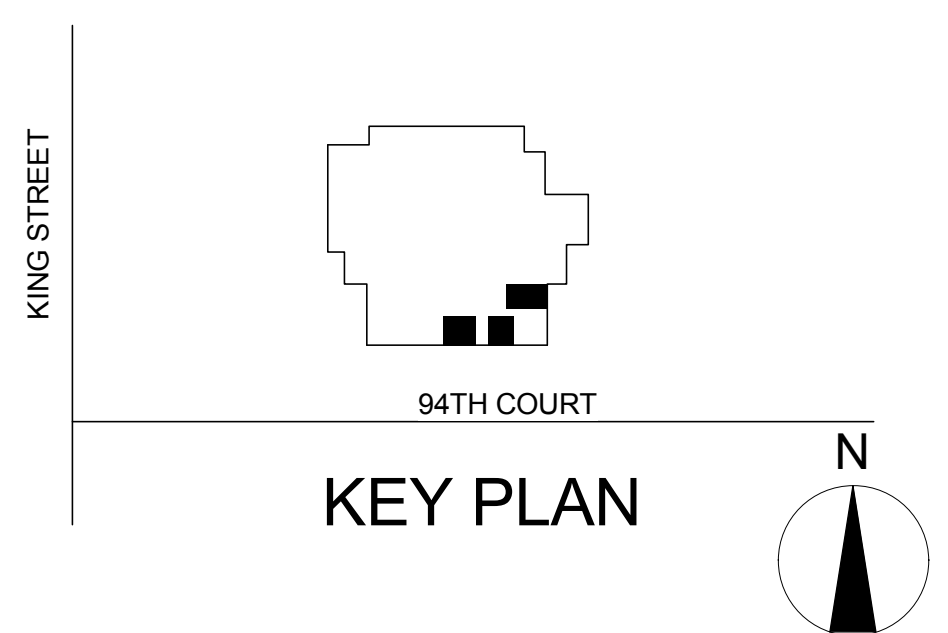
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WATER & WASTEWATER UTILITY
KING STREET MAIN BUILDING UPGRADE
MECHANICAL SCHEDULES

HORZ SCALE: AS NOTED
VERT SCALE: AS NOTED
PROJ. ID.: 2015022.05

4/29/2016
GRID: 2431
M002 of SHEET



1 OVERALL MECHANICAL DEMOLITION PLAN - LEVEL 1
 M100 3/32" = 1'-0"



VERIFY SCALE		THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING.		0" = 1"		IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.		FULL SIZE SCALE	
DATA	DRAWN BY	CHECKED BY	DATA	DRAWN BY	CHECKED BY	REV	DATE	DESCRIPTION	BY
BASE	---	---	TELEPHONE	---	---				
TOPOGRAPHY	---	---	ELECTRIC	---	---				
PROFILE	---	---	CABLE TV	---	---				
SANITARY SEWER	---	---	TRAFFIC SIGNAL	---	---				
STORM SEWER	---	---	DESIGN	---	---				
WATER	---	---	QUANTITIES	---	---				
GAS	---	---	MUN. FINAL CHECK	---	---				
PLAN CHECK					REVISIONS				

RECORD DRAWING Note: To be filled out on original drawings upon project completion.

1. DATA PROVIDED BY: _____
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CONTRACTOR: _____ TITLE: _____
 BY: _____ DATE: _____

2. DATA TRANSFERRED BY: _____
 COMPANY: _____ DATE: _____

3. 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.

DATA TRANSFER CHECKED BY: _____
 COMPANY: _____ BY: _____ TITLE: _____
 DATE: _____

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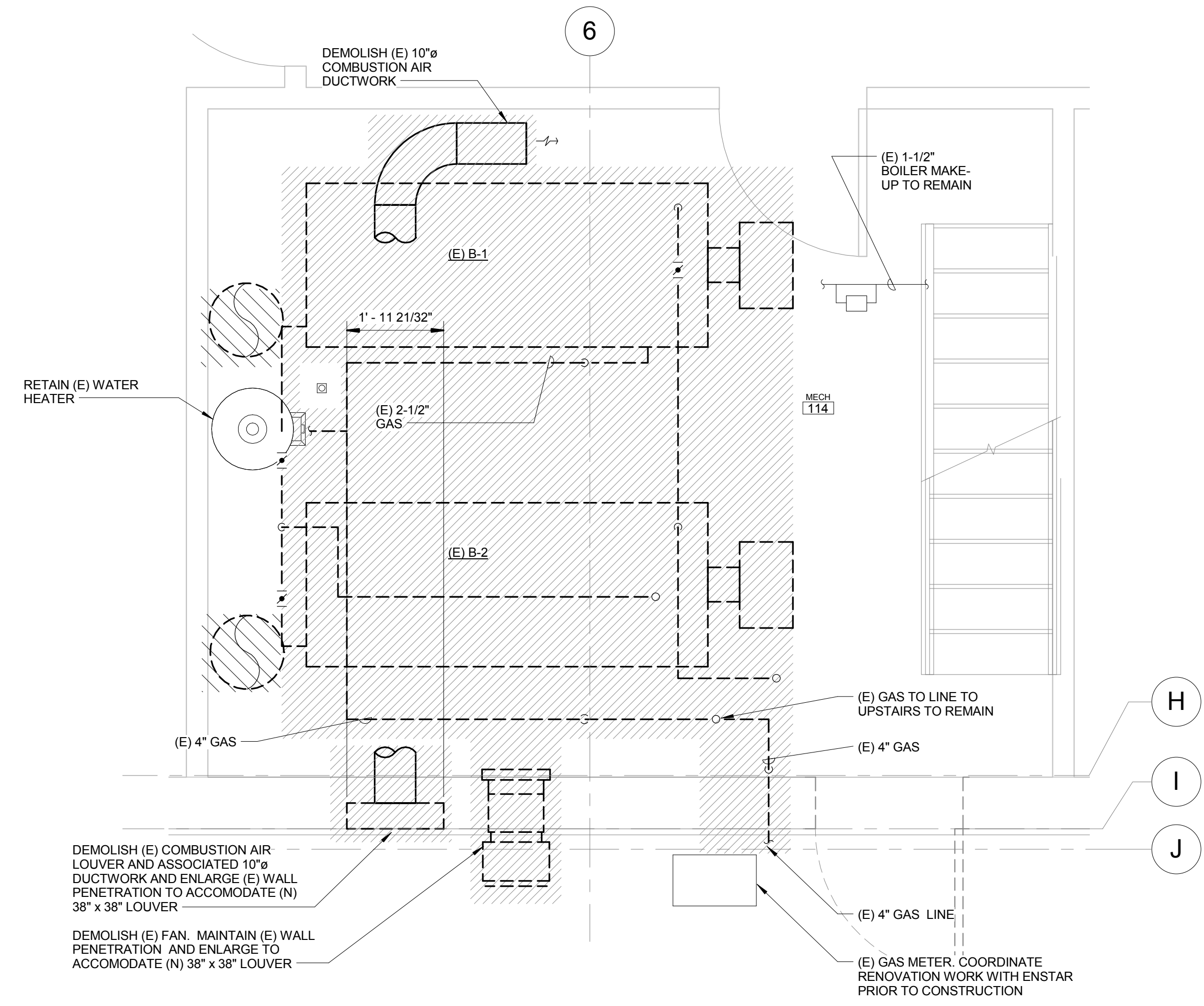
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KING STREET MAIN BUILDING UPGRADE
 MECHANICAL
 OVERALL DEMOLITION PLAN - LEVEL 1

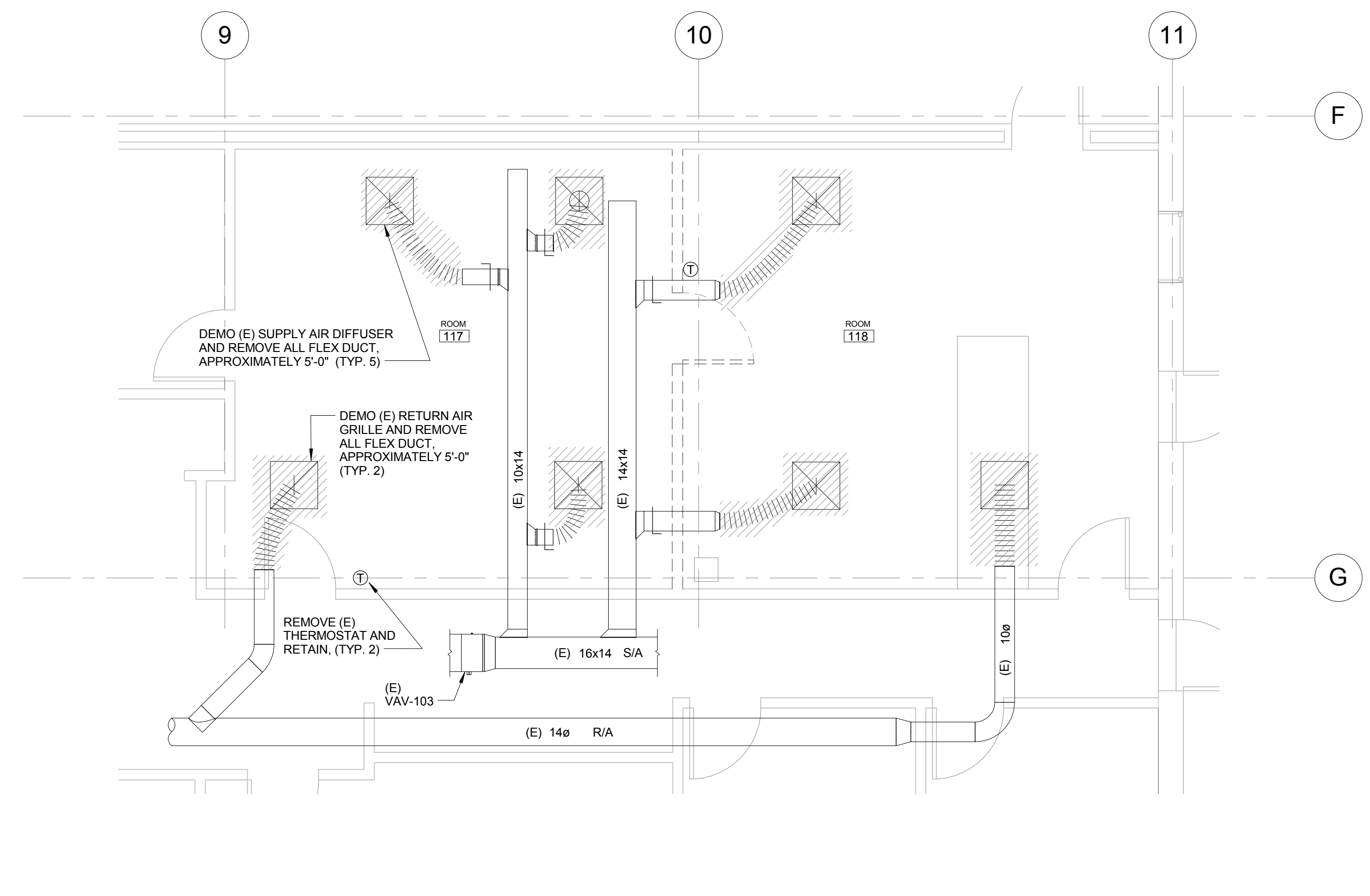
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HORZ SCALE: AS NOTED 4/29/2016 GRID: 2431 M100 of
 VERT SCALE: AS NOTED
 PROJ. ID.: 2015022.05 SHEET

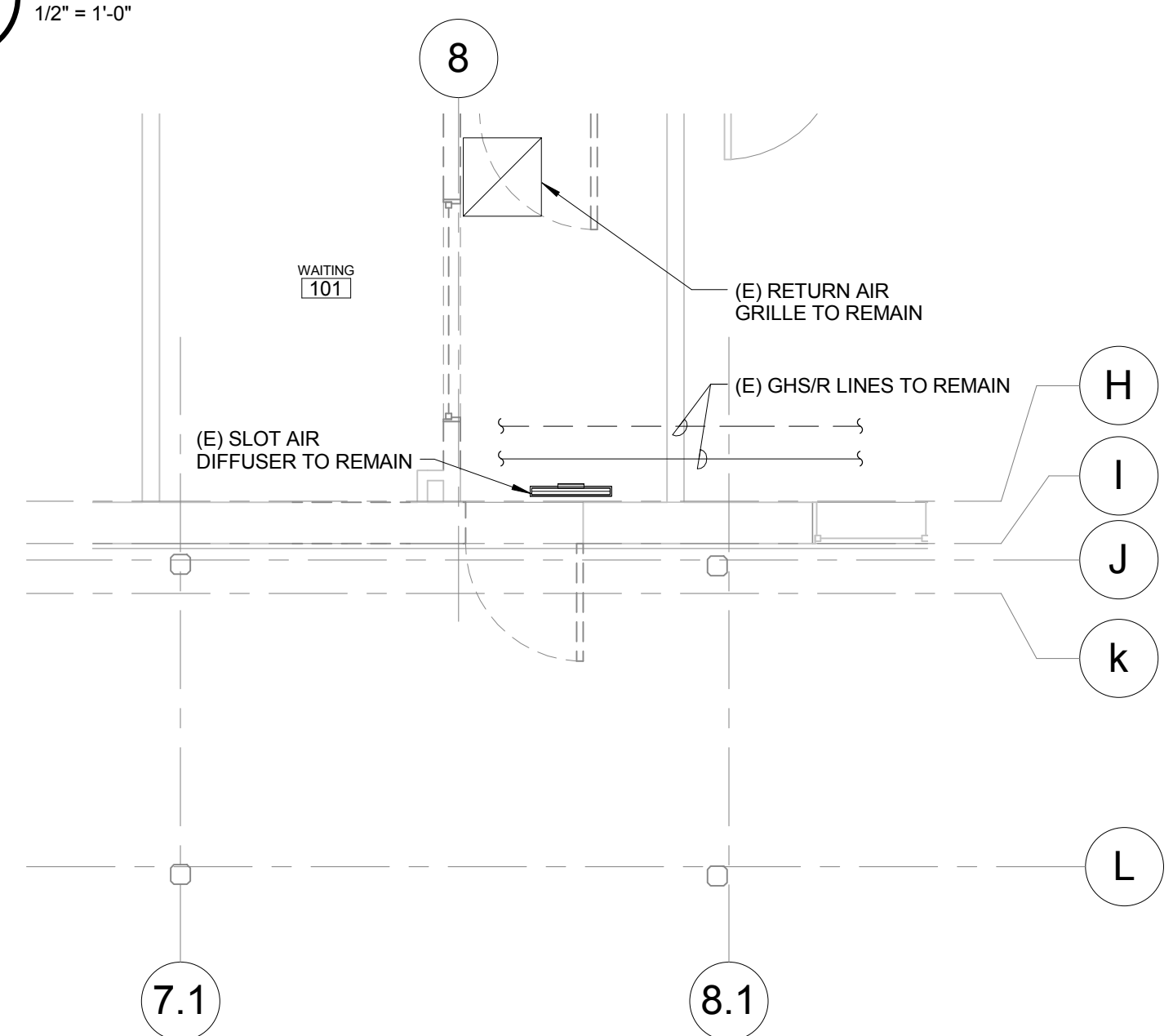
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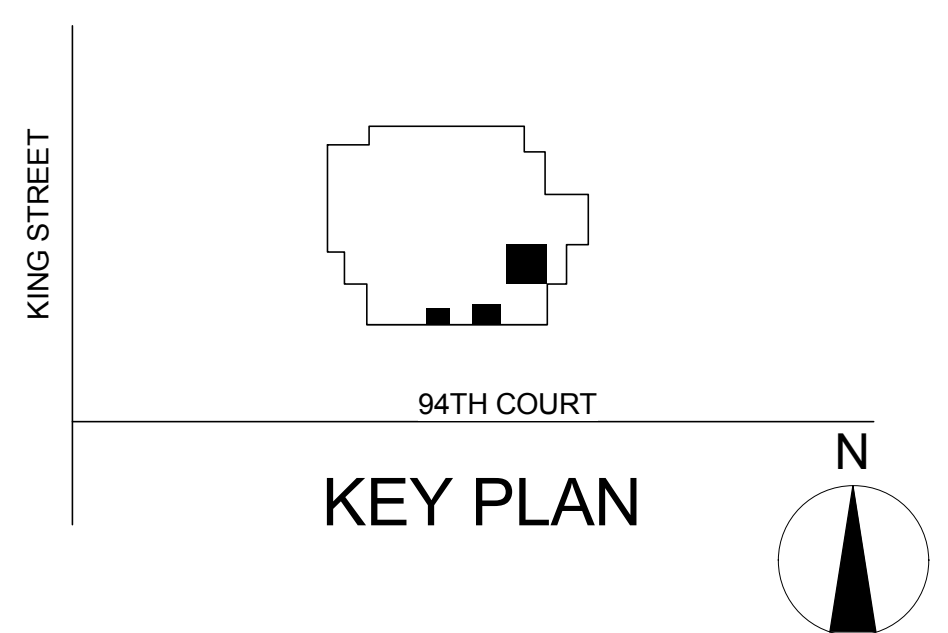
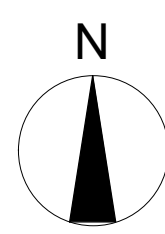
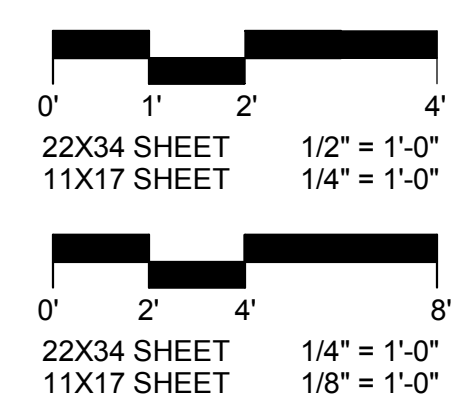
1 DEMOLITION PLAN - ENLARGED MECH 114
 M101 1/2" = 1'-0"



3 DEMOLITION PLAN - ENLARGED OFFICE 117 & 118
 M101 1/4" = 1'-0"



2 DEMOLITION ENLARGED WAITING / VEST 100
 M101 1/4" = 1'-0"



VERIFY SCALE		THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING.		IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.		FULL SIZE SCALE	
DATA	DRAWN BY	CHECKED BY	DATE	REV	DATE	DESCRIPTION	BY
BASE	---	TELEPHONE	---				
TOPOGRAPHY	---	ELECTRIC	---				
PROFILE	---	CABLE TV	---				
SANITARY SEWER	---	TRAFFIC SIGNAL	---				
WATER	---	DESIGN	---				
GAS	---	QUANTITIES	---				
		MUN. FINAL CHECK	---				
PLAN CHECK				REVISIONS			

RECORD DRAWING		Note: To be filled out on original drawings upon project completion.	
1. DATA PROVIDED BY:	_____	3. 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.	_____
This will serve to certify that these Record Drawings are a true and accurate representation of the project as constructed.			
CONTRACTOR:	_____	DATA TRANSFER CHECKED BY:	_____
BY:	_____ TITLE: _____	COMPANY:	_____
DATE:	_____	BY:	_____ TITLE: _____
2. DATA TRANSFERRED BY:	_____	DATE:	_____
COMPANY:	_____		
DATE:	_____		

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 MECHANICAL
 ENLARGED DEMOLITION PLAN - LEVEL 1

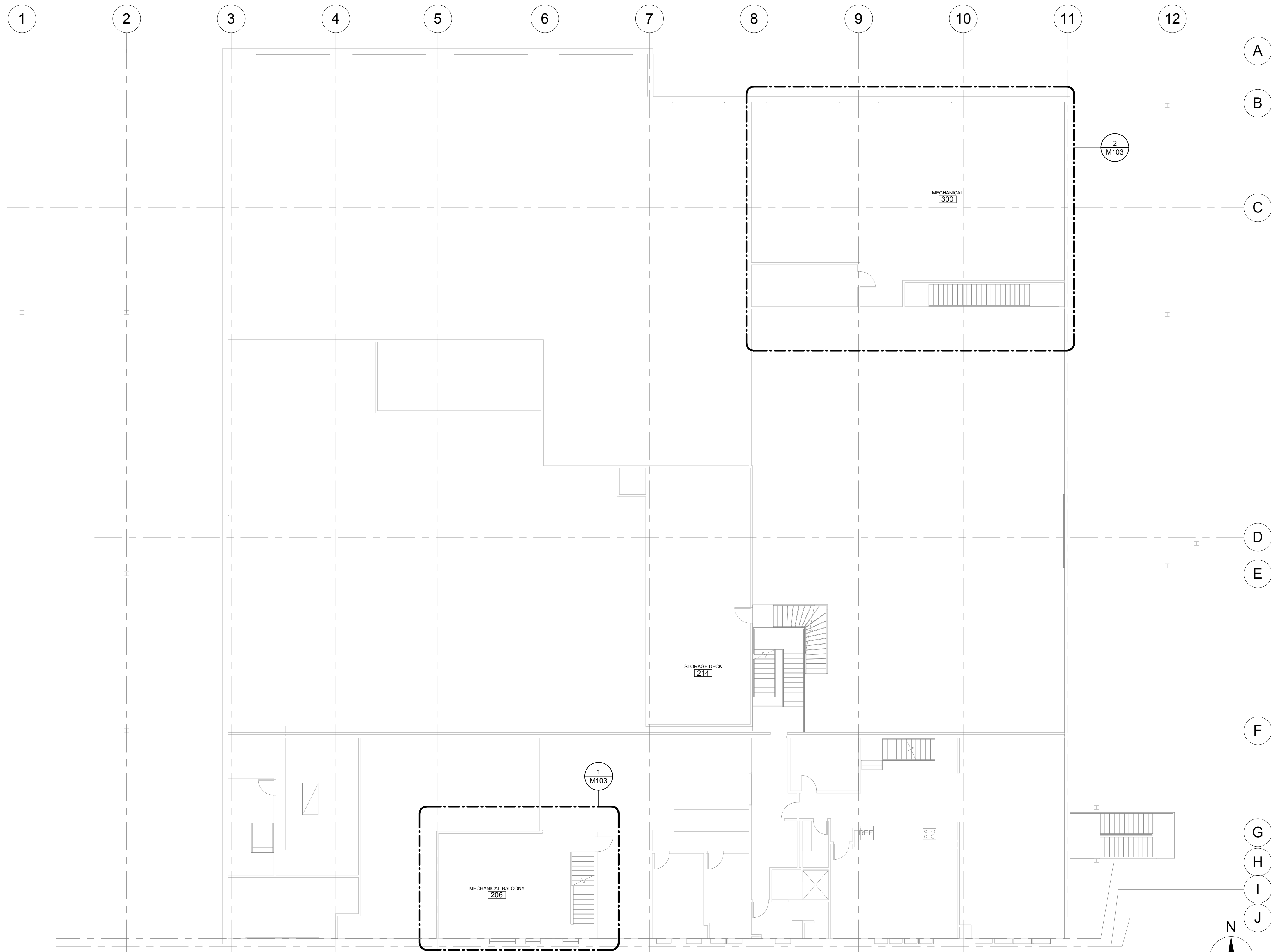
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HORZ SCALE: AS NOTED
 VERT SCALE: AS NOTED
 4/29/2016
 GRID: 2431
 PROJ. ID.: 2015022.05
 SHEET M101 of _____

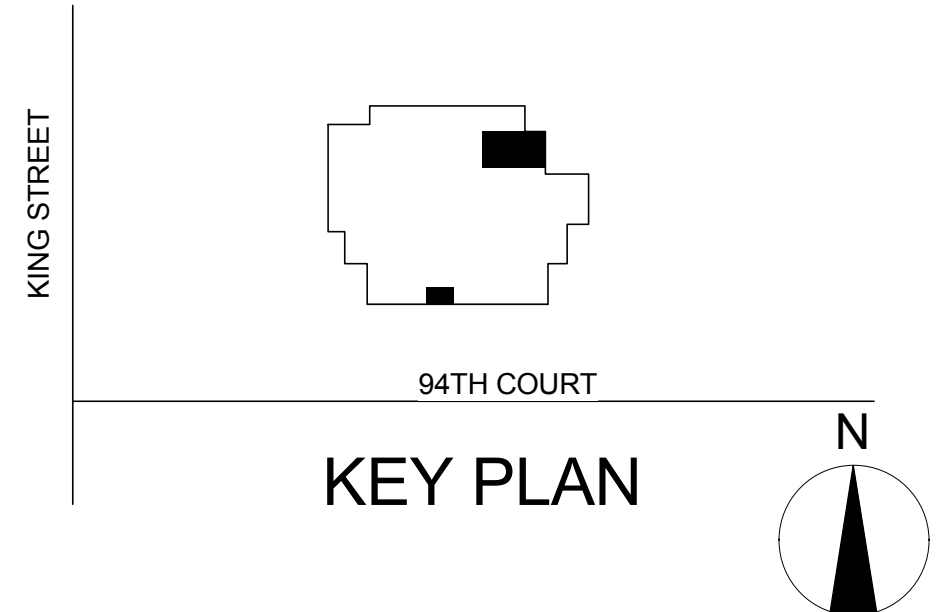
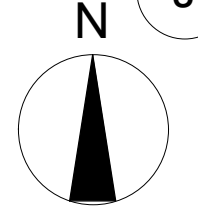
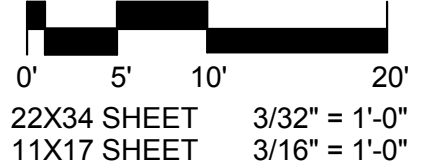
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PLOT SCALE: AS SHOWN

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1 OVERALL DEMOLITION PLAN - LEVEL 2 & 3
 M102 3/32" = 1'-0"



VERIFY SCALE		THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING.		0" = 1"		IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.		FULL SIZE SCALE	
DATA	DRAWN BY	CHECKED BY	DATA	DRAWN BY	CHECKED BY	REV	DATE	DESCRIPTION	BY
BASE	---	---	TELEPHONE	---	---				
TOPOGRAPHY	---	---	ELECTRIC	---	---				
PROFILE	---	---	CABLE TV	---	---				
SANITARY SEWER	---	---	TRAFFIC SIGNAL	---	---				
STORM SEWER	---	---	DESIGN	---	---				
WATER	---	---	QUANTITIES	---	---				
GAS	---	---	MUN. FINAL CHECK	---	---				
PLAN CHECK					REVISIONS				

RECORD DRAWING Note: To be filled out on original drawings upon project completion.

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: _____ TITLE: _____

BY: _____ DATE: _____

2. DATA TRANSFERRED BY: _____

COMPANY: _____ DATE: _____

3. 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.

DATA TRANSFER CHECKED BY: _____

COMPANY: _____

BY: _____ TITLE: _____

DATE: _____

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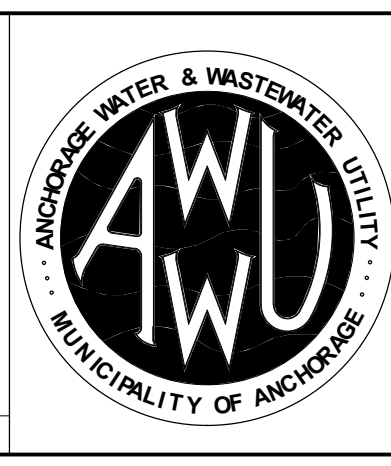
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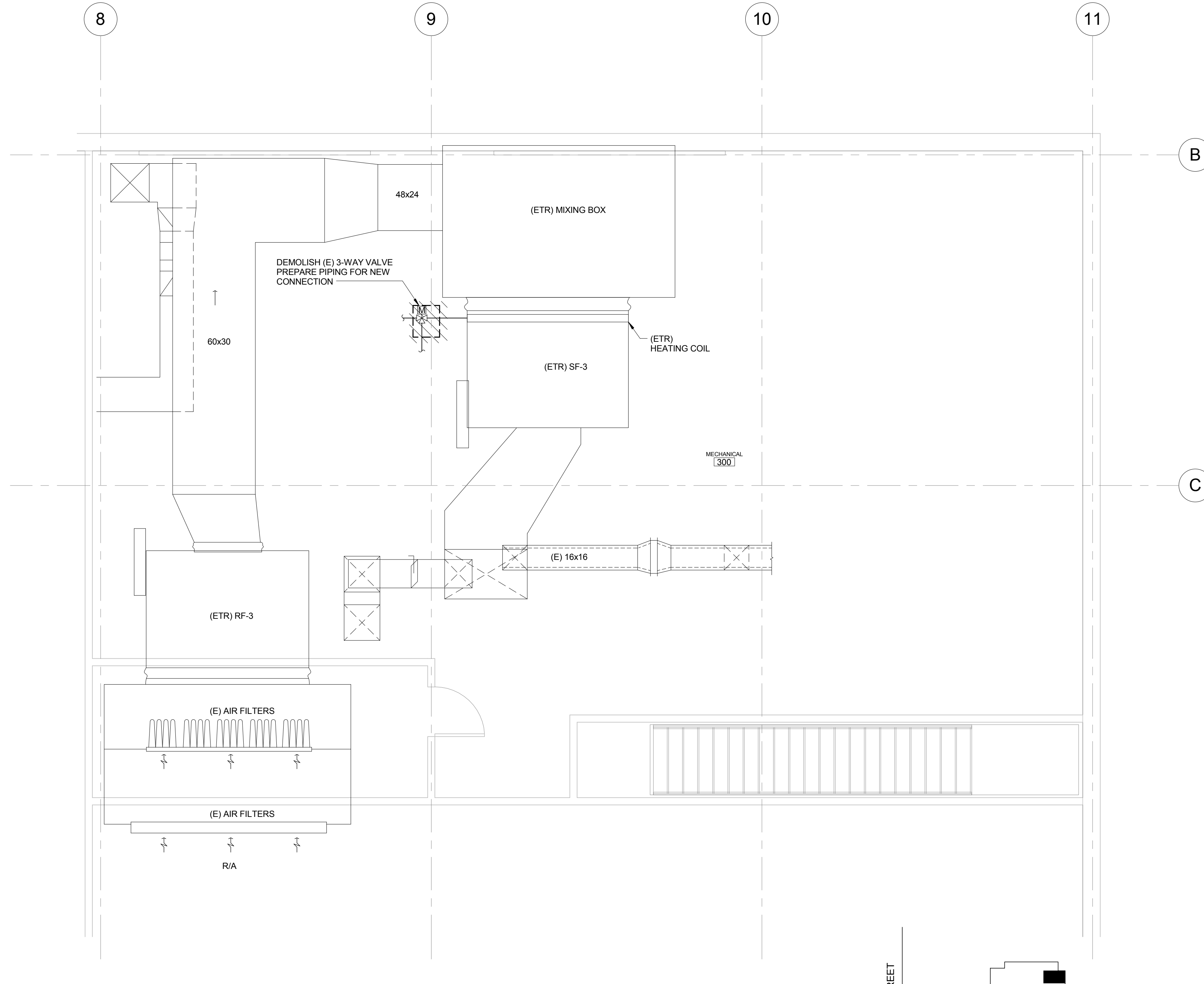
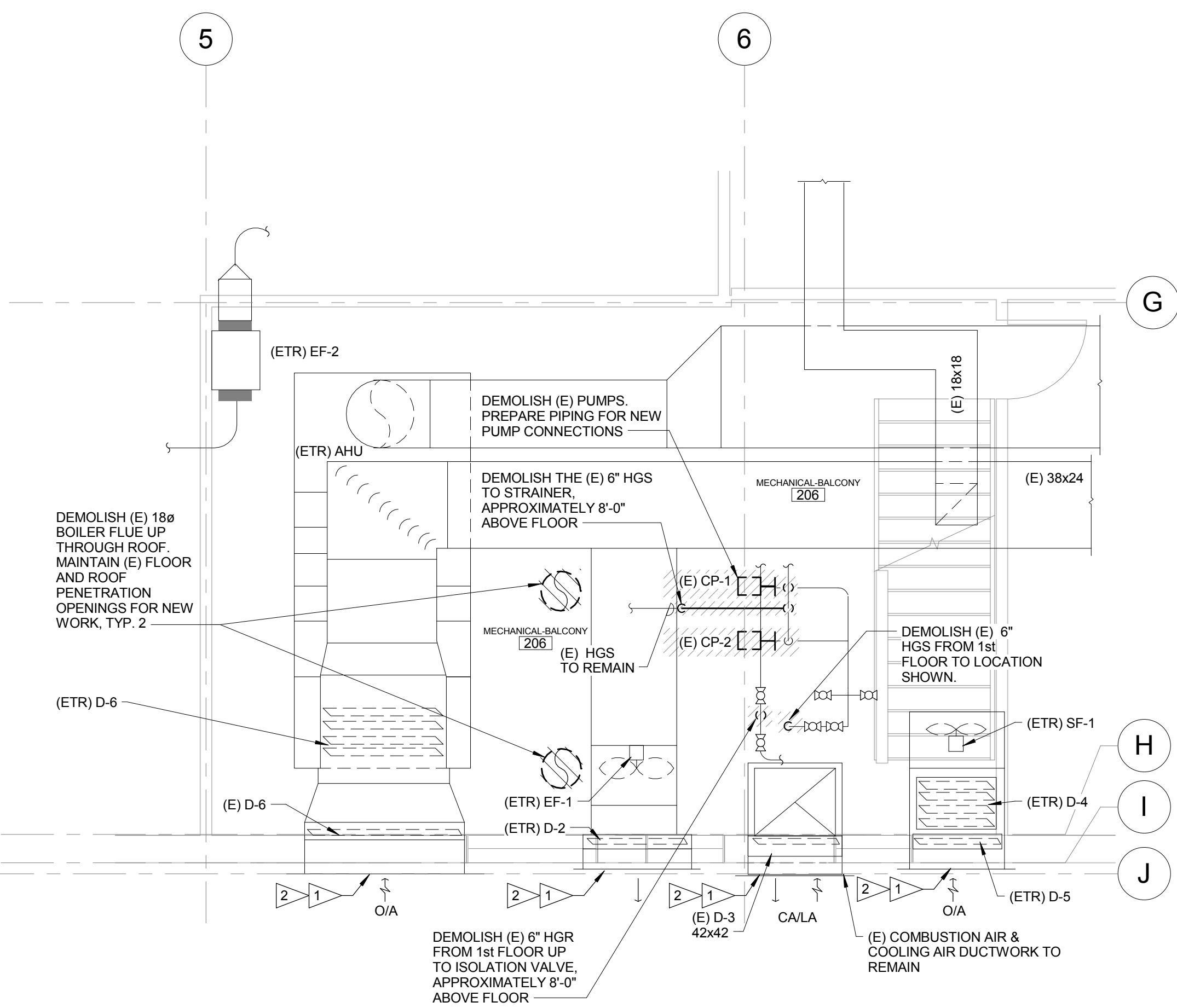
SEAL



MUNICIPALITY OF ANCHORAGE WATER & WASTEWATER UTILITY KING STREET MAIN BUILDING UPGRADE MECHANICAL OVERALL DEMOLITION PLAN - LEVEL 2			
HORZ SCALE: AS NOTED	4/29/2016	GRID: 2431	M102 of
PROJ. ID: 2015022.05			SHEET

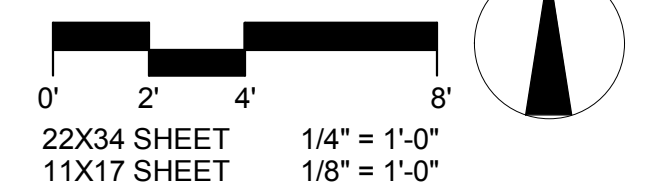
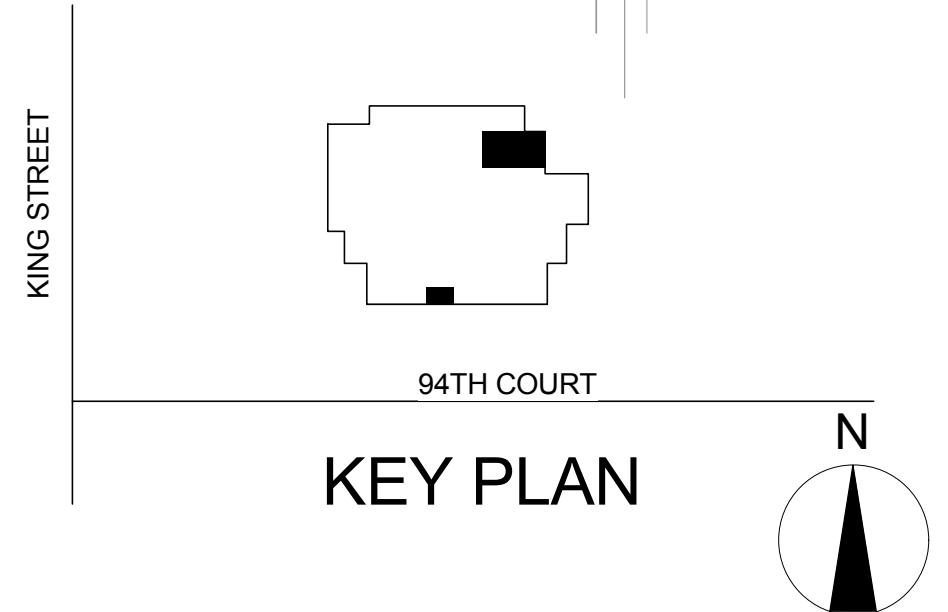
SHEET NOTES:

- 1 REMOVE & RETAIN (E) LOUVER FOR REUSE.
- 2 PREPARE (E) DUCTWORK FOR NEW DUCTWORK CONNECTION(S).



1 DEMOLITION ENLARGED MECH BALCONY 206 - LEVEL 2
M103 1/4" = 1'-0"

2 DEMOLITION ENLARGED FAN ROOM 300 - LEVEL 3
M103 1/4" = 1'-0"



FILE PATH AND NAME: C:\Users\wilson\Documents\150954-KSMBU-MEP2016-swilson\2938.rvt PLOT DATE: 4/29/2016 6:27:56 PM PLOT SCALE: AS SHOWN

AWWU PLAN SET NO. XXXX

DESIGN DEVELOPMENT

VERIFY SCALE		THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING.		IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.		FULL SIZE SCALE	
DATA	DRAWN BY	CHECKED BY	DATA	DRAWN BY	CHECKED BY	REV	DATE
BASE	---	---	TELEPHONE	---	---		
TOPOGRAPHY	---	---	ELECTRIC	---	---		
PROFILE	---	---	CABLE TV	---	---		
SANITARY SEWER	---	---	TRAFFIC SIGNAL	---	---		
STORM SEWER	---	---	DESIGN	---	---		
WATER	---	---	QUANTITIES	---	---		
GAS	---	---	MUN. FINAL CHECK	---	---		
PLAN CHECK				REVISIONS			

RECORD DRAWING		Note: To be filled out on original drawings upon project completion.	
1. DATA PROVIDED BY:	_____	3. 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.	_____
This will serve to certify that these Record Drawings are a true and accurate representation of the project as constructed.			
CONTRACTOR:	_____	DATA TRANSFER CHECKED BY:	_____
BY:	_____ TITLE: _____	COMPANY:	_____
DATE:	_____	BY:	_____ TITLE: _____
2. DATA TRANSFERRED BY:	_____	DATE:	_____
COMPANY:	_____		
DATE:	_____		

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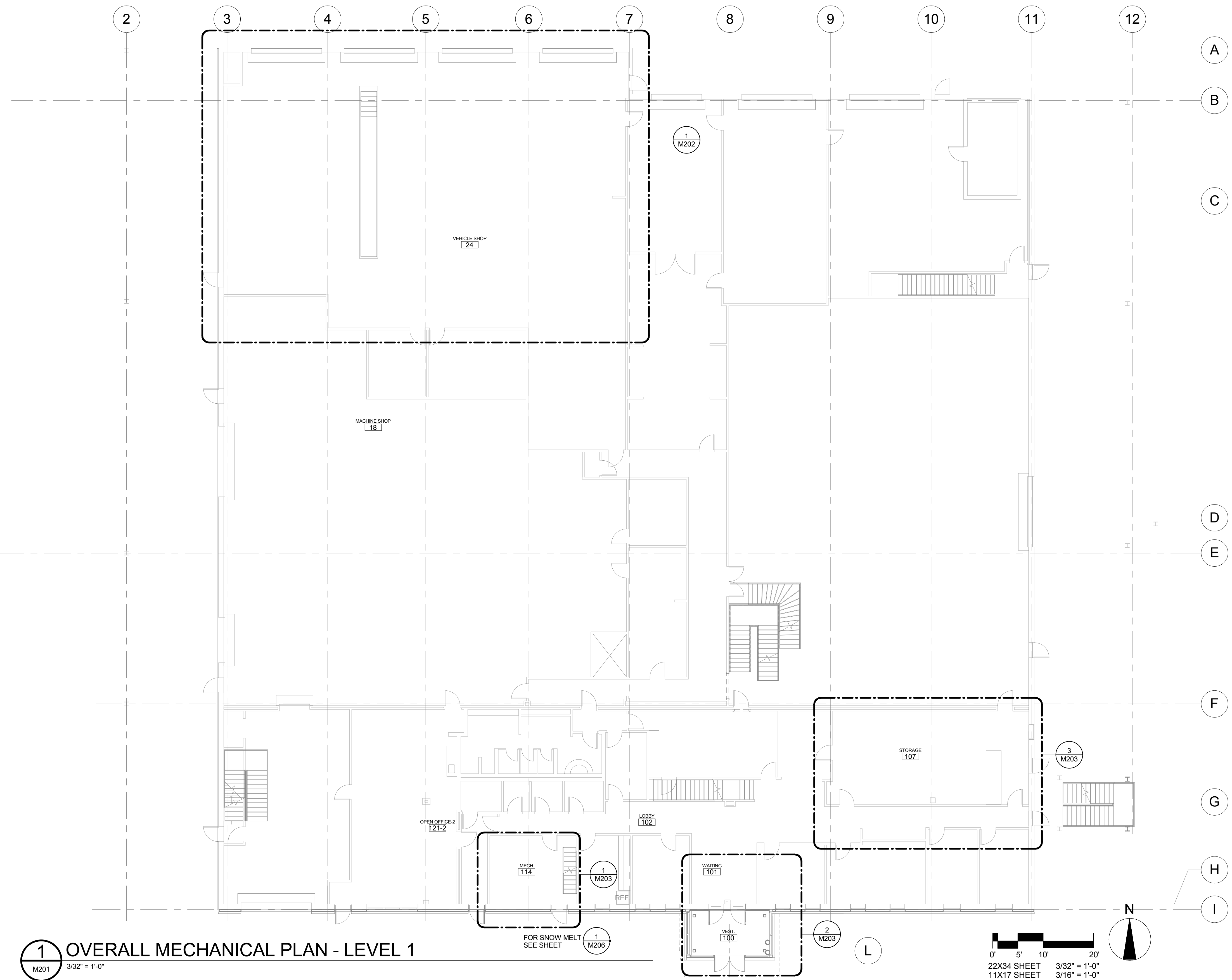
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PROJ. ID.: 2015022.05 SHEET

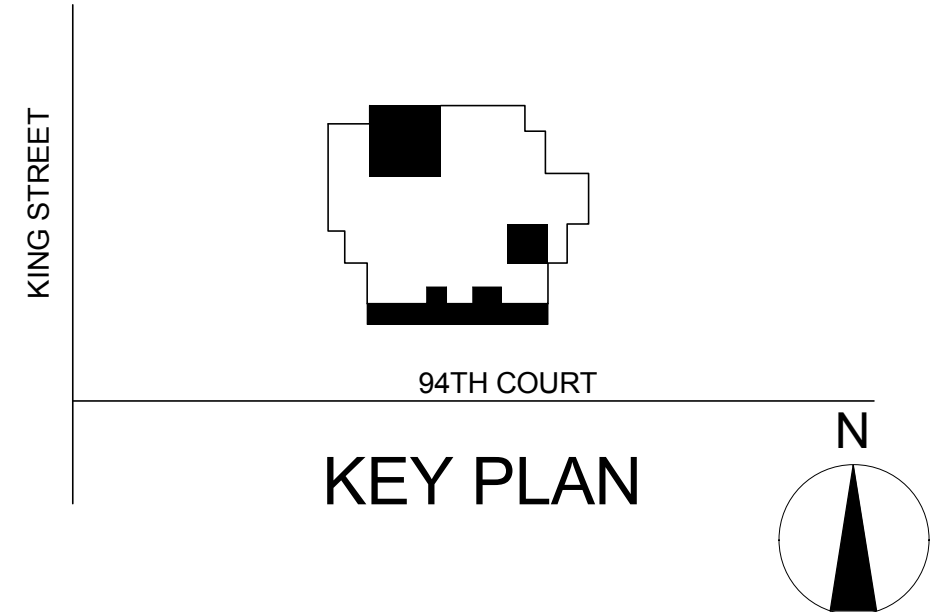
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PLOT SCALE: AS SHOWN

FILE PATH AND NAME: C:\Users\wilson\Documents\150954-KSMBU-MEP2016_swilson\3298.rvt



1 OVERALL MECHANICAL PLAN - LEVEL 1
 M201 3/32" = 1'-0"



VERIFY SCALE		THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING.		IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.		FULL SIZE SCALE	
DATA	DRAWN BY	CHECKED BY	DATA	DRAWN BY	CHECKED BY	REV	DATE
BASE	---	---	TELEPHONE	---	---		
TOPOGRAPHY	---	---	ELECTRIC	---	---		
PROFILE	---	---	CABLE TV	---	---		
SANITARY SEWER	---	---	TRAFFIC SIGNAL	---	---		
STORM SEWER	---	---	DESIGN	---	---		
WATER	---	---	QUANTITIES	---	---		
GAS	---	---	MUN. FINAL CHECK	---	---		

RECORD DRAWING Note: To be filled out on original drawings upon project completion.

1. DATA PROVIDED BY: _____
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 COMPANY: _____ DATE: _____

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DATA TRANSFER CHECKED BY: _____
 COMPANY: _____ DATE: _____

CONTRACTOR: _____ TITLE: _____

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 MECHANICAL
 OVERALL PLAN - LEVEL 1

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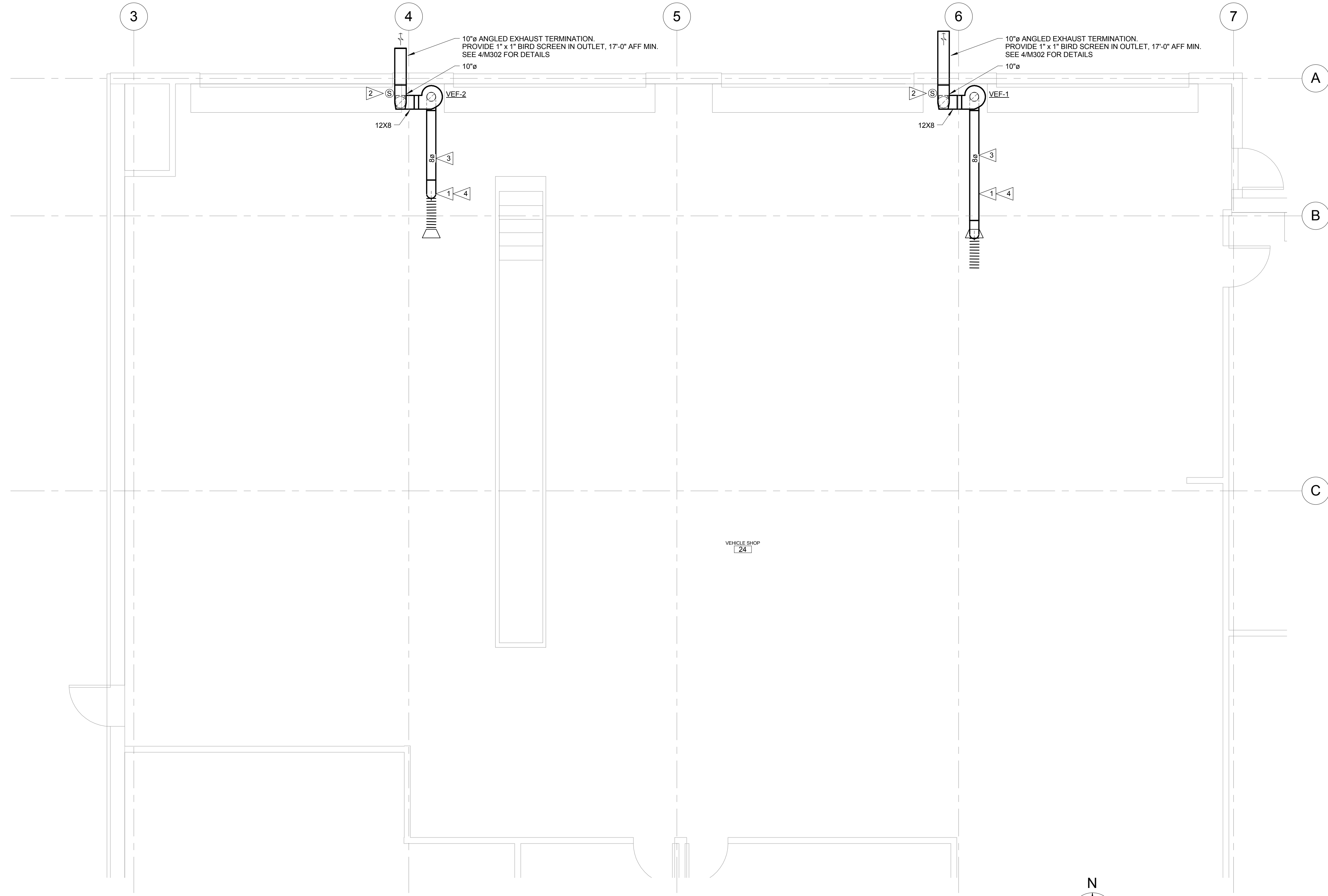
HORZ SCALE: AS NOTED 4/29/2016 GRID: 2431 M201 of
 VERT SCALE: AS NOTED 3/32" = 1'-0" SHEET
 PROJ. ID: 2015022.05

GENERAL NOTES:

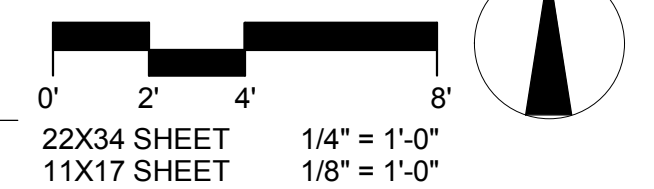
- 1. CONTRACTOR SHALL VERIFY LOCATION OF ALL PIPING AND DUCTWORK PRIOR TO COMMENCING WORK. LOCATIONS SHOWN HERE ARE APPROXIMATE.
- 2. CONTRACTOR SHALL VERIFY ROUTING OF VEHICLE EXHAUST DUCT ROUTING PRIOR TO CONSTRUCTION. DUCTWORK SHALL BE ROUTED TO AVOID THE OVERHEAD DOOR HARDWARE AND SHALL AVOID THE OVERHEAD CRANE.
- 3. ALL RIGID DUCTWORK SHALL BE 18 GAUGE, PRESSURE CLASS 2.
- 4. MOUNT PIPE BOOMS AT LEAST 7'-0" AFF.
- 5. EXHAUST TERMINATIONS SHALL BE AT LEAST 3'-0" FROM ANY DOOR OR OPENING INTO THE BUILDING. EXHAUST TERMINATION SHALL BE LOCATED ABOVE OVERHEAD DOOR ELEVATION.

SHEET NOTES:

- 1 PROVIDE FLEXIBLE HOSE DROP. SEE 3/M302. EACH DROP SHALL SERVICE (2) BAYS.
- 2 WALL SWITCH FOR VEHICLE EXHAUST FAN.
- 3 PROVIDE 8" PIPE BOOM. SEE 3/M302 FOR DETAILS.
- 4 PROVIDE 8" FLEXIBLE HOSE. SEE 3/M302 FOR DETAIL.



1 MECHANICAL PLAN - ENLARGED VEHICLE SHOP 132
 M202 1/4" = 1'-0"



VERIFY SCALE		THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING.		0" = 1"		IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.		FULL SIZE SCALE	
DATA	DRAWN BY	CHECKED BY	DATA	DRAWN BY	CHECKED BY	REV	DATE	DESCRIPTION	BY
BASE	---	---	TELEPHONE	---	---				
TOPOGRAPHY	---	---	ELECTRIC	---	---				
PROFILE	---	---	CABLE TV	---	---				
SANITARY SEWER	---	---	TRAFFIC SIGNAL	---	---				
STORM SEWER	---	---	DESIGN	---	---				
WATER	---	---	QUANTITIES	---	---				
GAS	---	---	MUN. FINAL CHECK	---	---				
PLAN CHECK					REVISIONS				

RECORD DRAWING		Note: To be filled out on original drawings upon project completion.	
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CONTRACTOR:	_____	DATA TRANSFER CHECKED BY:	_____
BY: _____	TITLE: _____	COMPANY: _____	BY: _____
DATE: _____		DATE: _____	TITLE: _____
2. DATA TRANSFERRED BY:	_____		
COMPANY: _____			
DATE: _____			

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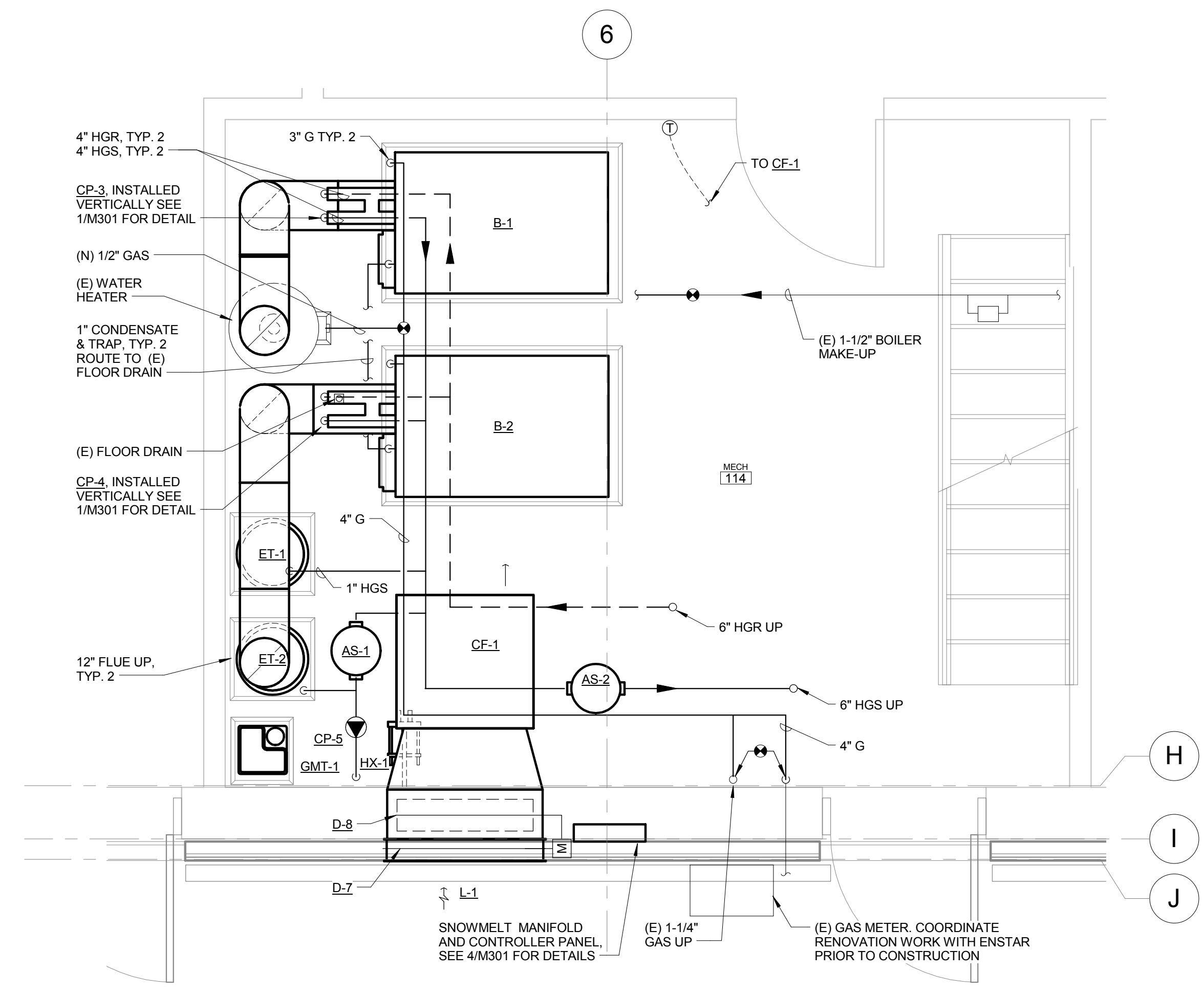
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HORZ SCALE: AS NOTED	4/29/2016	GRID: 2431	M202 of
PROJ. ID: 2015022.05			SHEET

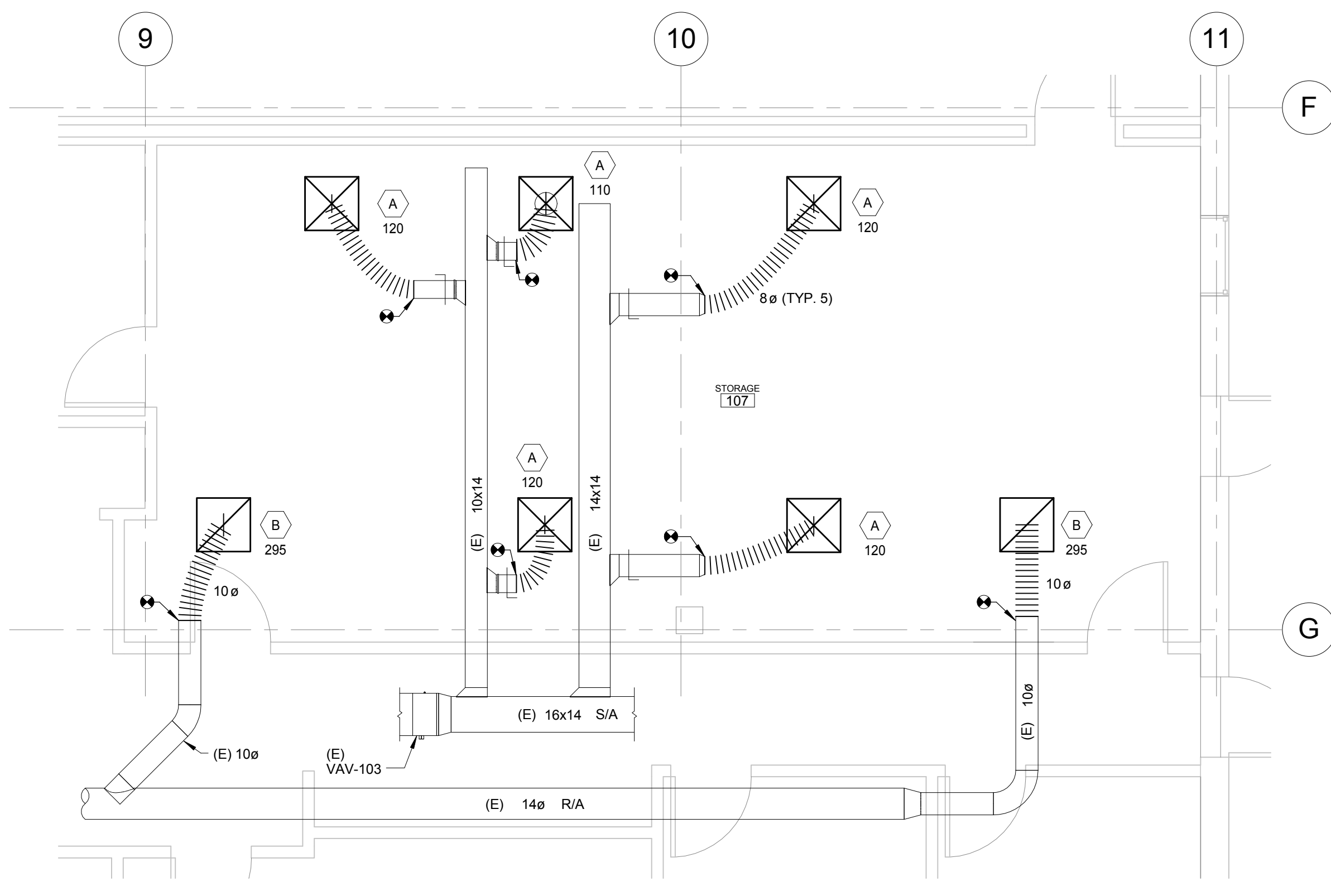
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GENERAL NOTES:

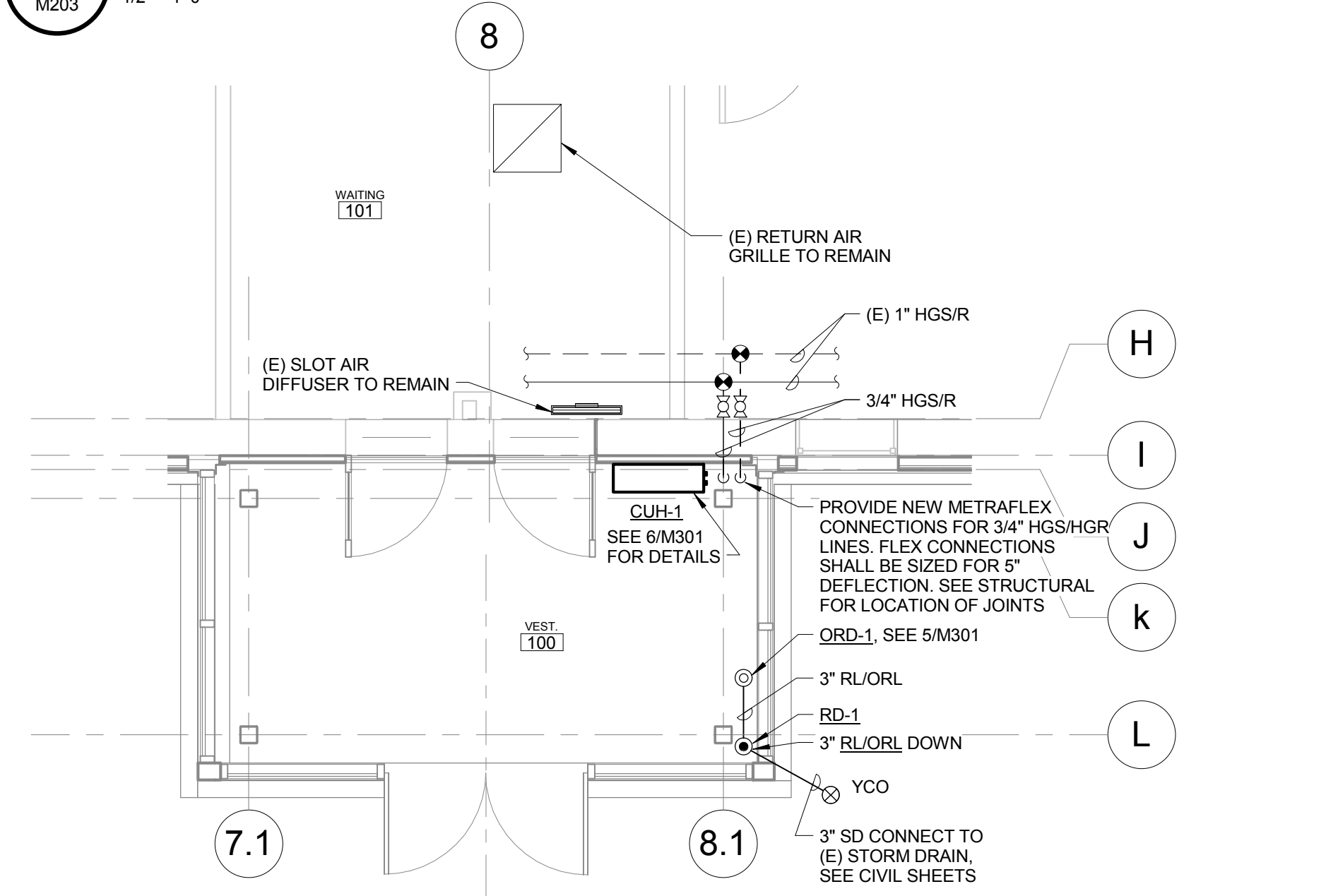
- SEE 1/M301 FOR HEATING PIPING DIAGRAM FOR ENLARGED MECH 114.
- ROUTE 12" BOILER FLUES, 6" HGS, & 6" HGR LINES UP THROUGH (E) PENETRATIONS IN THE STEEL GRATED FLOOR OF THE MECHANICAL BALCONY 206, SEE 1/M205 FOR LOCATIONS.
- CFM RATES TO NEW SUPPLY DIFFUSERS AND RETURN GRILLES ARE BASED ON RECORD DRAWINGS. THE EXISTING CFM SUPPLIED TO (E) VAV-103 SHALL BE RECORDED PRIOR TO INSTALLATION OF NEW DIFFUSERS AND SHALL BE RE-BALANCED AFTER CONSTRUCTION TO PREVIOUS CFM.



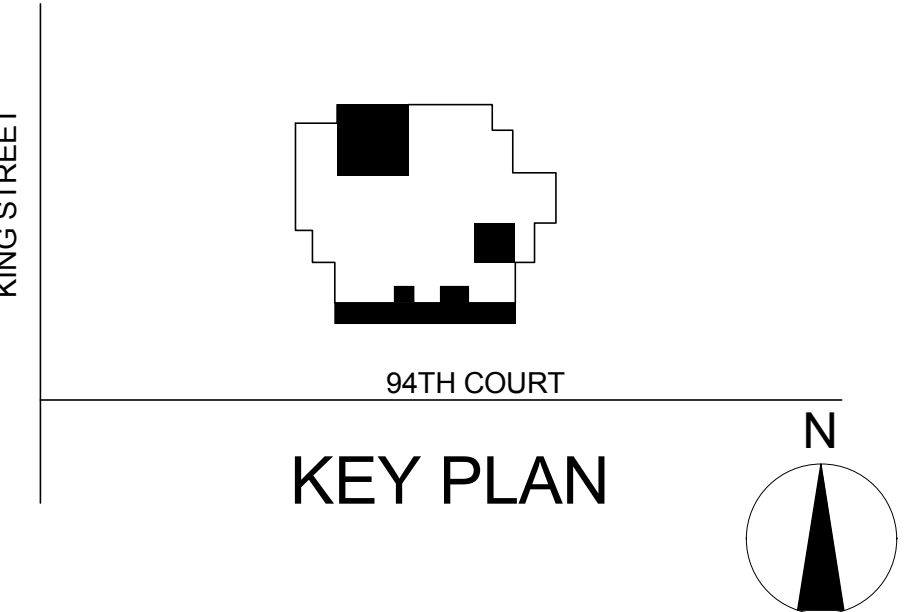
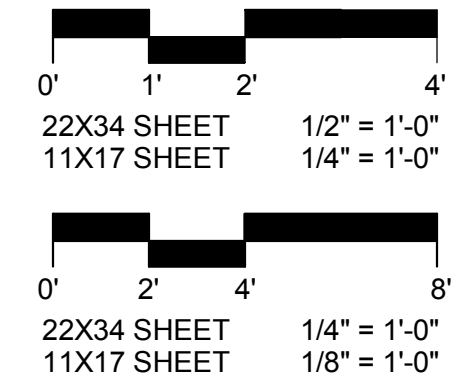
1 MECHANICAL PLAN - ENLARGED MECH 114
M203 1/2" = 1'-0"



3 MECHANICAL PLAN - ENLARGED STORAGE 107
M203 1/4" = 1'-0"



2 MECHANICAL PLAN - ENLARGED WAITING VEST 100
M203 1/4" = 1'-0"



PLOT DATE: 4/29/2016 6:28:00 PM

PLOT SCALE: AS SHOWN

FILE PATH AND NAME: C:\Users\wilson\Documents\150954-KSMBU-MEP2016_swilson\3298.rvt

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DATA	DRAWN BY	CHECKED BY	DATE	DESCRIPTION	BY	DATE	DESCRIPTION
BASE	---	TELEPHONE	---				
TOPOGRAPHY	---	ELECTRIC	---				
PROFILE	---	CABLE TV	---				
SANITARY SEWER	---	TRAFFIC SIGNAL	---				
STORM SEWER	---	DESIGN	---				
WATER	---	QUANTITIES	---				
GAS	---	MUN. FINAL CHECK	---				

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2. DATA TRANSFERRED BY:	_____		_____

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ENLARGED PLANS - LEVEL 1

HORZ SCALE: AS NOTED
VERT SCALE: AS NOTED

4/29/2016

GRID: 2431

PROJ. ID.: 2015022.05

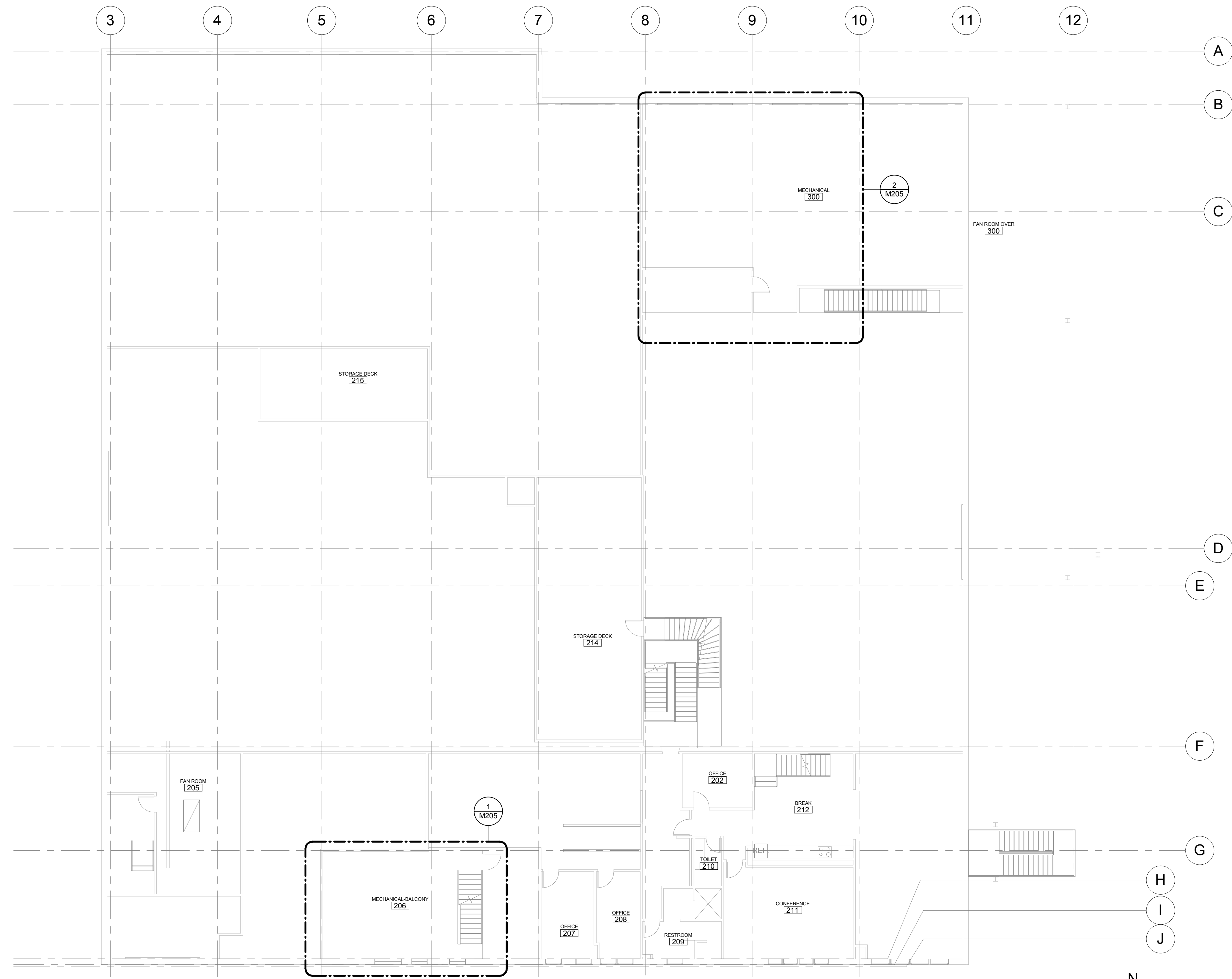
M203 of

SHEET

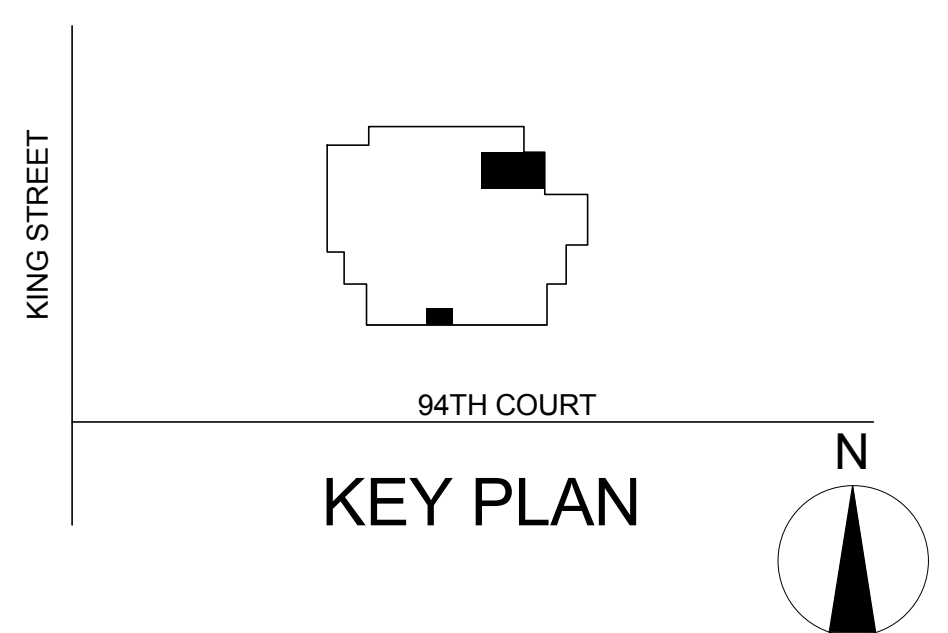
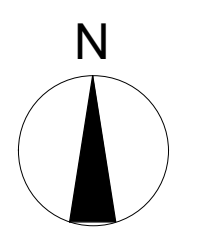
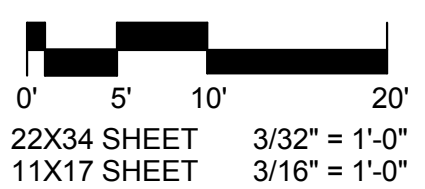
PLOT DATE: 4/29/2016 6:28:01 PM

PLOT SCALE: AS SHOWN

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1 OVERALL MECHANICAL PLAN - LEVEL 2 & 3
 M204 3/32" = 1'-0"



VERIFY SCALE		THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING.		0" = 1"		IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.		FULL SIZE SCALE	
DATA	DRAWN BY	CHECKED BY	DATA	DRAWN BY	CHECKED BY	REV	DATE	DESCRIPTION	BY
BASE	---	---	TELEPHONE	---	---				
TOPOGRAPHY	---	---	ELECTRIC	---	---				
PROFILE	---	---	CABLE TV	---	---				
SANITARY SEWER	---	---	TRAFFIC SIGNAL	---	---				
STORM SEWER	---	---	DESIGN	---	---				
WATER	---	---	QUANTITIES	---	---				
GAS	---	---	MUN. FINAL CHECK	---	---				
PLAN CHECK					REVISIONS				

RECORD DRAWING Note: To be filled out on original drawings upon project completion.

1. DATA PROVIDED BY: _____
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CONTRACTOR: _____ TITLE: _____
 BY: _____ DATE: _____

2. DATA TRANSFERRED BY: _____
 COMPANY: _____ DATE: _____

3. 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.

DATA TRANSFER CHECKED BY: _____
 COMPANY: _____ BY: _____ TITLE: _____
 DATE: _____

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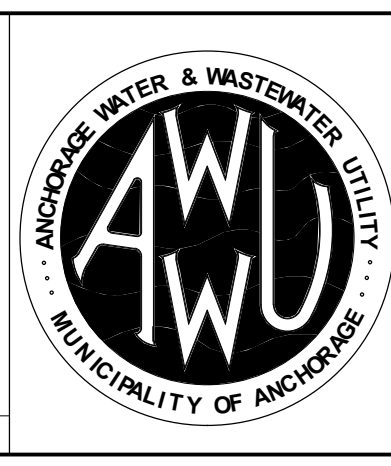
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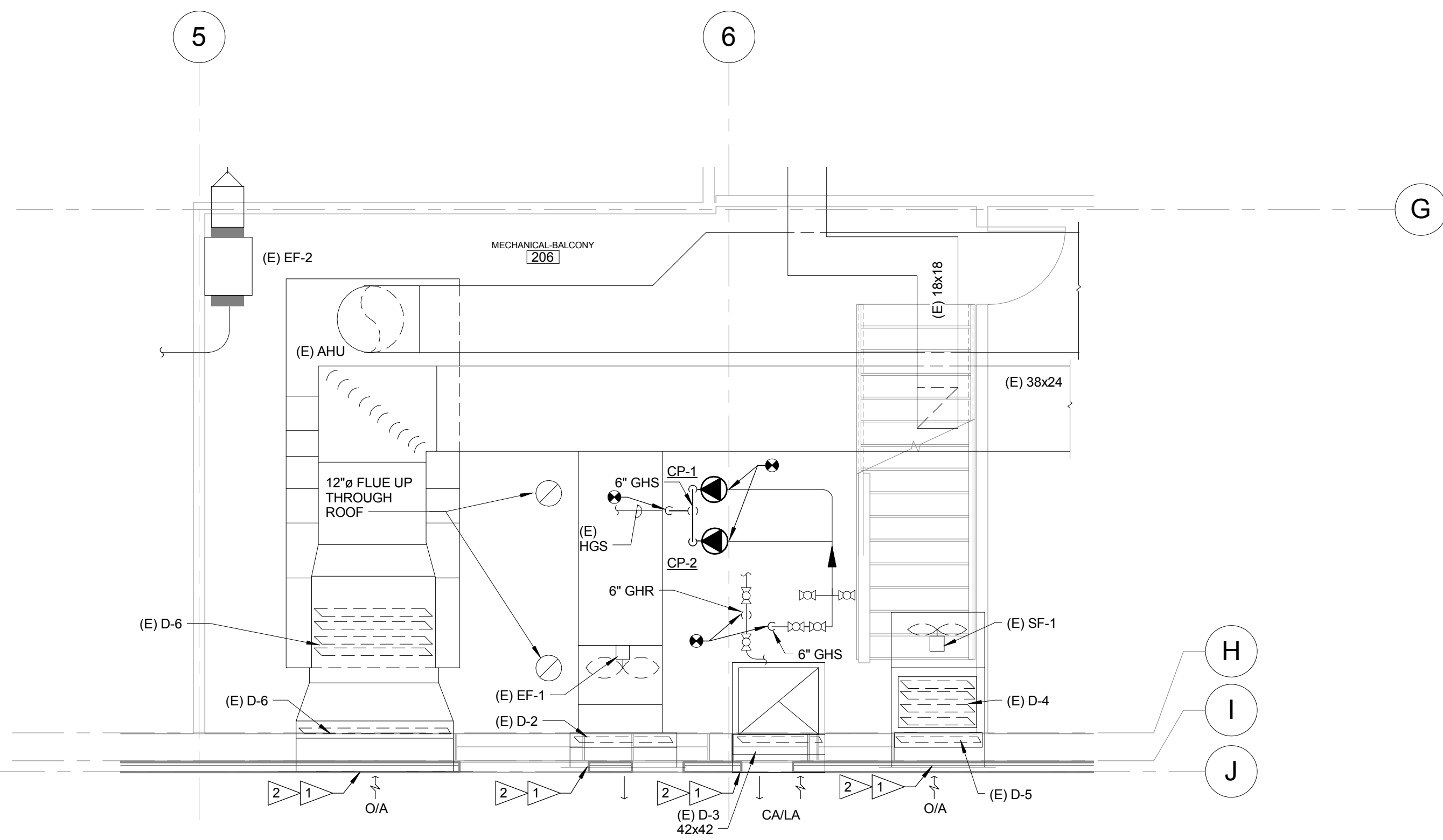
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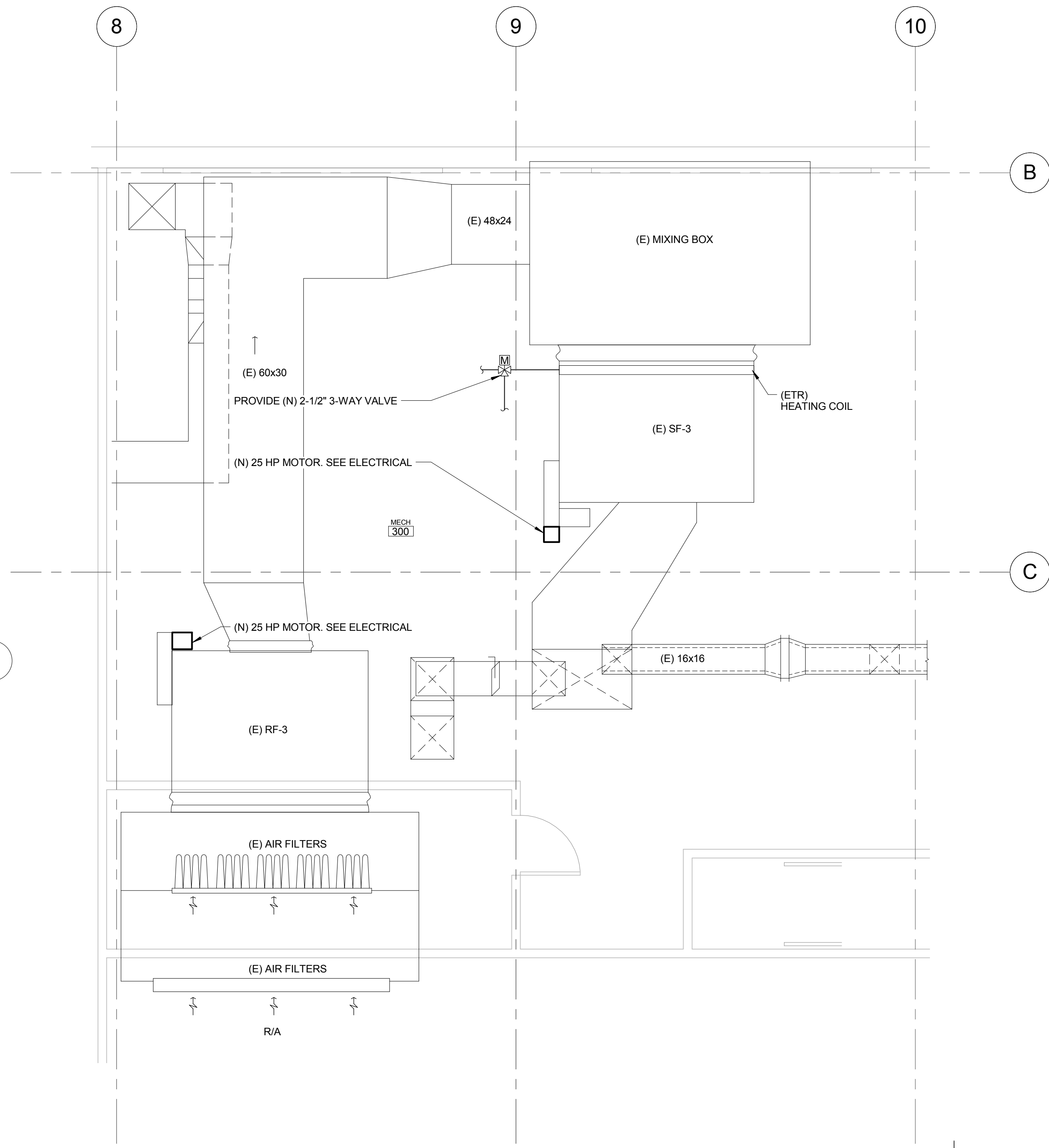
MUNICIPALITY OF ANCHORAGE WATER & WASTEWATER UTILITY			
KING STREET MAIN BUILDING UPGRADE MECHANICAL OVERALL PLAN - LEVEL 2			
HORZ SCALE: AS NOTED	4/29/2016	GRID: 2431	M204 of
PROJ. ID: 2015022.05			SHEET

SHEET NOTES:

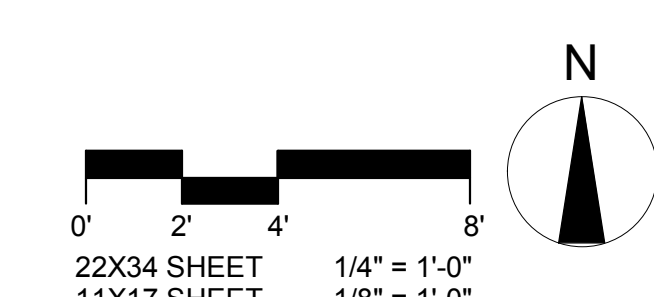
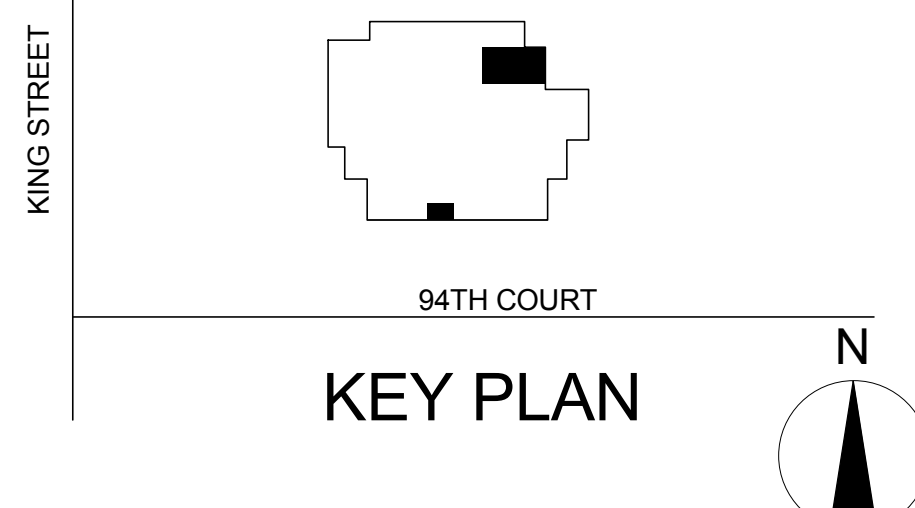
- 1 REINSTALL (ETR) LOUVER.
- 2 PROVIDE NEW DUCTWORK IF REQUIRED TO CONNECT LOUVER WITH (ETR) DAMPER.



1 MECHANICAL PLAN - ENLARGED MECH BALCONY 206 - LEVEL 2
M205 1/4" = 1'-0"



2 MECHANICAL PLAN - ENLARGED FAN ROOM 300 - LEVEL 3
M205 1/4" = 1'-0"



PLOT DATE: 4/29/2016 6:28:01 PM
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AWWU PLAN SET NO. XXXX

DESIGN DEVELOPMENT

VERIFY SCALE		THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING.		IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.		FULL SIZE SCALE	
DATA	DRAWN BY	CHECKED BY	DATE	DESCRIPTION	BY	DATE	REVISIONS
BASE	---	TELEPHONE	---				
TOPOGRAPHY	---	ELECTRIC	---				
PROFILE	---	CABLE TV	---				
SANITARY SEWER	---	TRAFFIC SIGNAL	---				
STORM SEWER	---	DESIGN	---				
WATER	---	QUANTITIES	---				
GAS	---	MUN. FINAL CHECK	---				

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 COMPANY: _____ DATE: _____

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 COMPANY: _____
 BY: _____ TITLE: _____
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 KING STREET MAIN BUILDING UPGRADE
 MECHANICAL
 ENLARGED PLANS - LEVEL 2

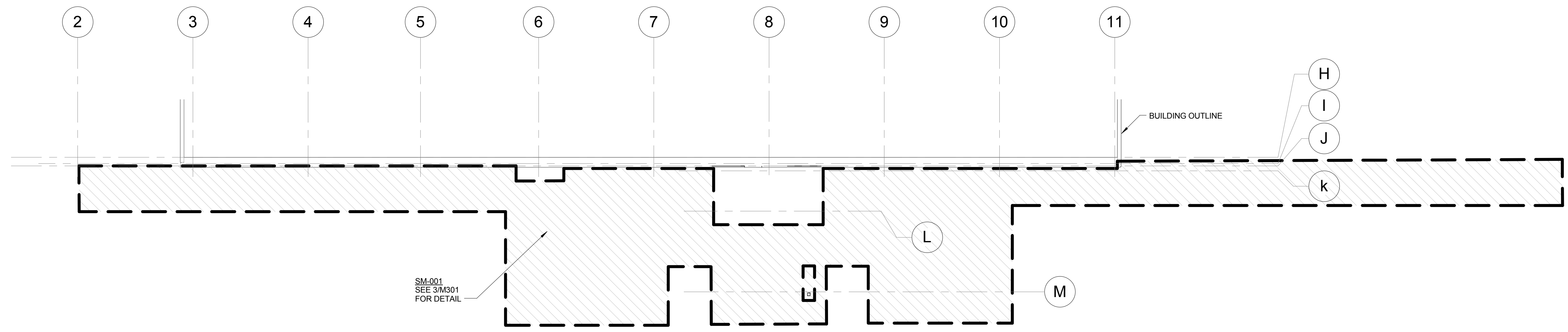
AWWU
 ANCHORAGE WATER & WASTEWATER UTILITY
 MUNICIPALITY OF ANCHORAGE

HORZ SCALE: AS NOTED
 VERT SCALE: AS NOTED
 4/29/2016
 GRID: 2431
 PROJ. ID: 2015022.05
 SHEET M205 of

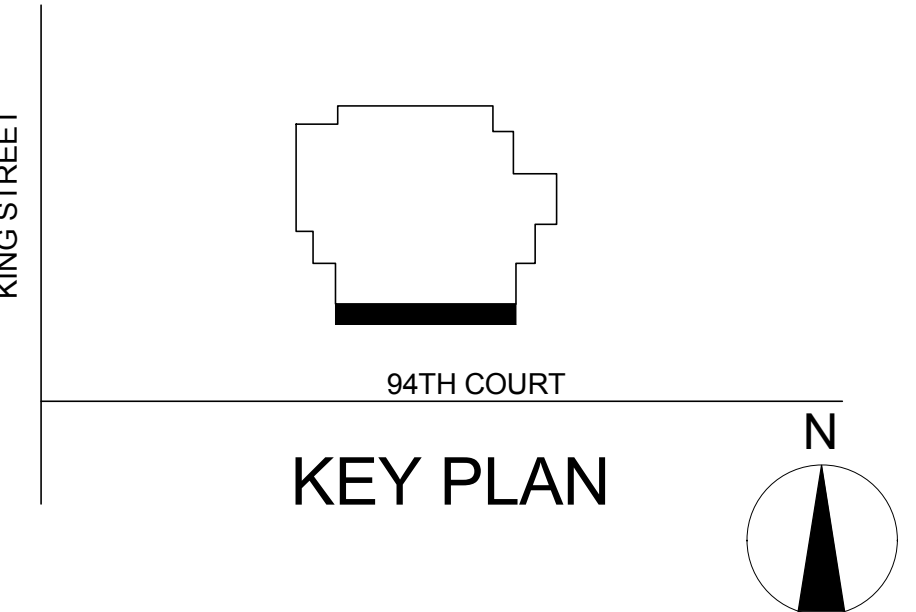
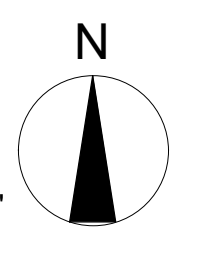
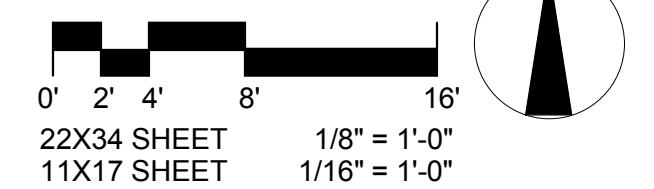
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PLOT SCALE: AS SHOWN

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1 MECHANICAL PLAN - RADIANT SNOW MELT PLAN
 M206 3/32" = 1'-0"



VERIFY SCALE		THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING.		0" = 1"		IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.		FULL SIZE SCALE	
DATA	DRAWN BY	CHECKED BY	DATA	DRAWN BY	CHECKED BY	REV	DATE	DESCRIPTION	BY
BASE	---	---	TELEPHONE	---	---				
TOPOGRAPHY	---	---	ELECTRIC	---	---				
PROFILE	---	---	CABLE TV	---	---				
SANITARY SEWER	---	---	TRAFFIC SIGNAL	---	---				
STORM SEWER	---	---	DESIGN	---	---				
WATER	---	---	QUANTITIES	---	---				
GAS	---	---	MUN. FINAL CHECK	---	---				
PLAN CHECK					REVISIONS				

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 BY: _____ DATE: _____

2. DATA TRANSFERRED BY: _____
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3. 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.

DATA TRANSFER CHECKED BY: _____
 COMPANY: _____
 BY: _____ TITLE: _____
 DATE: _____

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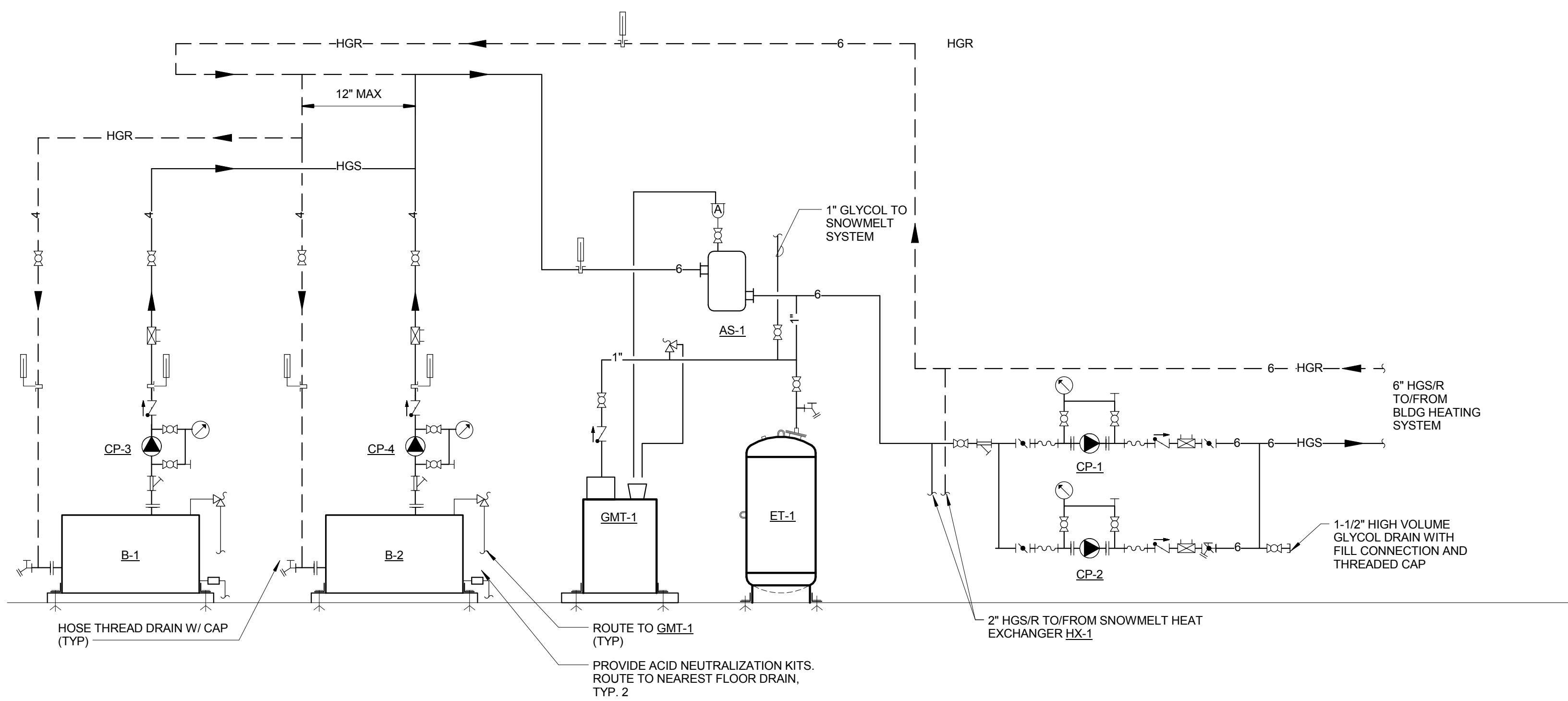
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AWWU

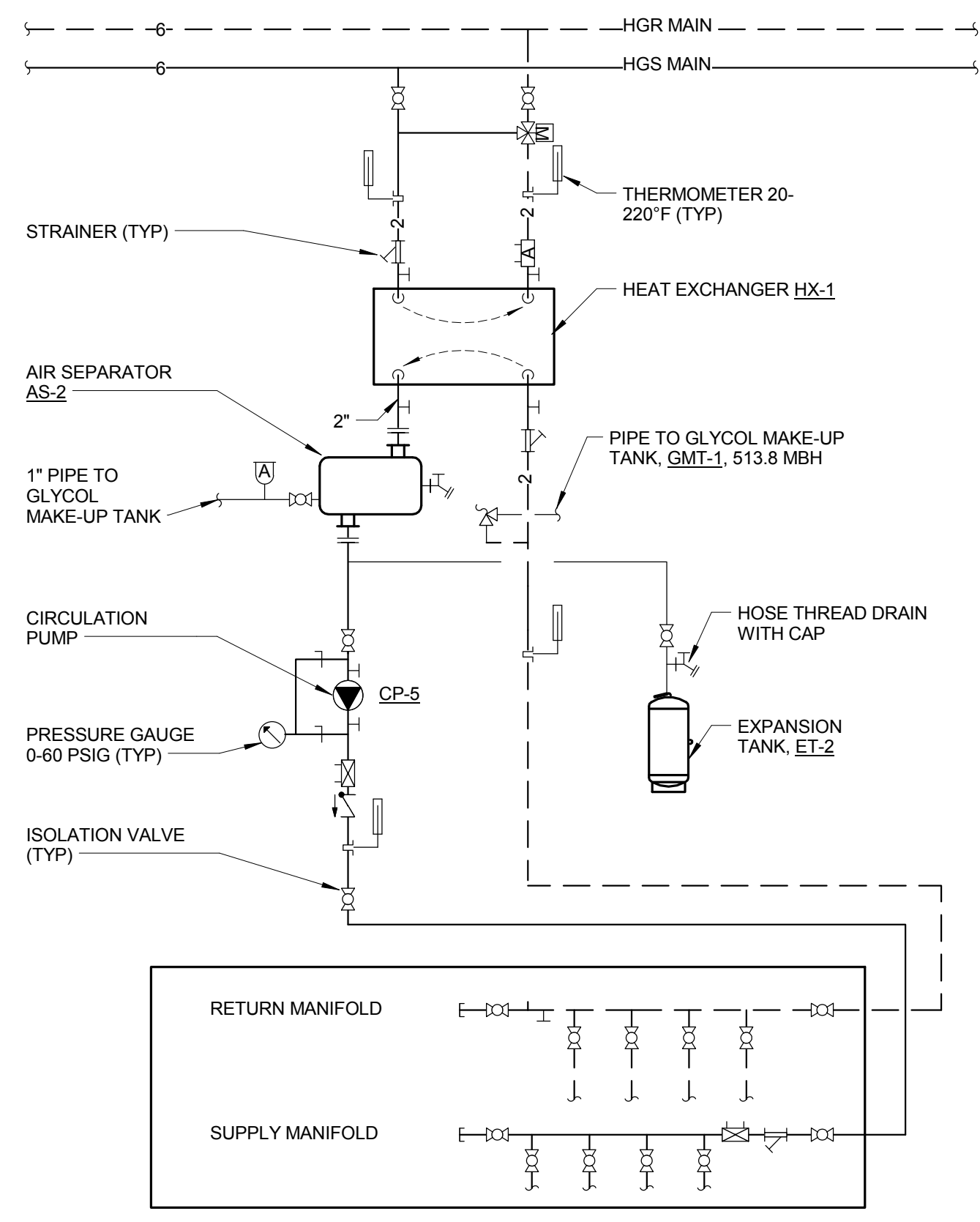
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KING STREET MAIN BUILDING UPGRADE
 MECHANICAL
 RADIANT SNOW MELT PLAN

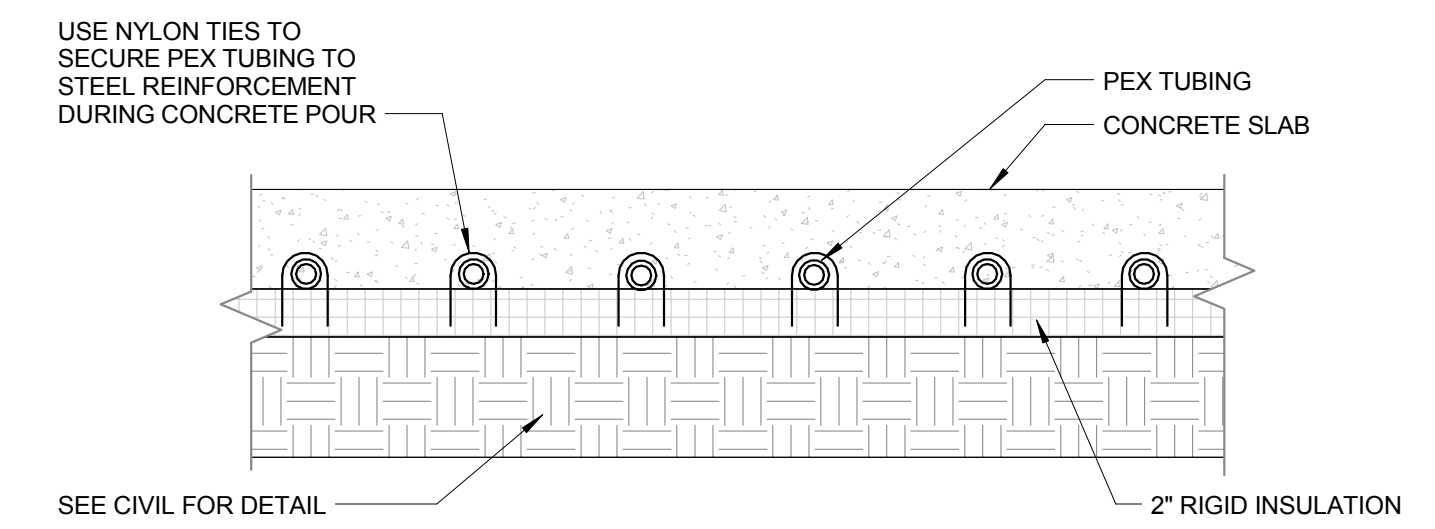
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 VERT SCALE: AS NOTED
 PROJ. ID.: 2015022.05 SHEET



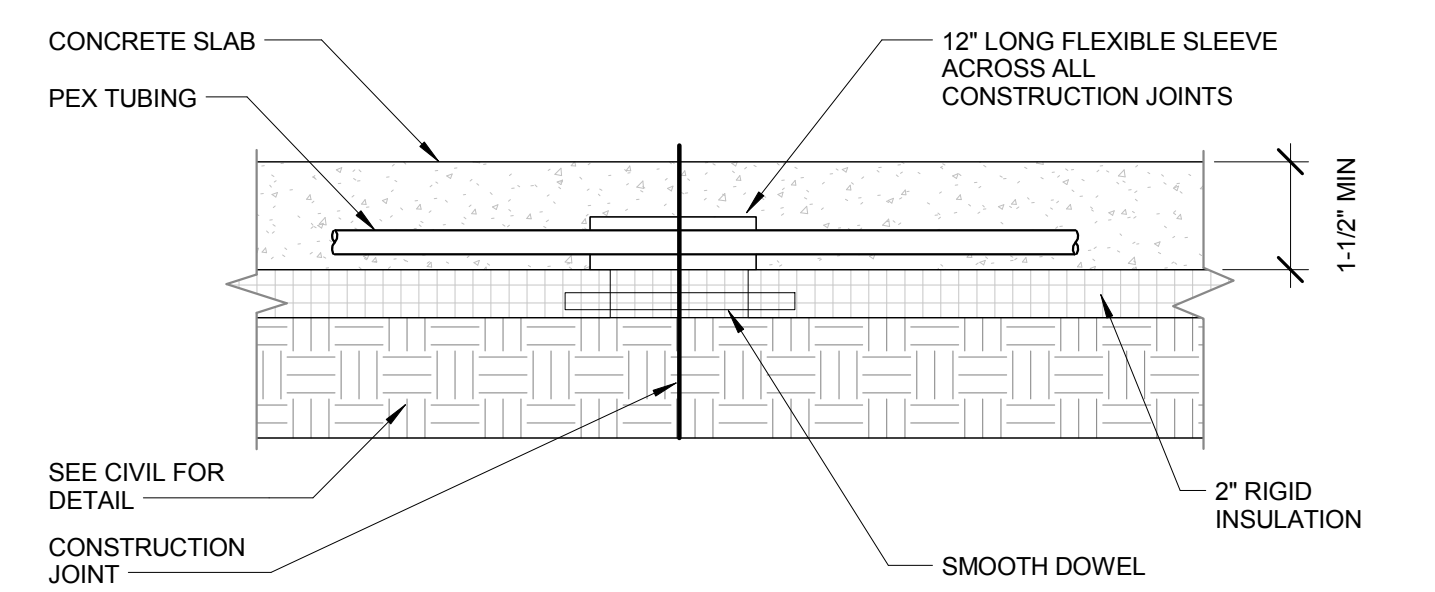
1 HEATING PIPING DIAGRAM
M301 N.T.S.



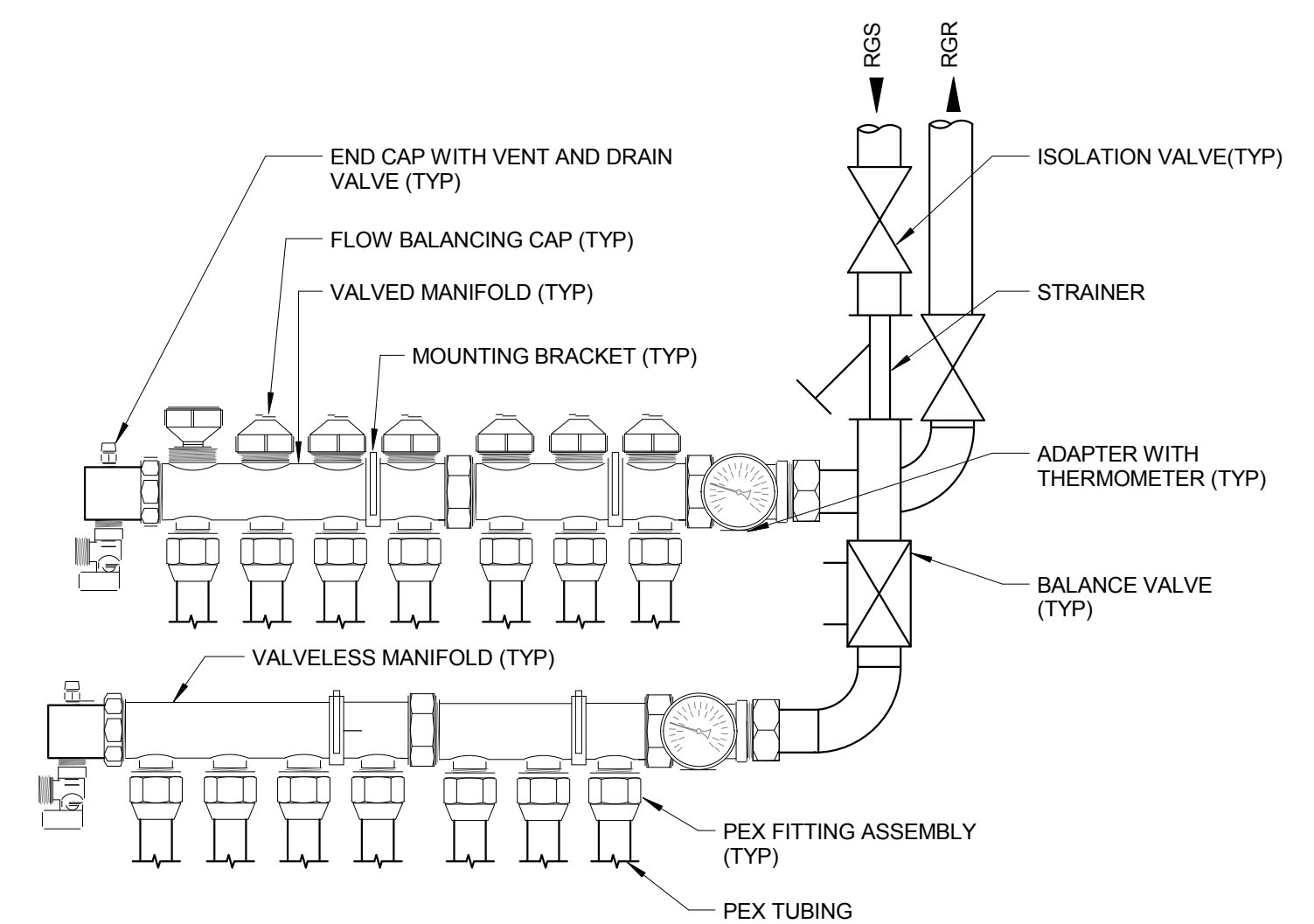
NOTE:
REFER TO SNOW MELT SCHEDULE FOR NUMBER OF CIRCUITS, CIRCUIT LENGTHS AND FLOW RATES



TYPICAL IN SLAB

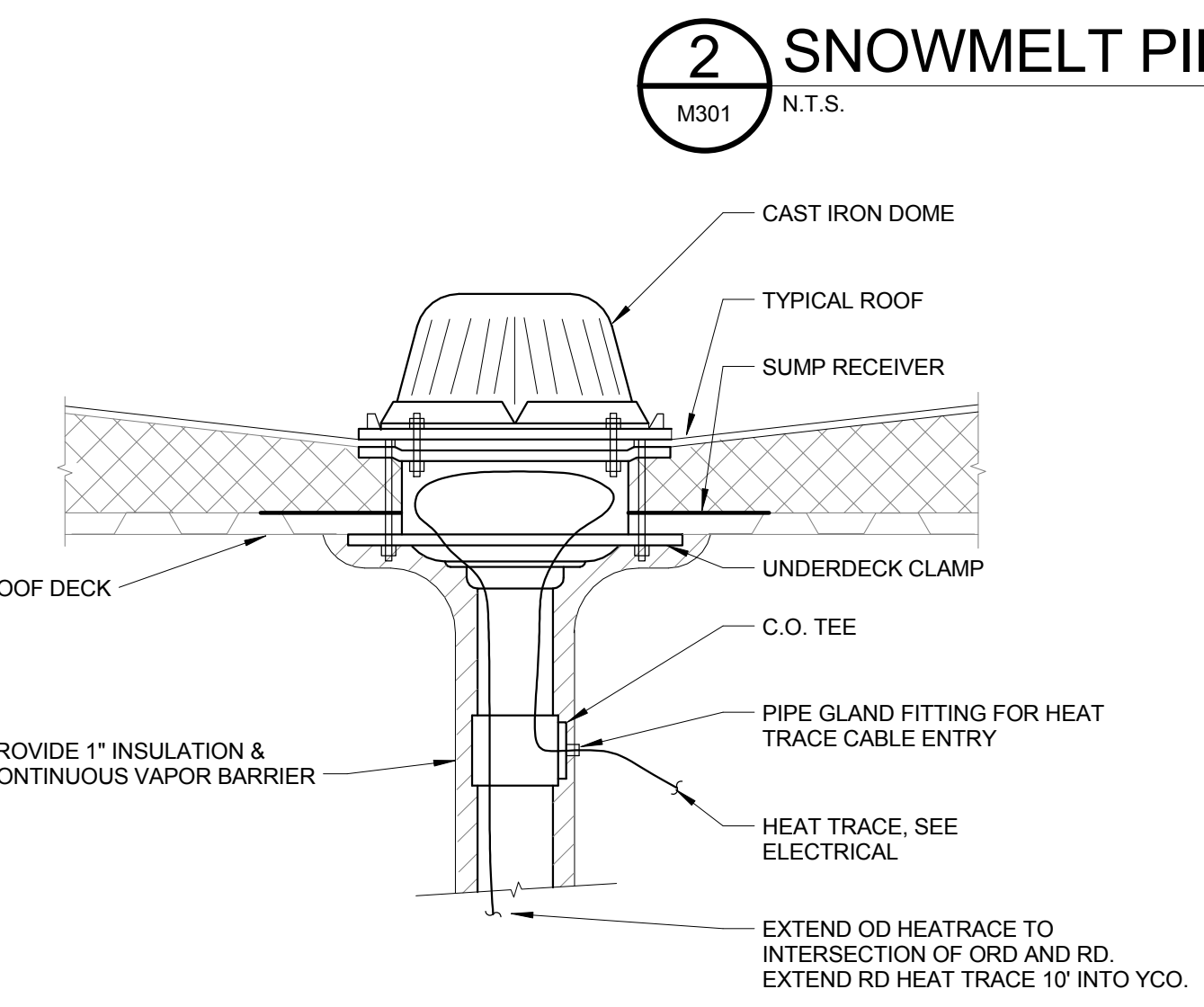


TYPICAL AT CONSTRUCTION JOINT

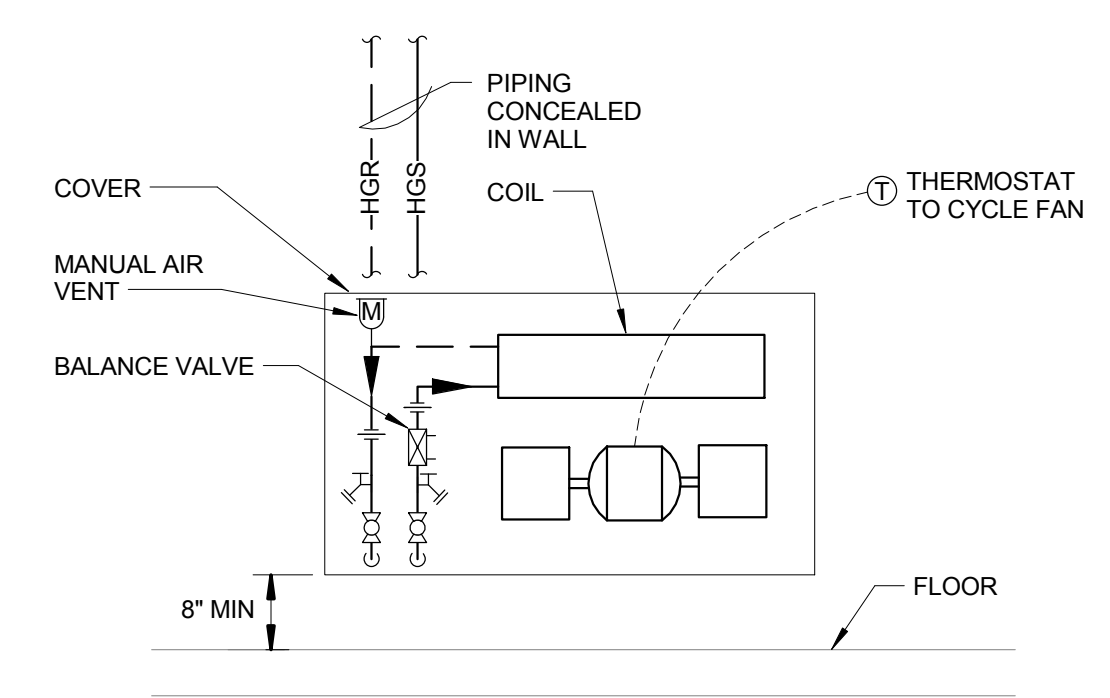


NOTE:
PROVIDE WALL ENCLOSURE FOR MANIFOLD

4 RADIANT MANIFOLD
M301 N.T.S.



5 ROOF DRAIN DETAIL
M301 N.T.S.



6 CABINET UNIT HEAT PIPING DETAIL
M301 N.T.S.

3 RADIANT FLOOR SLAB DETAIL
M301 N.T.S.

PLOT DATE: 4/29/2016 6:28:03 PM

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DESIGN DEVELOPMENT

VERIFY SCALE		THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING.		0" = 1"		IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.		FULL SIZE SCALE	
DATA	DRAWN BY	CHECKED BY	DATE	REV	DATE	DESCRIPTION	BY	DATE	REVISIONS
BASE	---	TELEPHONE	---						
TOPOGRAPHY	---	ELECTRIC	---						
PROFILE	---	CABLE TV	---						
SANITARY SEWER	---	TRAFFIC SIGNAL	---						
STORM SEWER	---	DESIGN	---						
WATER	---	QUANTITIES	---						
GAS	---	MUN. FINAL CHECK	---						

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BY: _____ TITLE: _____ COMPANY: _____

DATE: _____ DATE: _____

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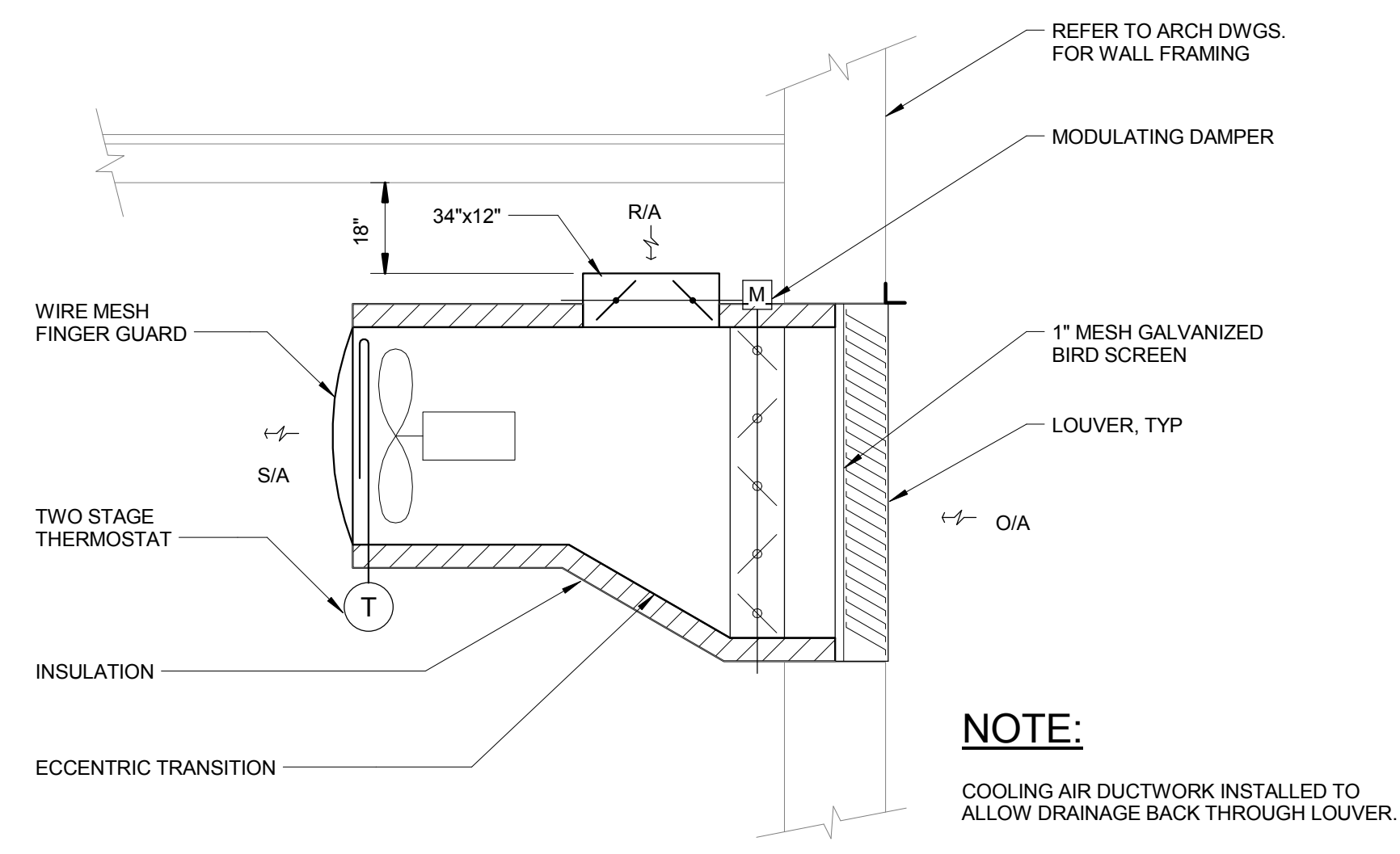
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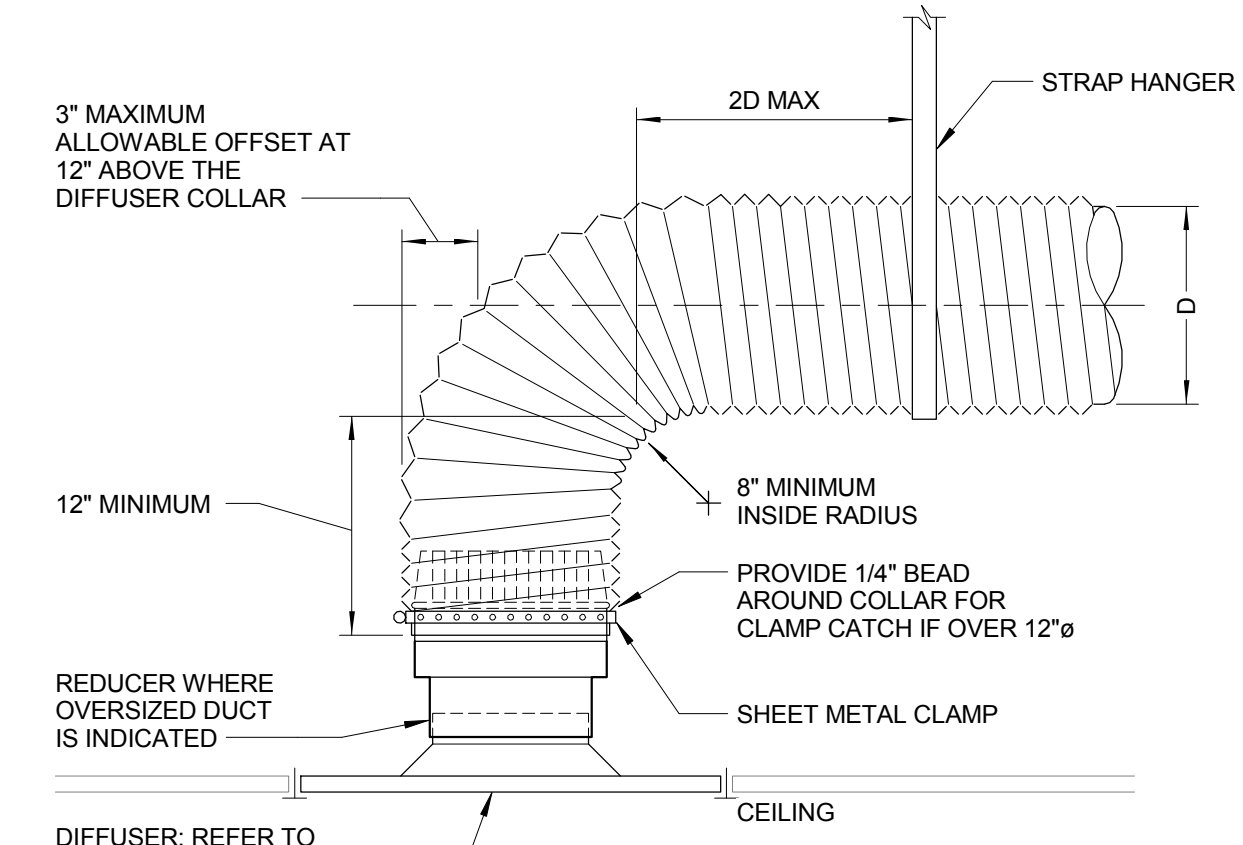
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KING STREET MAIN BUILDING UPGRADE
MECHANICAL
DETAILS

HORZ SCALE: AS NOTED	4/29/2016	GRID: 2431	M301 of
VERT SCALE: AS NOTED			
PROJ. ID.: 2015022.05			SHEET

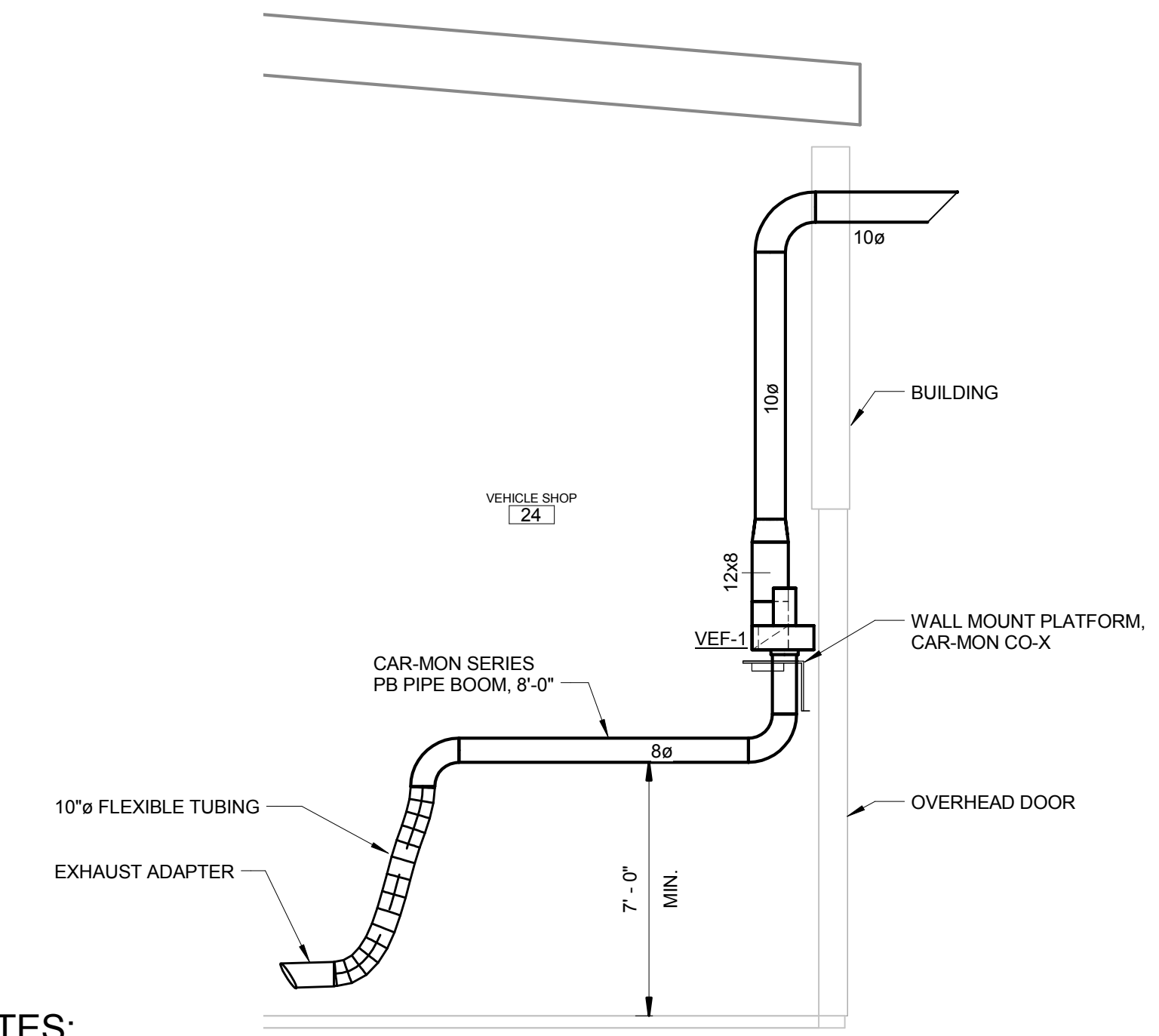
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PLOT SCALE: AS SHOWN



NOTE:
COOLING AIR DUCTWORK INSTALLED TO ALLOW DRAINAGE BACK THROUGH LOUVER.



NOTE:
FLEXIBLE DUCT TO DIFFUSERS SHALL NOT BE USED ABOVE NON-REMOVABLE HARD CEILINGS. USE RIGID DUCT CONNECTIONS.



NOTES:
1. FLEXIBLE TUBING SHALL HAVE MINIMUM TEMPERATURE RATING OF 900 DEGREES FAHRENHEIT
2. FLEXIBLE TUBING SHALL BE CONSTRUCTED OF HEAT RESISTANT, WIRE-REINFORCED GLASS FIBER AND SILICON TUBING

1 COOLING AIR DETAIL
M302 N.T.S.

2 SUPPLY AIR DIFFUSER
M302 N.T.S.

3 VEHICLE EXHAUST DETAIL
M302 N.T.S.

VERIFY SCALE		THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING.		0" 1"		IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.		FULL SIZE SCALE HORZ SCALE: VERT SCALE:	
DATA	DRAWN BY	CHECKED BY	DATA	DRAWN BY	CHECKED BY	REV	DATE	DESCRIPTION	BY
BASE	---	---	TELEPHONE	---	---				
TOPOGRAPHY	---	---	ELECTRIC	---	---				
PROFILE	---	---	CABLE TV	---	---				
SANITARY SEWER	---	---	TRAFFIC SIGNAL	---	---				
STORM SEWER	---	---	DESIGN	---	---				
WATER	---	---	QUANTITIES	---	---				
GAS	---	---	MUN. FINAL CHECK	---	---				
PLAN CHECK					REVISIONS				

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1. DATA PROVIDED BY:	_____	3. 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.	_____
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CONTRACTOR:	_____	DATA TRANSFER CHECKED BY:	_____
BY:	_____	TITLE:	_____
DATE:	_____	COMPANY:	_____
2. DATA TRANSFERRED BY:	_____	BY:	_____
COMPANY:	_____	TITLE:	_____
DATE:	_____	DATE:	_____

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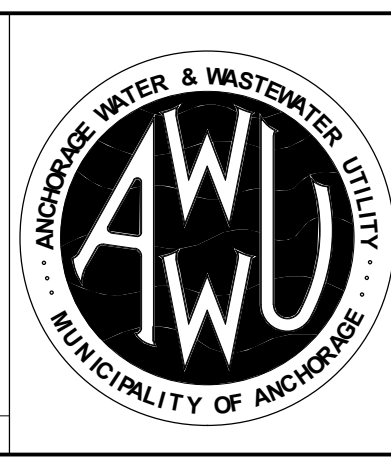
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VERT SCALE: AS NOTED			
PROJ. ID.: 2015022.05			SHEET

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ELECTRICAL SYMBOLS

POWER GENERAL

- JUNCTION BOX
- MOTOR CONNECTION
- GENERATOR
- EQUIPMENT CONNECTION
- EQUIPMENT CONNECTION - WALL MOUNTED
- THERMOSTAT
- PANELBOARD
- EQUIPMENT CABINET
- POWER POLE
- MECHANICAL EQUIPMENT TAG REFER TO MECHANICAL EQUIPMENT SCHEDULE FOR ELECTRICAL REQUIREMENTS
- PUSHBUTTON
- DISCONNECT SWITCH
- SITE PLAN ELECTRICAL HAND HOLE
- COMBINATION STARTER/DISCONNECT

POWER OUTLETS

- DUPLEX RECEPTACLE - SUBSCRIPT INDICATES TYPE:
C - LOCK HANGER S - SAFETY TYPE
EP - EXPLOSION PROOF T - TIMER CONTROLLED
G - GFCI WP - WEATHER PROOF
IG - ISOLATED GROUND TR - TAMPER RESISTANT
- DOUBLE DUPLEX RECEPTACLE
- DOUBLE DUPLEX RECEPTACLE - CEILING MOUNTED
- SINGLE RECEPTACLE
- WIREMOLD - QUANTITY OF DEVICES AS SHOWN

GENERAL LIGHTING

- LIGHT FIXTURE IDENTIFICATION TAG
- 2x4' RECESSED LIGHT FIXTURE
- 2x4' SURFACE MOUNTED LIGHT FIXTURE
- 1x4' RECESSED LIGHT FIXTURE
- 1x4' SURFACE MOUNTED LIGHT FIXTURE
- 2x2' RECESSED LIGHT FIXTURE
- 2x2' SURFACE MOUNTED LIGHT FIXTURE
- 4' PENDANT MOUNTED LIGHT FIXTURE
- 3' PENDANT MOUNTED LIGHT FIXTURE
- 2' PENDANT MOUNTED LIGHT FIXTURE
- 4' WALL MOUNTED LIGHT FIXTURE
- 3' WALL MOUNTED LIGHT FIXTURE
- 2' WALL MOUNTED LIGHT FIXTURE
- STRIP LIGHT FIXTURE
- CEILING MOUNTED FIXTURE
- WALL MOUNTED FIXTURE
- SURFACE MOUNTED DIRECTIONAL FIXTURE
- WALL MOUNTED DIRECTIONAL FIXTURE

LIGHTING CONTROL

- WALL SWITCH - SUBSCRIPT INDICATES TYPE:
2 - DOUBLE POLE LVM - LOW VOLTAGE MASTER
3 - THREE WAY M - MANUAL MOTOR STARTER
4 - FOUR WAY MC - MOMENTARY CONTACT
D - DIMMER O - OCCUPANCY SENSOR
K - KEY OPERATED WP - WEATHERPROOF
LV - LOW VOLTAGE T - TIMER
- OCCUPANCY SENSOR - DUAL TECHNOLOGY - CEILING MOUNTED
- PHOTO CONTROL

EMERGENCY LIGHTING & EXIT SIGNS

- EXIT SIGN - CEILING MOUNTED (ARROW INDICATES DIRECTION OF EGRESS)
- EXIT SIGN - WALL MOUNTED (ARROW INDICATES DIRECTION OF EGRESS)
- EMERGENCY LIGHT (HATCH INDICATES EMERGENCY CIRCUIT)
- EMERGENCY LIGHT - CEILING MOUNTED
- REMOTE HEAD
- NOTE: ANY LIGHT FIXTURE SYMBOL WITH A BLACK FILLED REGION INDICATES FIXTURE PROVIDED WITH EMERGENCY BATTERY BALLAST.

FIRE ALARM

- PULL BOX
- ANNUNCIATOR
- FIRE ALARM ANNUNCIATOR
- SMOKE DAMPER CONTROL CONNECTION
- FIRE ALARM DETECTOR - CEILING MOUNTED
- FIRE ALARM HORN - CEILING MOUNTED
- FIRE ALARM HORN - WALL MOUNTED
- FIRE ALARM HORN STROBE - CEILING MOUNTED
- FIRE ALARM HORN STROBE - WALL MOUNTED
- FIRE ALARM STROBE - CEILING MOUNTED
- FIRE ALARM STROBE - WALL MOUNTED
- FIRE ALARM MANUAL PULL STATION
- FIRE ALARM BELL
- METER - SEE CALLOUT NOTE FOR DESCRIPTION

SECURITY

- MAGNETIC DOOR LOCK
- MAGNETIC DOOR CONTACT
- HANDICAP DOOR OPENER
- HANDICAP DOOR OPENER PUSHBUTTON
- ACCESS KEY PAD WITH PILOT LIGHT
- MUSHROOM HEAD PUSHBUTTON, SUBSCRIPT DENOTES TYPE:
ER - EMERGENCY DOOR RELEASE
PD - POLICE DEPARTMENT CALL
- MOMENTARY PUSHBUTTON WITH PILOT LIGHT
- SECURITY KEY SWITCH WITH PILOT LIGHT
- SECURITY ACCESS CARD READER WITH MAGNETIC DOOR SWITCH, POWERED LATCH AND POWER SUPPLY. MOUNT AT 46" AFF

TELEPHONE & DATA

- COMPUTER DATA OUTLET, MIN. 2 JACKS UNLESS OTHERWISE INDICATED
- COMBINATION TELEPHONE/COMPUTER DATA OUTLET, 2 DATA JACKS AND 1 TELEPHONE JACK UNLESS OTHERWISE INDICATED
- RJ-45 DATA OUTLET LOCATED 6" ABOVE ACCESSIBLE CEILING FOR POE WIRELESS ROUTER OR AV EQUIPMENT. QUANTITY OF OUTLETS AS INDICATED.
- WIREMOLD - TYPE AND QUANTITY OF DEVICES AS SHOWN.

AUDIO - VIDEO - CLOCK

- SPEAKER - CEILING MOUNTED
- CLOSED CIRCUIT VIDEO CAMERA - FIXED UNLESS NOTED OTHERWISE

ONE-LINE SYMBOLS

- CONNECTION POINT
- DISCONNECT SWITCH
- WYE
- TRANSFORMER
- CURRENT TRANSFORMER
- AUTOMATIC TRANSFER SWITCH
- CIRCUIT BREAKER
- FUSED DISCONNECT SWITCH
- DISCONNECT MANUAL STARTER WITH OVERLOAD

GENERAL ANNOTATIONS

NOTES:

- SPECIFIC TO LOCATION INDICATED.
- NOTE APPLIES TO ENTIRE SHEET.
- (R) REMOVE AND RE-INSTALL
- (E) EXISTING
- (ETR) EXISTING TO REMAIN

LINETYPES

- EXISTING (THIN)
- NEW (MEDIUM)
- UNDERGROUND ELECTRICAL
- UNDERGROUND TELECOMM

GENERAL NOTES

- THE ELECTRICAL INSTALLATION SHALL COMPLY WITH THE CURRENT NATIONAL ELECTRIC CODE, NFPA 72, STATE AND LOCAL AMENDMENTS, AND NECA STANDARDS OF INSTALLATION.
- ALL ELECTRICAL EQUIPMENT AND MATERIALS SHALL BE LISTED AND LABELED FOR THEIR INTENDED APPLICATION BY A NATIONALLY RECOGNIZED TESTING LABORATORY ACCEPTABLE TO THE AUTHORITY HAVING JURISDICTION.
- CONTRACTOR SHALL VERIFY LOCATION OF ALL EXISTING UTILITIES AND STRUCTURES AFFECTING THE WORK. NOTIFY THE PROJECT MANAGER IN WRITING OF ANY DISCREPANCIES BETWEEN EXISTING CONDITIONS AND THOSE SHOWN IN THE CONTRACT DOCUMENTS WHICH ADVERSELY IMPACT THE WORK.
- CONTACT THE LOCAL UTILITY PROVIDERS FOR UTILITY LINE LOCATES PRIOR TO COMMENCING EXCAVATION ON THE SITE.
- EXISTING EQUIPMENT INFORMATION SHOWN ON THESE DRAWINGS SHOULD BE FIELD VERIFIED. CONFIRM NEW EQUIPMENT LOCATIONS WITH OWNER AND ADJUST AS REQUIRED.
- CONTRACTOR SHALL MAINTAIN A RED-LINE SET OF CONSTRUCTION DOCUMENTS DURING CONSTRUCTION. RED-LINE DRAWINGS SHALL BE SUBMITTED TO THE OWNER UPON PROJECT COMPLETION.
- ALL WIRING INSTALLED IN UNHEATED OR EXTERIOR SPACES SHALL BE XHHW-2. INTERIOR WIRING MAY BE THHW/THHN UNLESS NOTED OTHERWISE.
- CONDUCTORS SHALL BE #12 AWG COPPER MINIMUM OR AS SHOWN ON DRAWINGS. HOME RUN CONDUCTORS SHALL BE #10 AWG COPPER MINIMUM OR AS REQUIRED BY THE NEC. THE MINIMUM SIZE FOR 20A BRANCH CIRCUITS MEASURED FROM THE PANELBOARD TO THE FURTHEST DEVICE ON THE CIRCUIT UNLESS NOTED ON DRAWINGS:
#10 AWG CONDUCTORS FOR 120V BRANCH CIRCUITS GREATER THAN 75'
#8 AWG CONDUCTORS FOR 120V BRANCH CIRCUITS GREATER THAN 175'
INCREASE GROUND CONDUCTOR SIZE PER NEC TRANSITION TO #12 AWG WITHIN 15' OF DEVICE IF A SMALL CONDUCTOR IS REQUIRED FOR DEVICE TERMINATION.
- THE CONTRACTOR SHALL PROVIDE AND INSTALL AN EQUIPMENT GROUNDING CONDUCTOR IN ALL CONDUITS OR CABLING.
- OUTAGES OF ELECTRICAL, TELECOMMUNICATIONS, FIRE ALARM, OR SECURITY SYSTEMS SHALL OCCUR AT AN ABSOLUTE MINIMUM. COORDINATE SCHEDULED OUTAGES WITH THE OWNER AND GENERAL CONTRACTOR.
- ALL CONDUIT AND CABLE SHALL BE INSTALLED ORTHOGONAL TO THE STRUCTURE.
- NEW ELECTRICAL DEVICES SHALL BE INSTALLED TO MATCH THE HEIGHT OF EXISTING DEVICES.
- SURFACE MOUNTED CONDUIT IS NOT ALLOWED EXCEPT IN MECHANICAL ROOMS, ELECTRICAL ROOMS, COMMUNICATIONS ROOMS AND BOILER ROOMS, AND CLASSROOMS UNLESS OTHERWISE NOTED ON THE DRAWINGS.
- ALL CONDUCTOR SIZES SHOWN ARE BASED ON COPPER UNLESS NOTED OTHERWISE.
- MAINTAIN A MINIMUM 6" CLEARANCE BETWEEN CONDUIT AND PIPING. MAINTAIN A 12" CLEARANCE BETWEEN CONDUIT AND HEAT SOURCES SUCH AS FLUES, HEATING PIPES, AND HEATING APPLIANCES.
- VERIFY CEILING TYPES THROUGHOUT THE PROJECT PRIOR TO ORDERING LUMINAIRES. PROVIDE COMPATIBLE MOUNTING ACCESSORIES AND ALL TRIM, FLANGES, SUPPORTS, OUTLET BOXES, ETC. FOR A COMPLETE AND FINISHED INSTALLATION.
- CIRCUIT NUMBERS ARE SHOWN NEXT TO LIGHTING FIXTURES AND ELECTRICAL DEVICES ONLY. REFER TO THE EQUIPMENT SCHEDULE IF A CIRCUIT ASSIGNMENT IS NOT SHOWN ON THE PLANS. PROVIDE WIRING AS SHOWN ON DRAWINGS AND LISTED IN THE SPECIFICATIONS. CIRCUIT NUMBERS NOT SHOWN FOR DEVICES TO BE REPLACED. CONNECT TO EXISTING CIRCUIT.
- ANY PENETRATION OF THE BUILDING VAPOR BARRIER SYSTEM SHALL BE APPROPRIATELY SEALED TO RETAIN THE INTEGRITY OF THE WALL SYSTEM. THIS INCLUDES, BUT IS NOT LIMITED TO, CONDUITS AND BACKS OF ELECTRICAL BOXES.
- LOCATIONS OF LIGHT FIXTURES AND EQUIPMENT SHOWN ARE APPROXIMATE ONLY. SEE ARCHITECTURAL, PLUMBING, AND MECHANICAL DRAWINGS FOR EXACT LOCATIONS.
- CUT AND PATCH THE EXISTING CEILING AND WALLS AS REQUIRED TO INSTALL NEW BRANCH CIRCUITS. ANY PATCHES SHALL BE FINISHED TO MATCH THE EXISTING ADJACENT SURFACES. REPLACE ANY DAMAGED CEILING TILES AS REQUIRED.
- PROVIDE TYPED, UPDATED PANEL SCHEDULES FOR NEW PANELS AND PANELS MODIFIED BY THIS PROJECT.
- DRAWINGS ARE SCHEMATIC ONLY AND DO NOT SHOW ALL CONDUIT AND CONNECTIONS BETWEEN RESPECTIVE DEVICES AND FIXTURES. CONTRACTOR SHALL DETERMINE THE EXACT ROUTING OF CONDUIT, CABLE, AND WIRING CONNECTIONS BETWEEN RESPECTIVE DEVICES AND FIXTURES FOR A COMPLETE AND OPERATIONAL SYSTEM.

ABBREVIATIONS

A	AMPERE	GRS	GALVANIZED RIGID STEEL	RNG	RANGE
AIC	AMPERE INTERRUPTING CURRENT	HANDHOLE	HANDHOLE	SCTP	SHIELDED TWISTED PAIR
AIF	AVAILABLE FAULT CURRENT	HID	HIGH INTENSITY DISCHARGE	SF	SUPPLY FAN
AFF	ABOVE FINISHED FLOOR	HP	HORSEPOWER	S/FD	SMOKE/FIRE DAMPER
AHU	AIR HANDLING UNIT	HPF	HIGH POWER FACTOR	SMR	SURFACE METAL RACEWAY
AS	AMPERE SWITCH	HT	HEAT TRACE	SPD	SURGE PROTECTION DEVICE
ASV	AIRE SOLENOID VALVE	IDF	INTERMEDIATE DATA FRAME	SPEC	SPECIFICATIONS
AT	AMPERE TRIP	IG	ISOLATED GROUND	SPST	SINGLE POLE SINGLE THROW
ATS	AUTOMATIC TRANSFER SWITCH	IM	ICE MACHINE	ST	SHUNT TRIP or STRAND
AWG	AMERICAN WIRE GAGE	IWD	INTERCOM WALL DISPLAY	STD	STANDARD
BAS	BUILDING AUTOMATION SYSTEM	J or J-BOX	JUNCTION BOX	STL	STEEL
BLDG	BUILDING	KA	KILOAMPERES	SV	SOLENOID VALVE
C	CONDUIT	KAIC	AMPERE INTERRUPTING CAPACITY (THOUSANDS)	SW	SWITCH
CAT	CATEGORY	kmil	THOUSAND CIRCULAR MILS	SWBD	SWITCHBOARD
CATV	CABLE TELEVISION	kV	KILOVOLT	SWGR	SWITCHGEAR
CB	CIRCUIT BREAKER	kVA	KILOVOLTAMPERES	TEL	TELEPHONE
CCTV	CLOSED CIRCUIT TELEVISION	kW	KILOWATT	TEMP	TEMPORARY
CKT	CIRCUIT	kWH	KILOWATT HOUR	TGB	TELECOMMUNICATIONS GROUND BAR
CLG	CEILING	LCP	LIGHTING CONTROL PANEL	TP	TRAP PRIMER
CM	COFFEE MAKER	LV	LOW VOLTAGE	TTB	TELEPHONE TERMINAL BOARD
CMU	CONCRETE MASONRY UNIT	MAX	MAXIMUM	TYP	TYPICAL
CO	CONDUIT ONLY	MBS	MAINTENANCE BYPASS SWITCH	UC	UNDER COUNTER
COMM	COMMUNICATIONS	MCB	MAIN CIRCUIT BREAKER	UG	UNDERGROUND
CT	CURRENT TRANSFORMER	MDF	MAIN DATA FRAME	UH	UNIT HEATER
CU	COPPER	MDP	MAIN DISTRIBUTION PANEL	UL	UNDERWRITERS LABORATORIES
D	DIAMETER	MECH	MECHANICAL	UON	UNLESS OTHERWISE NOTED
DIA	DIAMETER	MFR	MANUFACTURER	UPS	UNINTERRUPTIBLE POWER SUPPLY
DISC	DISPOSAL	MGB	MASTER GROUND BAR	UTP	UNSHIELDED TWISTED PAIR
DN	DOWN	MH	MANHOLE or METAL HALIDE	V	VOLT
DO	DOOR OPERATOR	MIN	MINIMUM	VA	VOLTAMPERE
DPST	DOUBLE POLE SINGLE THROW	MLO	MAIN LUGS ONLY	VFD	VARIABLE FREQUENCY DRIVE
DRY	DRYER	MTD	MOUNTED	W	WATT
DW	DISHWASHER	MTG	MOUNTING	W/	WITH
DWG	DRAWING	MTS	MANUAL TRANSFER SWITCH	WAS	WASHER
E	EXISTING	MW	MICROWAVE	W/D	STACKED WASHER/DRYER
EA	EACH	N	NEUTRAL	WF	WASH FOUNTAIN
EF	EXHAUST FAN	NEC	NATIONAL ELECTRICAL CODE	WG	WIRE GUARD
EHD	ELECTRIC HAND DRYER	NC	NORMALLY CLOSED	WM	WASHING MACHINE
ELEC	ELECTRICAL	NL	NIGHT LIGHT	W/O	WITHOUT
EMT	ELECTRICAL METALLIC TUBING	NO	NUMBER or NORMALLY OPEN	WP	WEATHERPROOF
EPO	EMERGENCY POWER OFF	NTS	NOT TO SCALE	XFMR	TRANSFORMER
EQUIP	EQUIPMENT	PH	PHASE		
EWG	ELECTRIC WATER COOLER	PNL	PANEL		
FA	FIRE ALARM	PR	PAIR		
FAA	FIRE ALARM ANNUNCIATOR	PROJ	PROJECTOR		
FACP	FIRE ALARM CONTROL PANEL	PRS	PROGRAMMED RAPID START		
FOIC	FURNISHED BY OWNER INSTALLED BY CONTRACTOR	PTR	PRINTER		
FOIO	FURNISHED BY OWNER INSTALLED BY OWNER	PVC	POLYVINYL CHLORIDE		
FU or F	FUSE	PWR	POWER		
FSD	FIRE SMOKE DAMPER	QTY	QUANTITY		
FVNR	FULL VOLTAGE NON-REVERSING	R	REMOVE AND RE-INSTALL		
GALV	GALVANIZED	RDD	ROLL DOWN DOOR		
GD	GARBAGE DISPOSAL	REC	RECEPTACLE		
GEC	GROUNDING ELECTRODE CONDUCTOR	REF	REFRIGERATOR		
GEN	GENERATOR	REQD	REQUIRED		
GFCI	GROUND FAULT CIRCUIT INTERRUPTER	RF	RETURN FAN		
GND or G	GROUND	RH	RANGE HOOD		

ALL SYMBOLS AND ABBREVIATIONS DO NOT NECESSARILY APPEAR ON DRAWINGS

VERIFY SCALE		THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING.		0' 1"		IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.		FULL SIZE SCALE HORZ SCALE: VERT SCALE:	
DATA	DRAWN BY	CHECKED BY	DATE	REV	DATE	DESCRIPTION	BY	DATE	
BASE	---	TELEPHONE	---						
TOPOGRAPHY	---	ELECTRIC	---						
PROFILE	---	CABLE TV	---						
SANITARY SEWER	---	TRAFFIC SIGNAL	---						
STORM SEWER	---	DESIGN	---						
WATER	---	QUANTITIES	---						
GAS	---	MUN. FINAL CHECK	---						
PLAN CHECK					REVISIONS				

RECORD DRAWING

Note: To be filled out on original drawings upon project completion.

1. DATA PROVIDED BY: _____ 3. 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.

CONTRACTOR: _____ DATA TRANSFER CHECKED BY: _____

BY: _____ TITLE: _____ COMPANY: _____

DATE: _____ DATE: _____

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ELECTRICAL

LEGEND, ABBREVIATIONS AND NOTES

HORZ SCALE: AS NOTED
VERT SCALE: AS NOTED
4/29/2016
GRID: 2431
PROJ. ID: 2015022.05
SHEET E001 of

AWWU PLAN SET NO. XXXX

DESIGN DEVELOPMENT

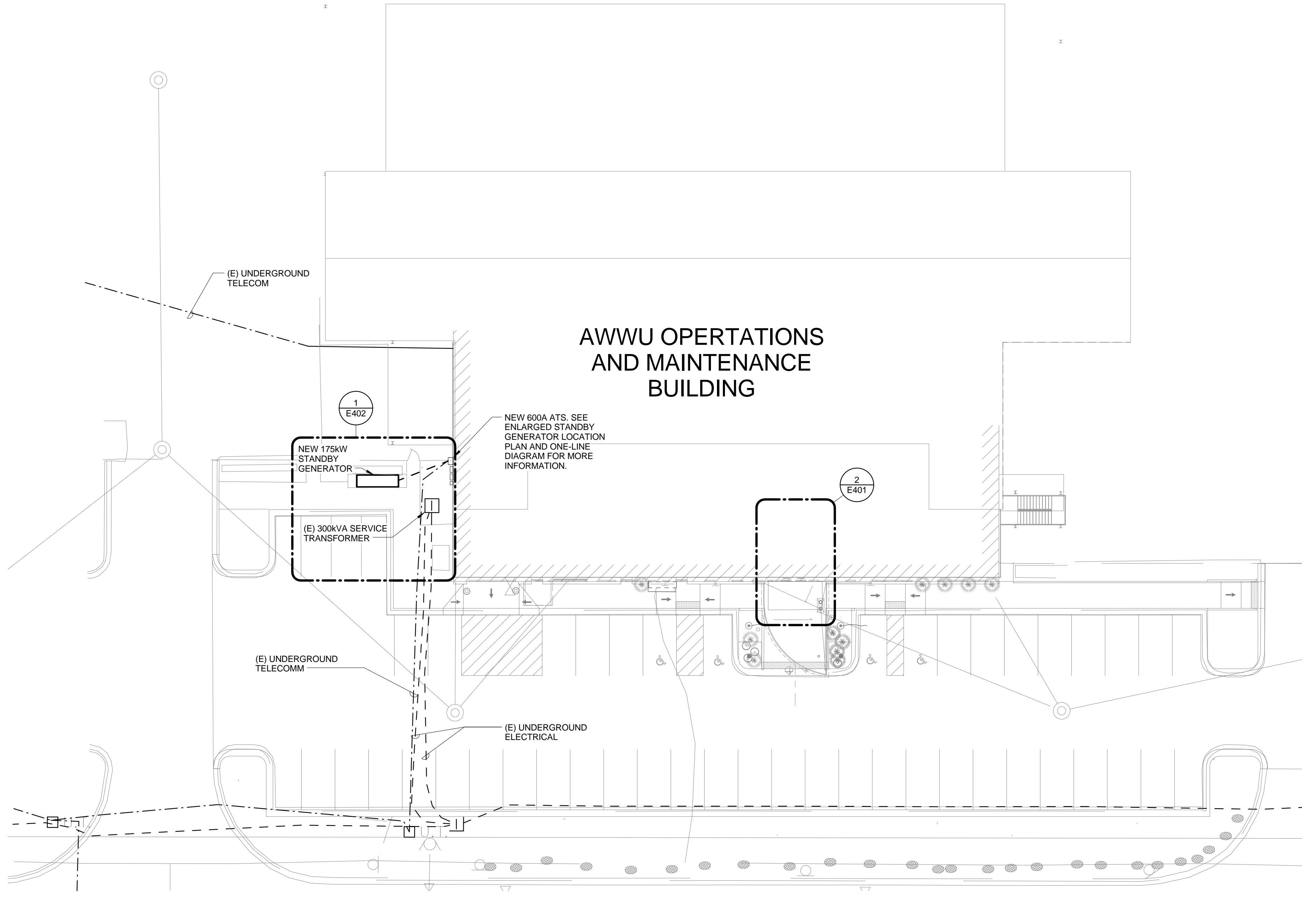
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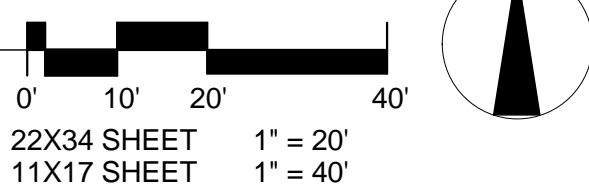
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GENERAL NOTES:

- REFER TO CIVIL DRAWINGS FOR ADDITIONAL INFORMATION REGARDING EXISTING UTILITIES AND OTHER BURIED STRUCTURES. FOLLOW PROCEDURES OUTLINED IN CIVIL NOTES AND INFORMATION PRIOR TO BEGINNING ANY EXCAVATION WORK.
- CAREFULLY EXCAVATE TO DETERMINE NO CONFLICTS WITH EXISTING BURIED UTILITIES. COORDINATE WITH PROJECT MANAGER MINOR SHIFTS IN EQUIPMENT LOCATIONS AS REQUIRED. MAINTAIN MINIMUM 2'-0" COVER OVER ELECTRICAL PRIMARY DISTRIBUTION LINES DURING PARKING LOT ASPHALT DEMOLITION. SEE CIVIL PLANS FOR DETAILS.
- FOLLOWING EXCAVATION, INSTALLATION, AND BACKFILL ALL AREAS, LANDSCAPING, SIDEWALKS, CURBS, AND ROADWAYS MUST BE RETURNED TO ORIGINAL CONDITION. SEE CIVIL DRAWINGS FOR ADDITIONAL INFORMATION.



1 OVERALL ELECTRICAL SITE PLAN
E100 1" = 20'-0"



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DESIGN DEVELOPMENT

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BASE	---	---	TELEPHONE	---	---				
TOPOGRAPHY	---	---	ELECTRIC	---	---				
PROFILE	---	---	CABLE TV	---	---				
SANITARY SEWER	---	---	TRAFFIC SIGNAL	---	---				
STORM SEWER	---	---	DESIGN	---	---				
WATER	---	---	QUANTITIES	---	---				
GAS	---	---	MUN. FINAL CHECK	---	---				
PLAN CHECK					REVISIONS				

RECORD DRAWING Note: To be filled out on original drawings upon project completion.

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DATA TRANSFER CHECKED BY: _____

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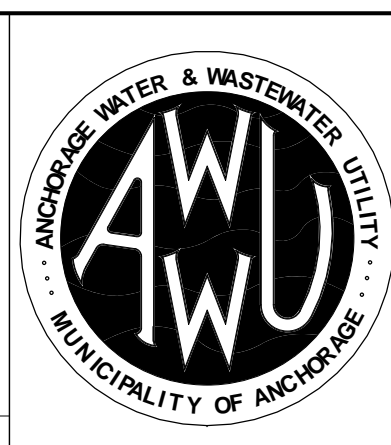
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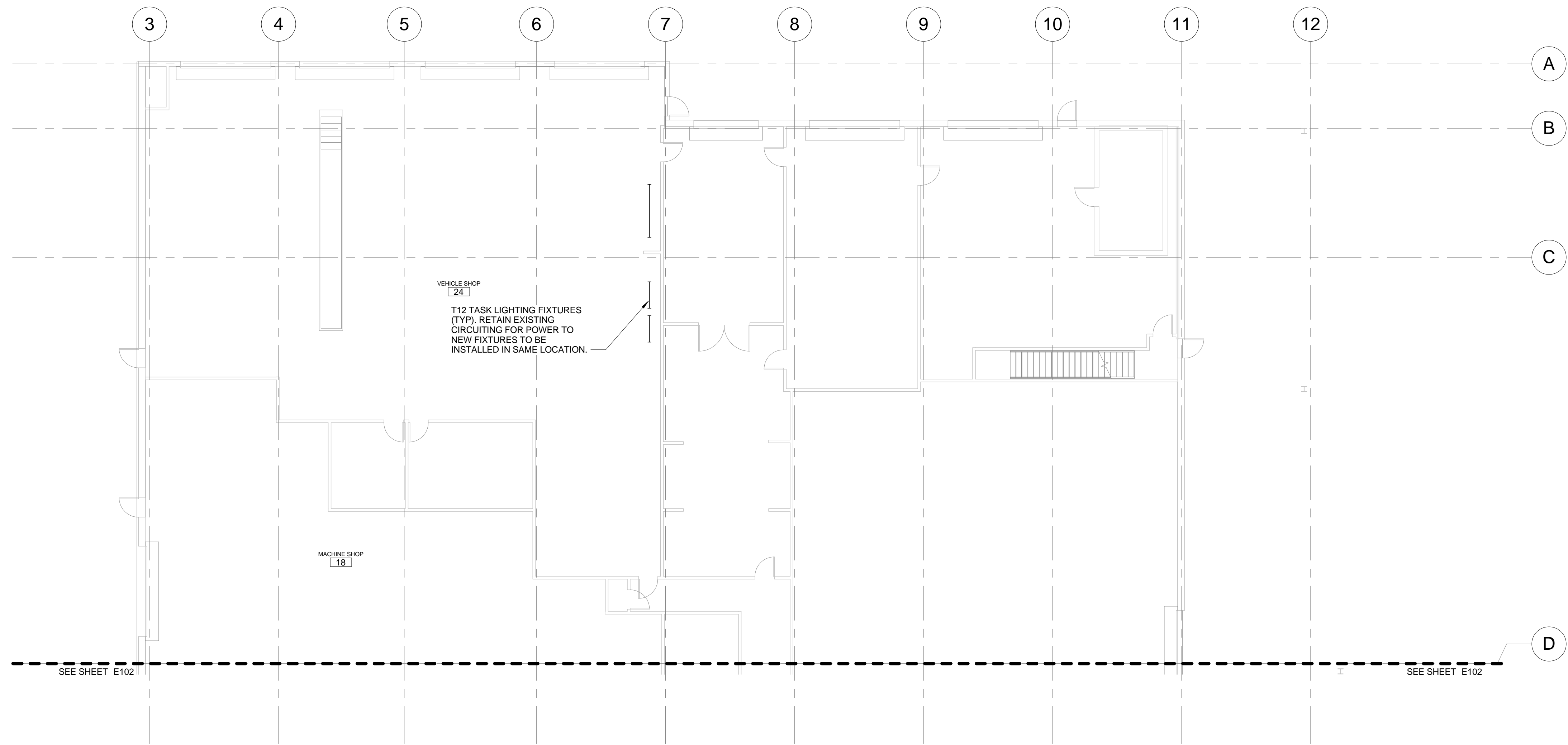
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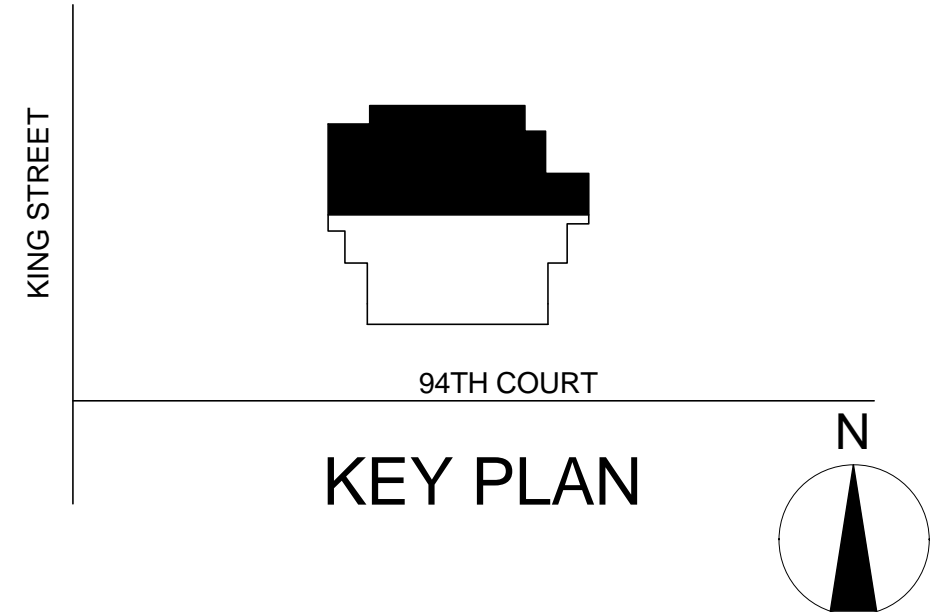
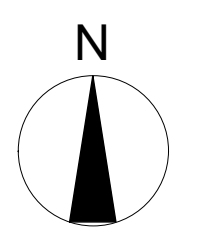
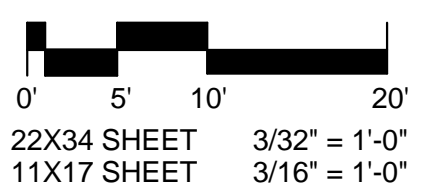
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KING STREET MAIN BUILDING UPGRADE			
ELECTRICAL			
OVERALL SITE PLAN			
HORZ SCALE: AS NOTED	4/29/2016	GRID: 2431	E100 of
PROJ. ID: 2015022.05			SHEET

DEMOLITION NOTES:

- UNLESS OTHERWISE NOTED, REMOVE ALL DEVICES AND FIXTURES SHOWN INCLUDING CONDUIT. PORTIONS OF EXISTING WIRING AND CONDUIT MAY BE RE-USED IF PRACTICAL AND IN GOOD CONDITION. RETAIN EXISTING WIRING AND CONDUIT FOR ALL DEVICES TO BE REMOVED AND REPLACED WITH A NEW DEVICE IN THE SAME LOCATION.
- SEAL UNUSED PENETRATIONS IN EXTERIOR WALL AND ROOF TO MATCH EXISTING FINISH. WATER RESISTANCE AND INSULATION VALUE. SEAL TO INCLUDE PATCH OF VAPOR BARRIER.
- INSTALL FIRE STOPPING MATERIAL WHERE REQUIRED TO SEAL UNUSED PENETRATIONS IN FIRE RATED WALL, FLOOR, OR ROOF ASSEMBLIES. SEALED PENETRATION SHALL MATCH OR EXCEED FIRE-RATING OF EXISTING ASSEMBLY. SEE ARCHITECTURAL PLANS FOR IDENTIFICATION OF FIRE RATED ASSEMBLIES.
- SEE ARCHITECTURAL, STRUCTURAL, AND MECHANICAL DRAWINGS FOR ADDITIONAL DEMOLITION WORK.



1 ELECTRICAL DEMOLITION PLAN - LEVEL 1 NORTH
 E101 3/32" = 1'-0"



VERIFY SCALE		THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING.		0' = 1"		IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.		FULL SIZE SCALE	
DATA	DRAWN BY	CHECKED BY	DATA	DRAWN BY	CHECKED BY	REV	DATE	DESCRIPTION	BY
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TOPOGRAPHY	---	---	ELECTRIC	---	---				
PROFILE	---	---	CABLE TV	---	---				
SANITARY SEWER	---	---	TRAFFIC SIGNAL	---	---				
STORM SEWER	---	---	DESIGN	---	---				
WATER	---	---	QUANTITIES	---	---				
GAS	---	---	MUN. FINAL CHECK	---	---				
PLAN CHECK					REVISIONS				

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COMPANY: _____ DATE: _____

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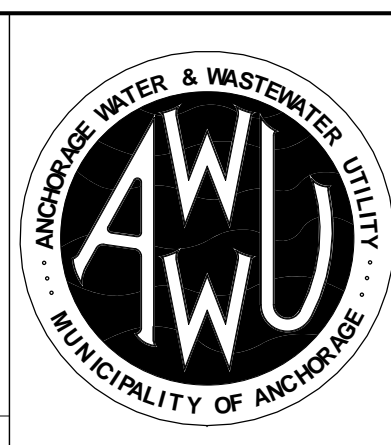
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 DEMOLITION PLAN - LEVEL 1 NORTH

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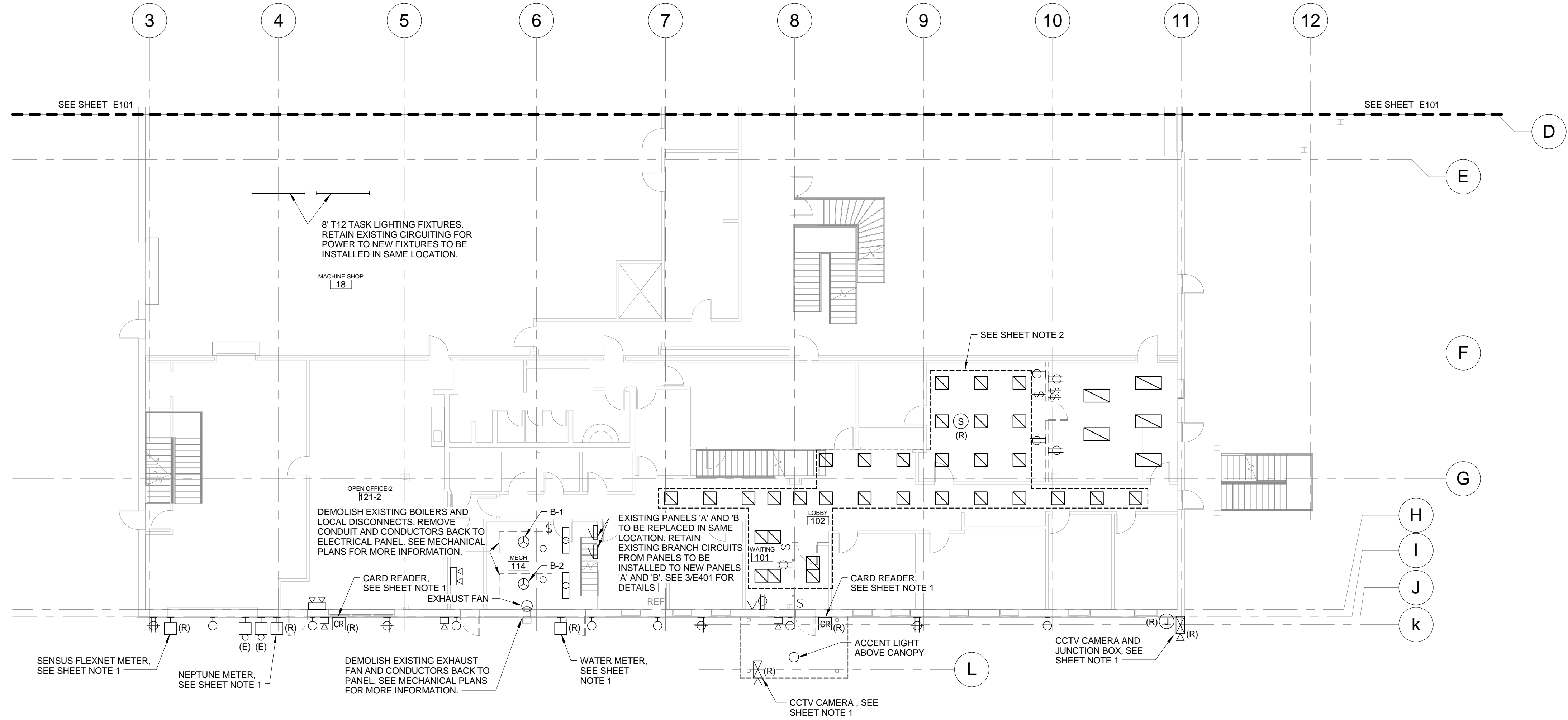
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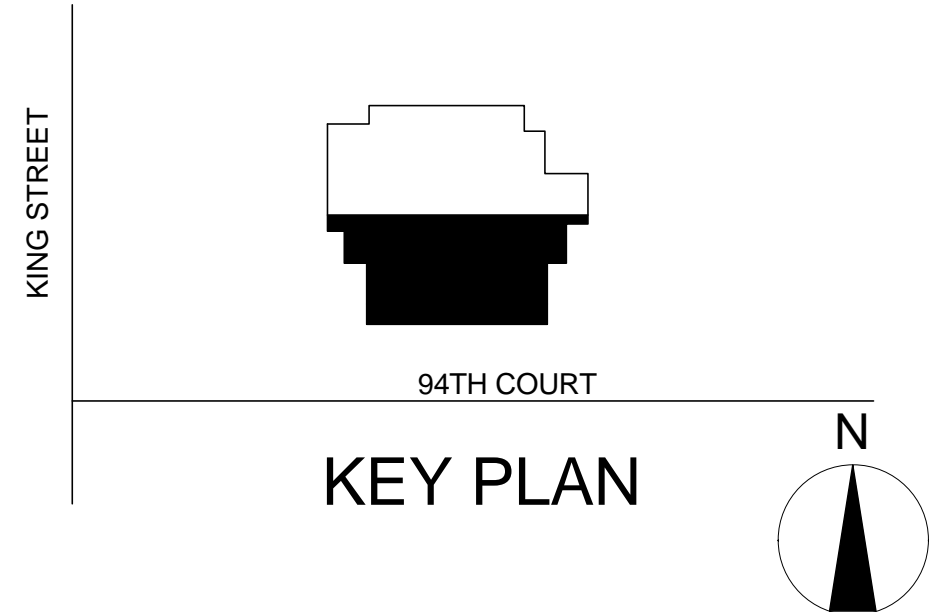
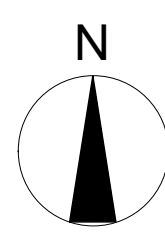
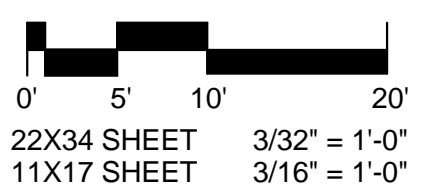
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- 2. DEMOLITION OF EXIT SIGNS REQUIRE SPECIAL HANDLING. EXIT SIGNS SHALL BE SHIPPED TO THE ORIGINAL MANUFACTURER FOR DISPOSAL.
- 3. SEAL UNUSED PENETRATIONS IN EXTERIOR WALL AND ROOF TO MATCH EXISTING FINISH, WATER RESISTANCE, AND INSULATION VALUE. SEAL TO INCLUDE PATCH OF VAPOR BARRIER.
- 4. INSTALL FIRE STOPPING MATERIAL WHERE REQUIRED TO SEAL UNUSED PENETRATIONS IN FIRE RATED WALL, FLOOR, OR ROOF ASSEMBLIES. SEALED PENETRATION SHALL MATCH OR EXCEED FIRE-RATING OF ASSEMBLY. SEE ARCHITECTURAL PLANS FOR IDENTIFICATION OF FIRE RATED ASSEMBLIES.
- 5. SEE ARCHITECTURAL, STRUCTURAL, AND MECHANICAL DRAWINGS FOR ADDITIONAL DEMOLITION WORK.

SHEET NOTE:

- 1. CAREFULLY REMOVE AND RETAIN EXISTING EQUIPMENT FOR RE-INSTALLATION ON NEW FINISHED EXTERIOR WALL IN SAME LOCATION.
- 2. FIXTURE BODY TO REMAIN FOR RETROFIT LED TYPE L1 FIXTURE INSTALLATION. SEE LIGHTING PLAN SHEET E202 FOR NEW LIGHT FIXTURE LOCATIONS. SEE THE LIGHT FIXTURE SCHEDULE FOR DETAILS.



1 ELECTRICAL DEMOLITION PLAN - LEVEL 1 SOUTH



VERIFY SCALE		THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING.		IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.		FULL SIZE SCALE	
DATA	DRAWN BY	CHECKED BY	DATA	DRAWN BY	CHECKED BY	REV	DATE
BASE	---	---	TELEPHONE	---	---		
TOPOGRAPHY	---	---	ELECTRIC	---	---		
PROFILE	---	---	CABLE TV	---	---		
SANITARY SEWER	---	---	TRAFFIC SIGNAL	---	---		
STORM SEWER	---	---	DESIGN	---	---		
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GAS	---	---	MUN. FINAL CHECK	---	---		

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CONTRACTOR:	_____	DATA TRANSFER CHECKED BY:	_____
BY:	_____	COMPANY:	_____
DATE:	_____	BY:	_____
		TITLE:	_____
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COMPANY:	_____		
DATE:	_____		

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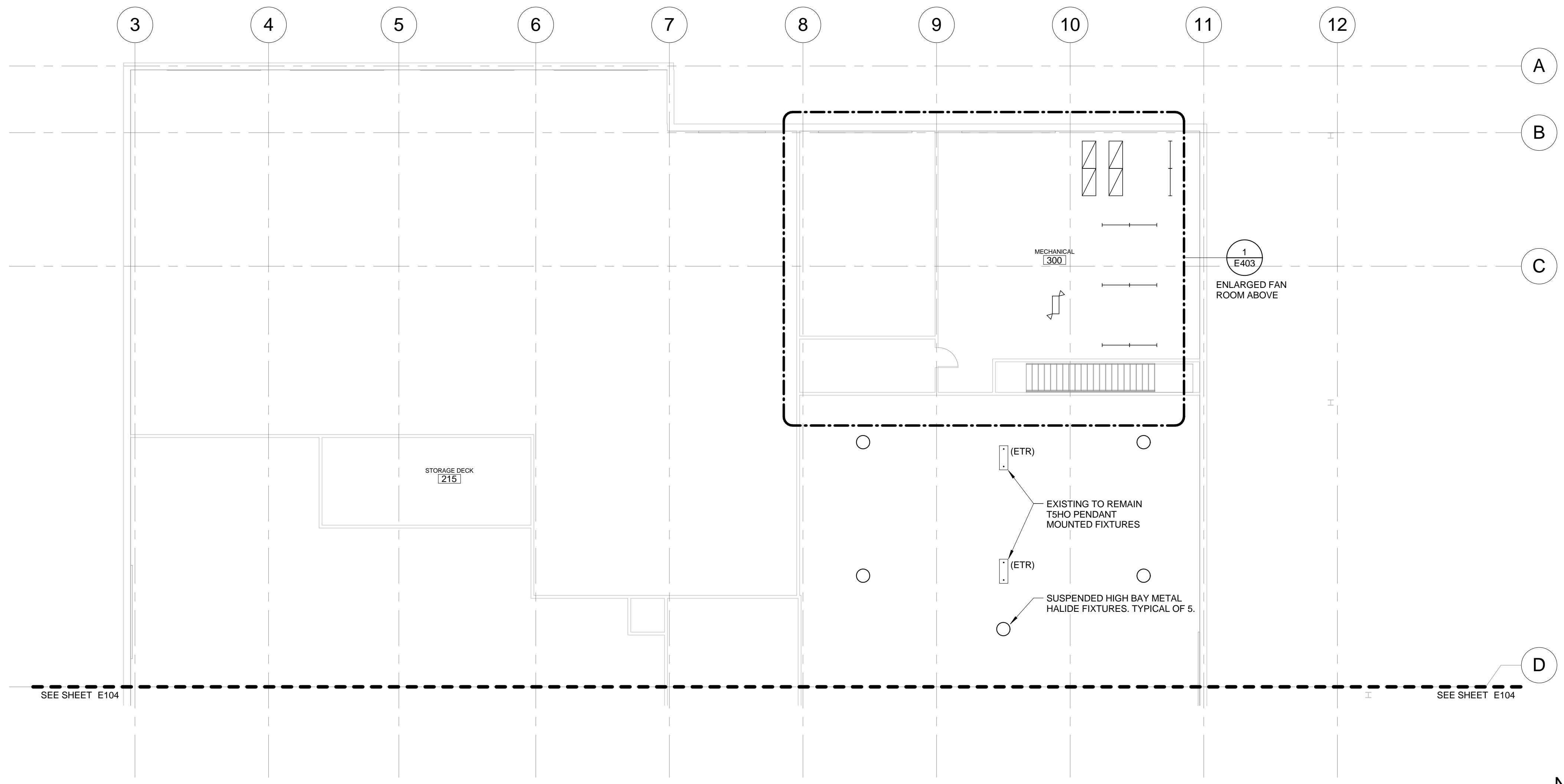
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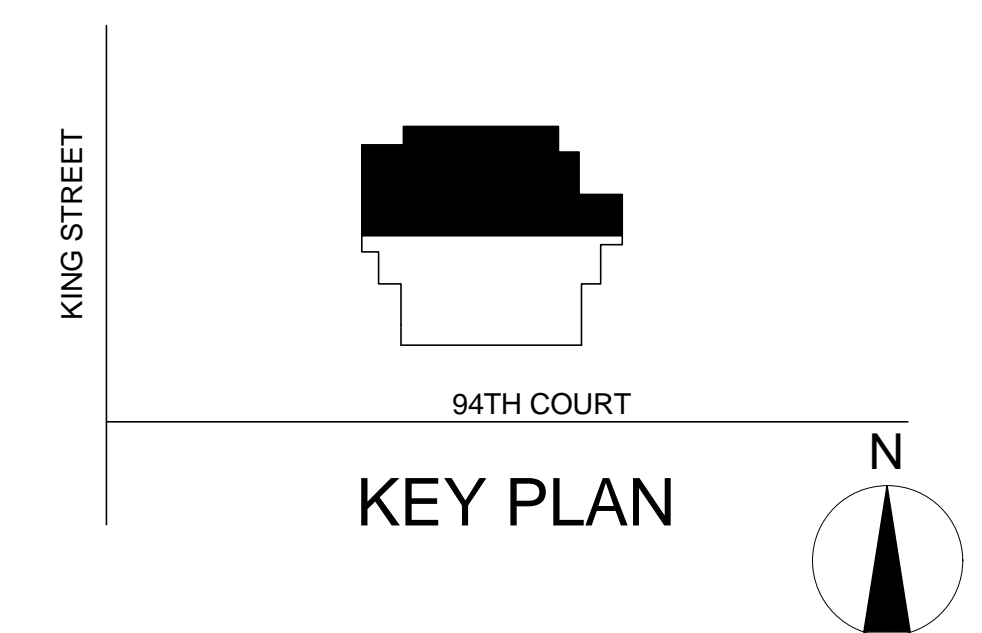
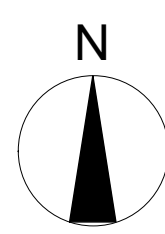
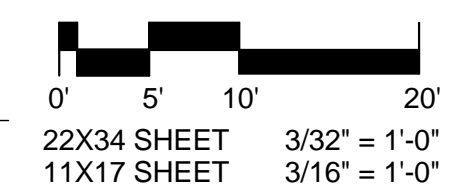
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SHEET

DEMOLITION NOTES:

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1 ELECTRICAL DEMOLITION PLAN - LEVEL 3 NORTH
 E103 3/32" = 1'-0"



VERIFY SCALE		THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING.		0" = 1"		IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.		FULL SIZE SCALE	
DATA	DRAWN BY	CHECKED BY	DATA	DRAWN BY	CHECKED BY	REV	DATE	DESCRIPTION	BY
BASE	---	---	TELEPHONE	---	---				
TOPOGRAPHY	---	---	ELECTRIC	---	---				
PROFILE	---	---	CABLE TV	---	---				
SANITARY SEWER	---	---	TRAFFIC SIGNAL	---	---				
STORM SEWER	---	---	DESIGN	---	---				
WATER	---	---	QUANTITIES	---	---				
GAS	---	---	MUN. FINAL CHECK	---	---				
PLAN CHECK					REVISIONS				

RECORD DRAWING Note: To be filled out on original drawings upon project completion.

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3. 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.

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 BY: _____ DATE: _____

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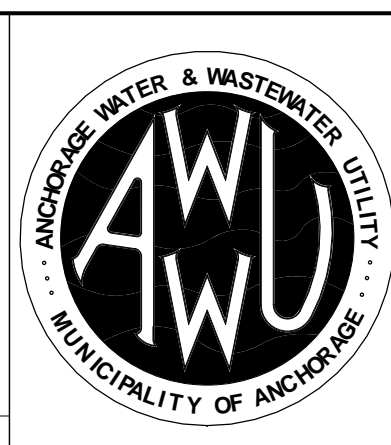
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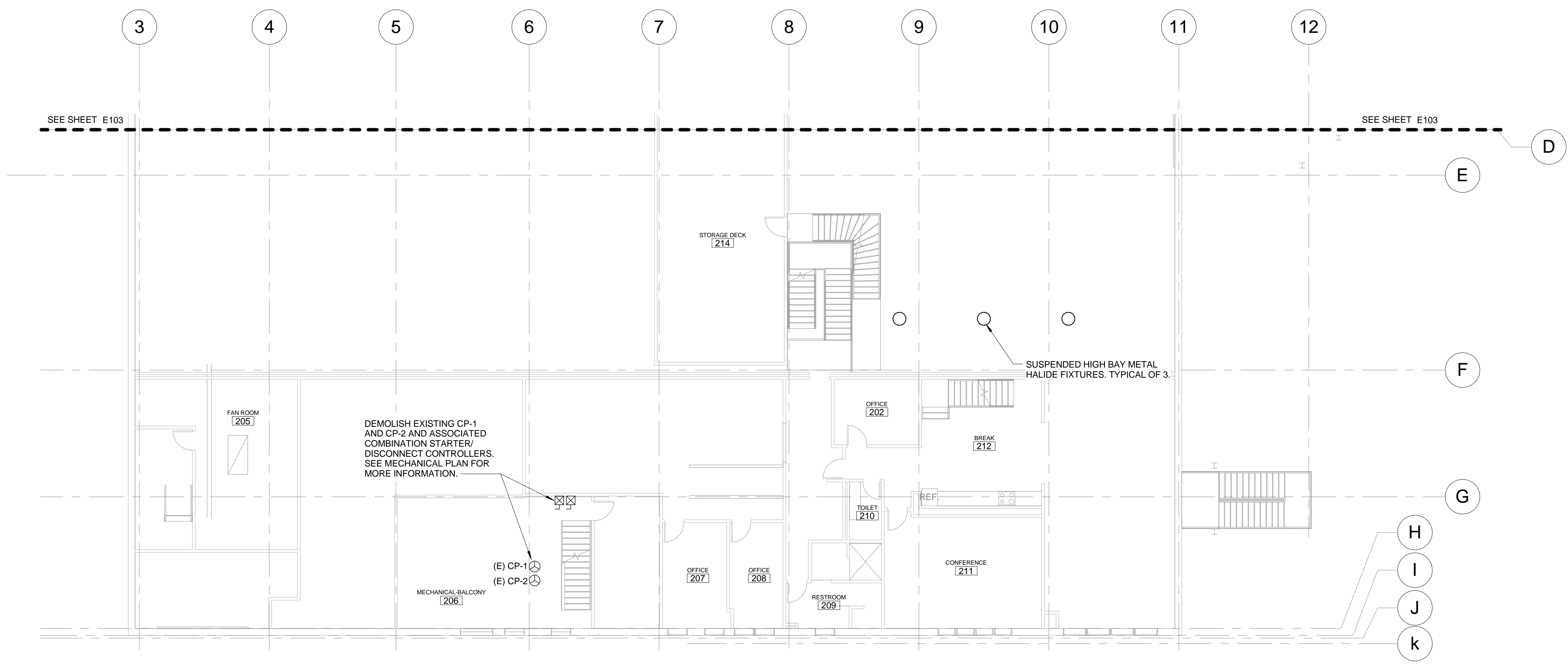


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 ELECTRICAL
 DEMOLITION PLAN - LEVEL 2 NORTH

HORZ SCALE: AS NOTED 4/29/2016 GRID: 2431 E103 of
 VERT SCALE: AS NOTED
 PROJ. ID: 2015022.05 SHEET

DEMOLITION NOTES:

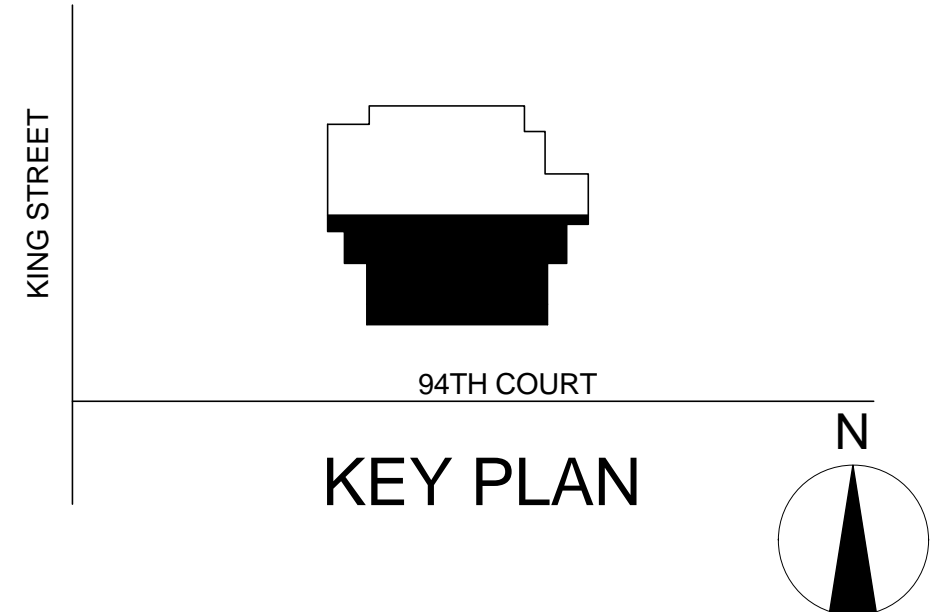
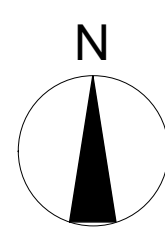
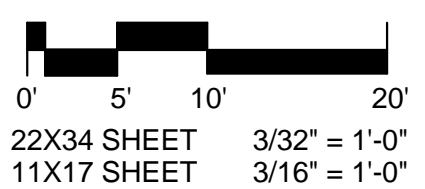
- UNLESS OTHERWISE NOTED, REMOVE ALL DEVICES AND FIXTURES SHOWN INCLUDING CONDUIT. PORTIONS OF EXISTING WIRING AND CONDUIT MAY BE RE-USED IF PRACTICAL AND IN GOOD CONDITION. RETAIN EXISTING WIRING AND CONDUIT FOR ALL DEVICES TO BE REMOVED AND REPLACED WITH A NEW DEVICE IN THE SAME LOCATION.
- SEAL UNUSED PENETRATIONS IN EXTERIOR WALL AND ROOF TO MATCH EXISTING FINISH, WATER RESISTANCE, AND INSULATION VALUE. SEAL TO INCLUDE PATCH OF VAPOR BARRIER.
- INSTALL FIRE STOPPING MATERIAL WHERE REQUIRED TO SEAL UNUSED PENETRATIONS IN FIRE RATED WALL, FLOOR, OR ROOF ASSEMBLIES. SEALED PENETRATION SHALL MATCH OR EXCEED FIRE-RATING OF ASSEMBLY. SEE ARCHITECTURAL PLANS FOR IDENTIFICATION OF FIRE RATED ASSEMBLIES.
- SEE ARCHITECTURAL, STRUCTURAL, AND MECHANICAL DRAWINGS FOR ADDITIONAL DEMOLITION WORK.



PLOT DATE: 4/29/2016 6:16:59 PM
PLOT SCALE: AS SHOWN

FILE PATH AND NAME: C:\Users\morrow\Documents\150954-KSMBU-MEP2016_morrow.rvt

1 ELECTRICAL DEMOLITION PLAN - LEVEL 2 SOUTH
E104 3/32" = 1'-0"



DESIGN DEVELOPMENT

VERIFY SCALE		THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING.		IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.		FULL SIZE SCALE	
DATA	DRAWN BY	CHECKED BY	DATE	DESCRIPTION	BY	DATE	REVISIONS
BASE	---	TELEPHONE	---				
TOPOGRAPHY	---	ELECTRIC	---				
PROFILE	---	CABLE TV	---				
SANITARY SEWER	---	TRAFFIC SIGNAL	---				
STORM SEWER	---	DESIGN	---				
WATER	---	QUANTITIES	---				
GAS	---	MUN. FINAL CHECK	---				

RECORD DRAWING Note: To be filled out on original drawings upon project completion.

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BY: _____ TITLE: _____
DATE: _____

2. DATA TRANSFERRED BY: _____
COMPANY: _____
DATE: _____

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BY: _____ TITLE: _____
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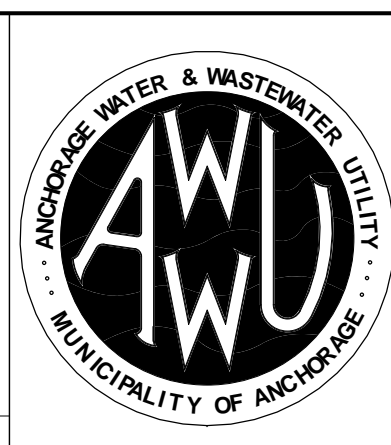
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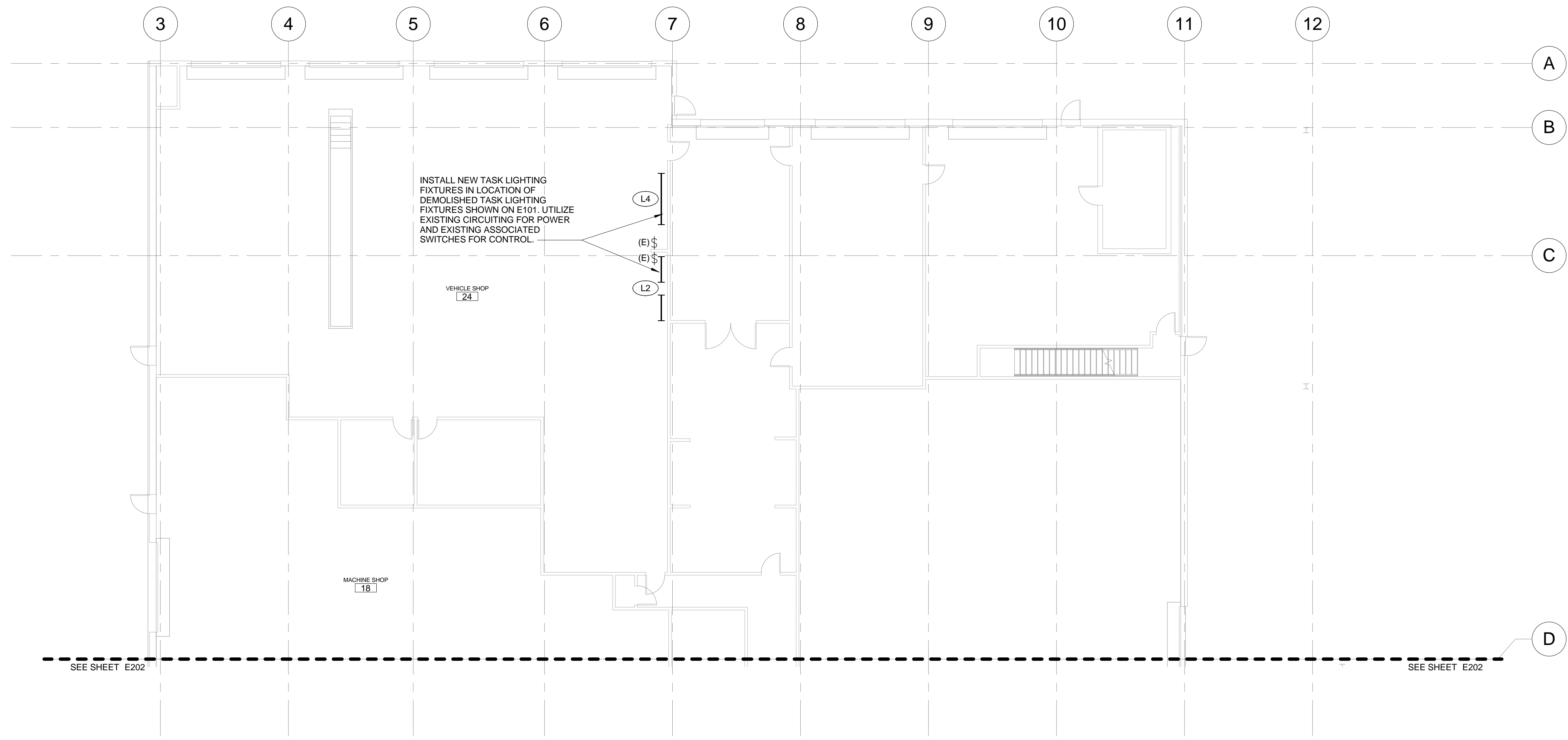
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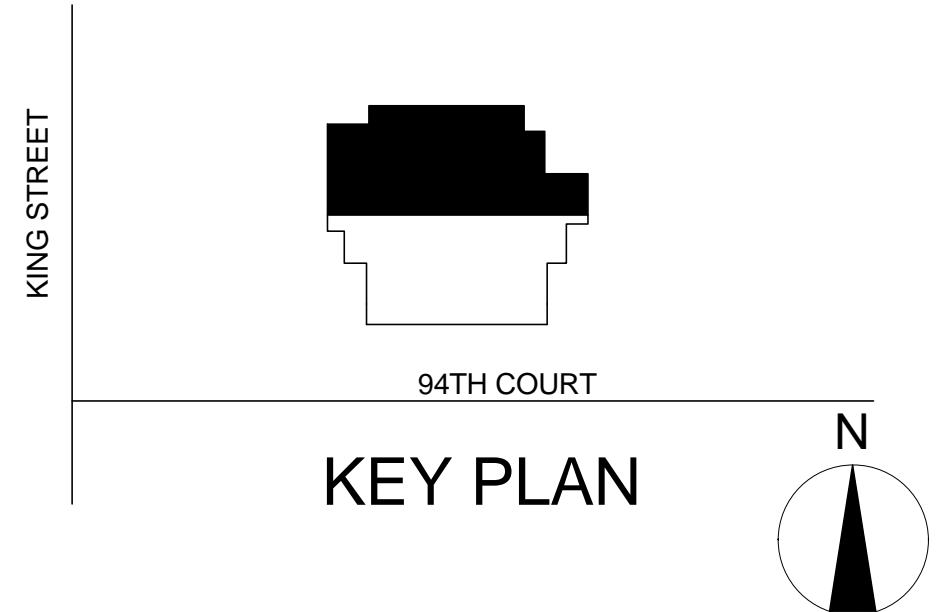
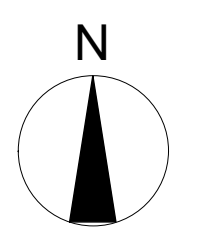
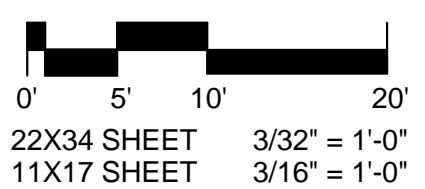
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KING STREET MAIN BUILDING UPGRADE		
ELECTRICAL		
DEMOLITION PLAN - LEVEL 2 SOUTH		
HORZ SCALE: AS NOTED	4/29/2016	GRID: 2431
PROJ. ID: 2015022.05		E104 of SHEET

GENERAL NOTES:

1. EXTEND EXISTING BRANCH CIRCUIT WIRING AND CONDUIT AS REQUIRED TO INSTALL NEW LIGHT FIXTURES AS INDICATED.
2. SEE E601 FOR LIGHT FIXTURE SCHEDULE.



1 LIGHTING PLAN - LEVEL 1 NORTH
E201 3/32" = 1'-0"



FILE PATH AND NAME: C:\Users\morrow\Documents\150954-KSMBU-MEP2016_morrow.rvt PLOT DATE: 4/29/2016 6:17:00 PM PLOT SCALE: AS SHOWN

AWWU PLAN SET NO. XXXX

DESIGN DEVELOPMENT

VERIFY SCALE		THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING.		0' 1'		IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.		FULL SIZE SCALE	
DATA	DRAWN BY	CHECKED BY	DATA	DRAWN BY	CHECKED BY	REV	DATE	DESCRIPTION	BY
BASE	---	---	TELEPHONE	---	---				
TOPOGRAPHY	---	---	ELECTRIC	---	---				
PROFILE	---	---	CABLE TV	---	---				
SANITARY SEWER	---	---	TRAFFIC SIGNAL	---	---				
STORM SEWER	---	---	DESIGN	---	---				
WATER	---	---	QUANTITIES	---	---				
GAS	---	---	MUN. FINAL CHECK	---	---				
PLAN CHECK					REVISIONS				

RECORD DRAWING Note: To be filled out on original drawings upon project completion.

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 BY: _____ TITLE: _____
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 COMPANY: _____
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 BY: _____ TITLE: _____
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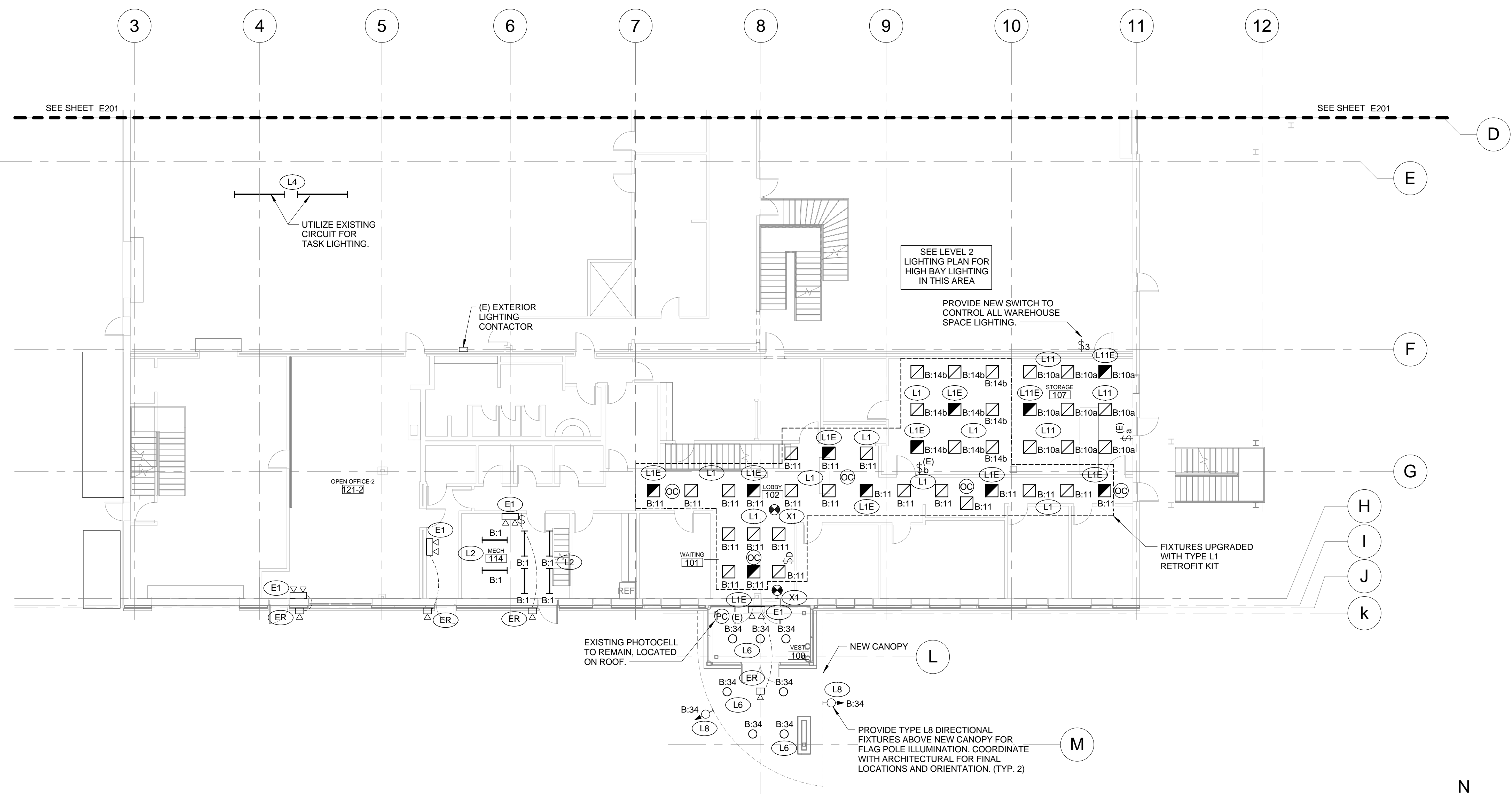
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 ELECTRICAL
 LIGHTING PLAN - LEVEL 1 NORTH

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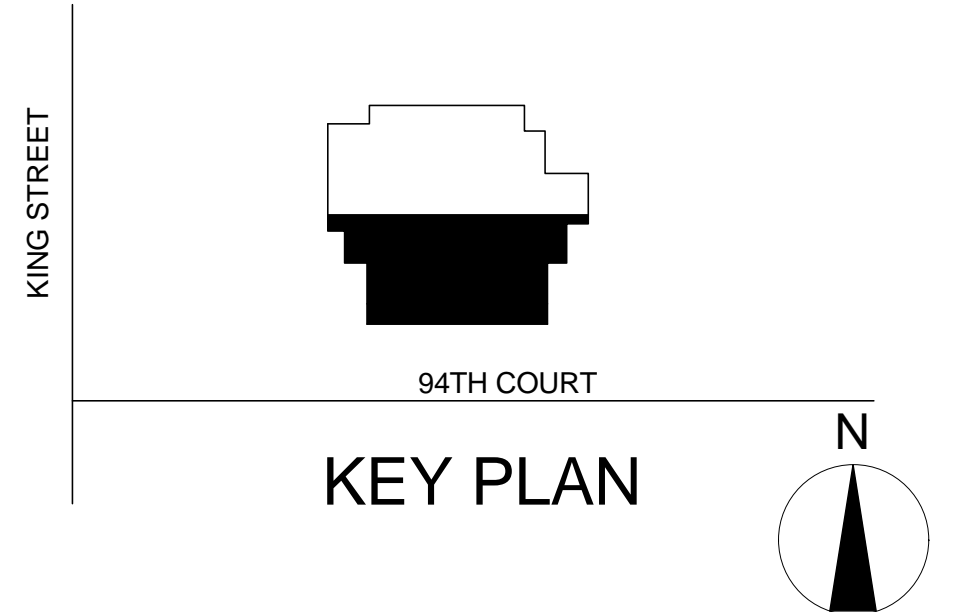
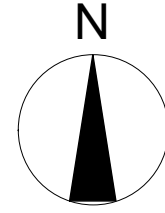
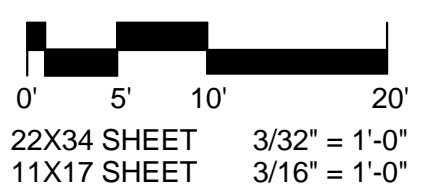
HORZ SCALE: AS NOTED	4/29/2016	GRID: 2431	E201 of
PROJ. ID.: 2015022.05			SHEET

GENERAL NOTES:

- 1. PROVIDE NEW EXIT SIGNS AND EMERGENCY LIGHTS AT LOCATIONS INDICATED. CONNECT ALL EXIT SIGNS AND EMERGENCY LIGHTS TO THE UNSWITCHED LEG OF THE LOCAL AREA LIGHTING CIRCUIT. UTILIZE CONCEALED WIRING METHODS WHERE POSSIBLE OR SURFACE MOUNT RACEWAY WHERE REQUIRED. MOUNT AT 96" UNLESS OTHERWISE NOTED.
- 2. EXTEND WIRING AS REQUIRED TO ACCOMMODATE NEW FIXTURE LOCATIONS.
- 3. SEE E601 FOR LIGHT FIXTURE SCHEDULE.
- 4. SEE E602 THROUGH E604 FOR PANEL SCHEDULES.



1 LIGHTING PLAN - LEVEL 1 SOUTH
 E202 3/32" = 1'-0"



VERIFY SCALE		THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING.		0' 1"		IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.		FULL SIZE SCALE	
DATA	DRAWN BY	CHECKED BY	DATA	DRAWN BY	CHECKED BY	REV	DATE	DESCRIPTION	BY
BASE	---	---	TELEPHONE	---	---				
TOPOGRAPHY	---	---	ELECTRIC	---	---				
PROFILE	---	---	CABLE TV	---	---				
SANITARY SEWER	---	---	TRAFFIC SIGNAL	---	---				
STORM SEWER	---	---	DESIGN	---	---				
WATER	---	---	QUANTITIES	---	---				
GAS	---	---	MUN. FINAL CHECK	---	---				

RECORD DRAWING Note: To be filled out on original drawings upon project completion.

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2. DATA TRANSFERRED BY: _____

CONTRACTOR: _____ TITLE: _____

DATE: _____

3. 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.

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COMPANY: _____

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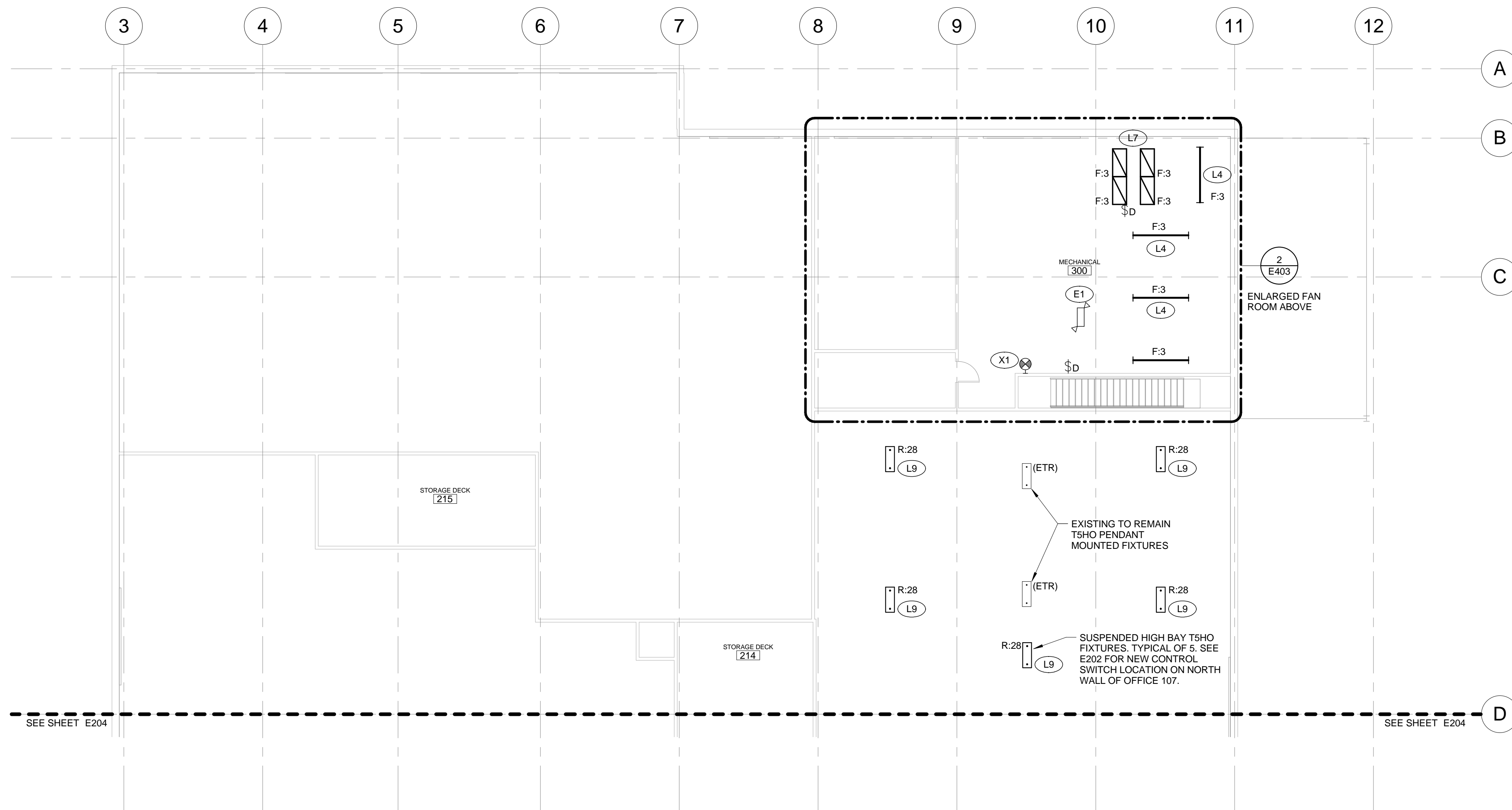
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HORZ SCALE: AS NOTED 4/29/2016 GRID: 2431 E202 of
VERT SCALE: 3/32" = 1'-0" 3/16" = 1'-0"
PROJ. ID.: 2015022.05 SHEET

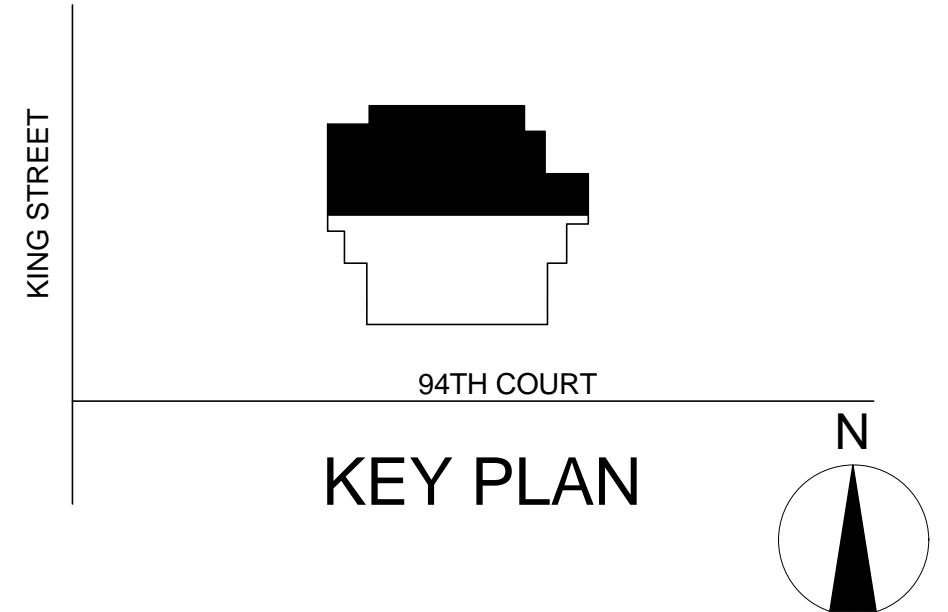
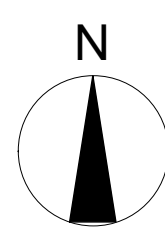
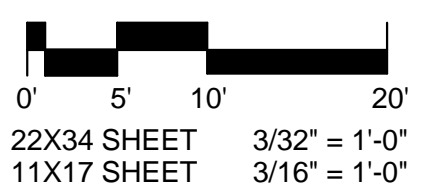
GENERAL NOTES:

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2. EXTEND WIRING AS REQUIRED TO ACCOMMODATE NEW FIXTURE LOCATIONS.
3. SEE E601 FOR LIGHT FIXTURE SCHEDULE.
4. SEE E602 THROUGH E604 FOR PANEL SCHEDULES.

AWWU PLAN SET NO. XXXX



1 LIGHTING PLAN - LEVEL 2 NORTH
E203 3/32" = 1'-0"



DESIGN DEVELOPMENT

PLOT DATE: 4/29/2016 6:17:02 PM
PLOT SCALE: AS SHOWN
FILE PATH AND NAME: C:\Users\morrow\Documents\150954-KSMBU-MEP2016_morrow.rvt

VERIFY SCALE		THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING.		0" = 1"		IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.		FULL SIZE SCALE HORZ. SCALE: VERT. SCALE:	
DATA	DRAWN BY	CHECKED BY	DATA	DRAWN BY	CHECKED BY	REV	DATE	DESCRIPTION	BY
BASE	---	---	TELEPHONE	---	---				
TOPOGRAPHY	---	---	ELECTRIC	---	---				
PROFILE	---	---	CABLE TV	---	---				
SANITARY SEWER	---	---	TRAFFIC SIGNAL	---	---				
STORM SEWER	---	---	DESIGN	---	---				
WATER	---	---	QUANTITIES	---	---				
GAS	---	---	MUN. FINAL CHECK	---	---				
PLAN CHECK					REVISIONS				

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BY: _____ DATE: _____

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COMPANY: _____ BY: _____ TITLE: _____
DATE: _____

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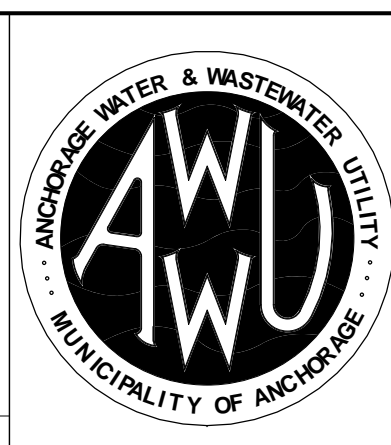
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LIGHTING PLAN - LEVEL 2 NORTH

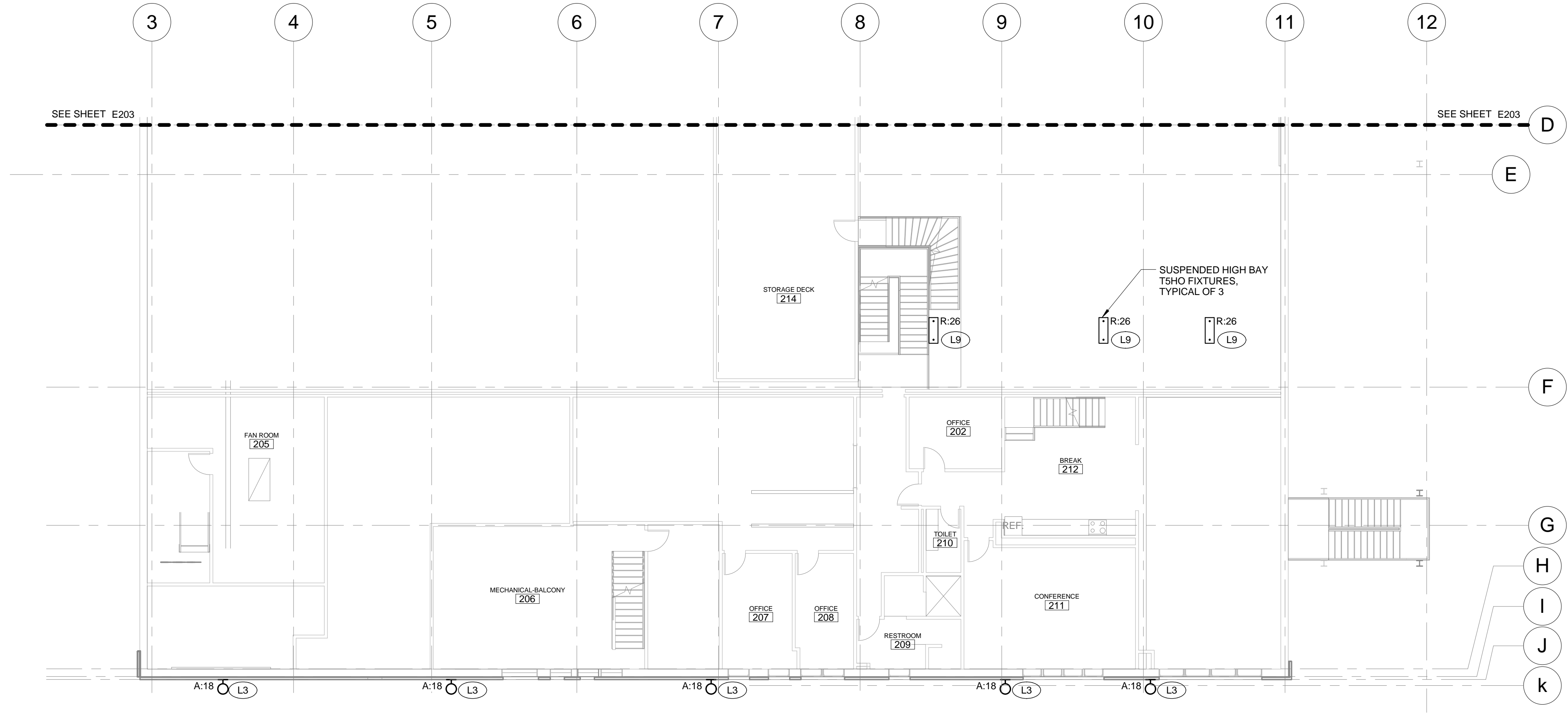
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VERT. SCALE: AS NOTED
PROJ. ID.: 2015022.05 SHEET

GENERAL NOTES:

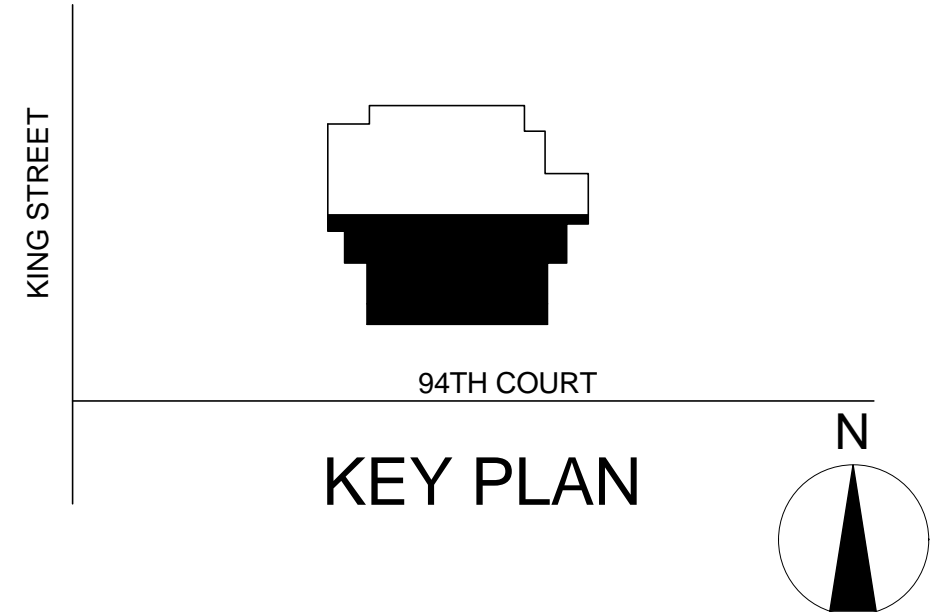
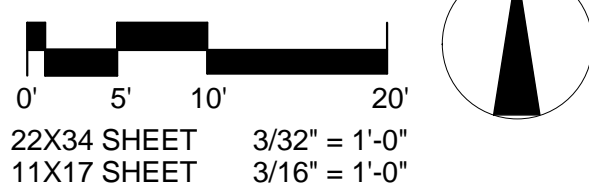
1. EXTEND WIRING AS REQUIRED TO ACCOMMODATE NEW FIXTURE LOCATIONS.
2. SEE E601 FOR LIGHT FIXTURE SCHEDULE.
3. SEE E602 THROUGH E604 FOR PANEL SCHEDULES.

SHEET NOTES:

1. UTILIZE EXISTING PHOTOCELL AND LIGHTING CONTROL CONTACTOR FOR CONTROL OF NEW EXTERIOR WALL MOUNTED LIGHT FIXTURES (TYPE L3).



1 LIGHTING PLAN - LEVEL 2 SOUTH
E204 3/32" = 1'-0"



VERIFY SCALE		THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING.		IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.		FULL SIZE SCALE	
DATA	DRAWN BY	CHECKED BY	DATE	DESCRIPTION	BY	DATE	REVISIONS
BASE	---	TELEPHONE	---				
TOPOGRAPHY	---	ELECTRIC	---				
PROFILE	---	CABLE TV	---				
SANITARY SEWER	---	TRAFFIC SIGNAL	---				
STORM SEWER	---	DESIGN	---				
WATER	---	QUANTITIES	---				
GAS	---	MUN. FINAL CHECK	---				

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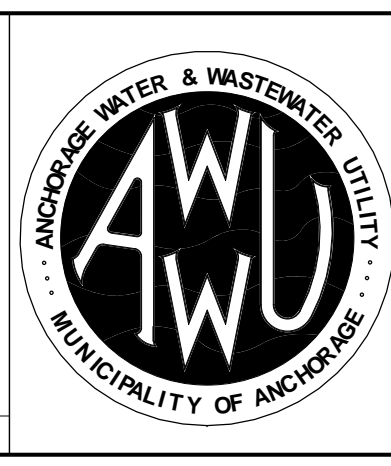
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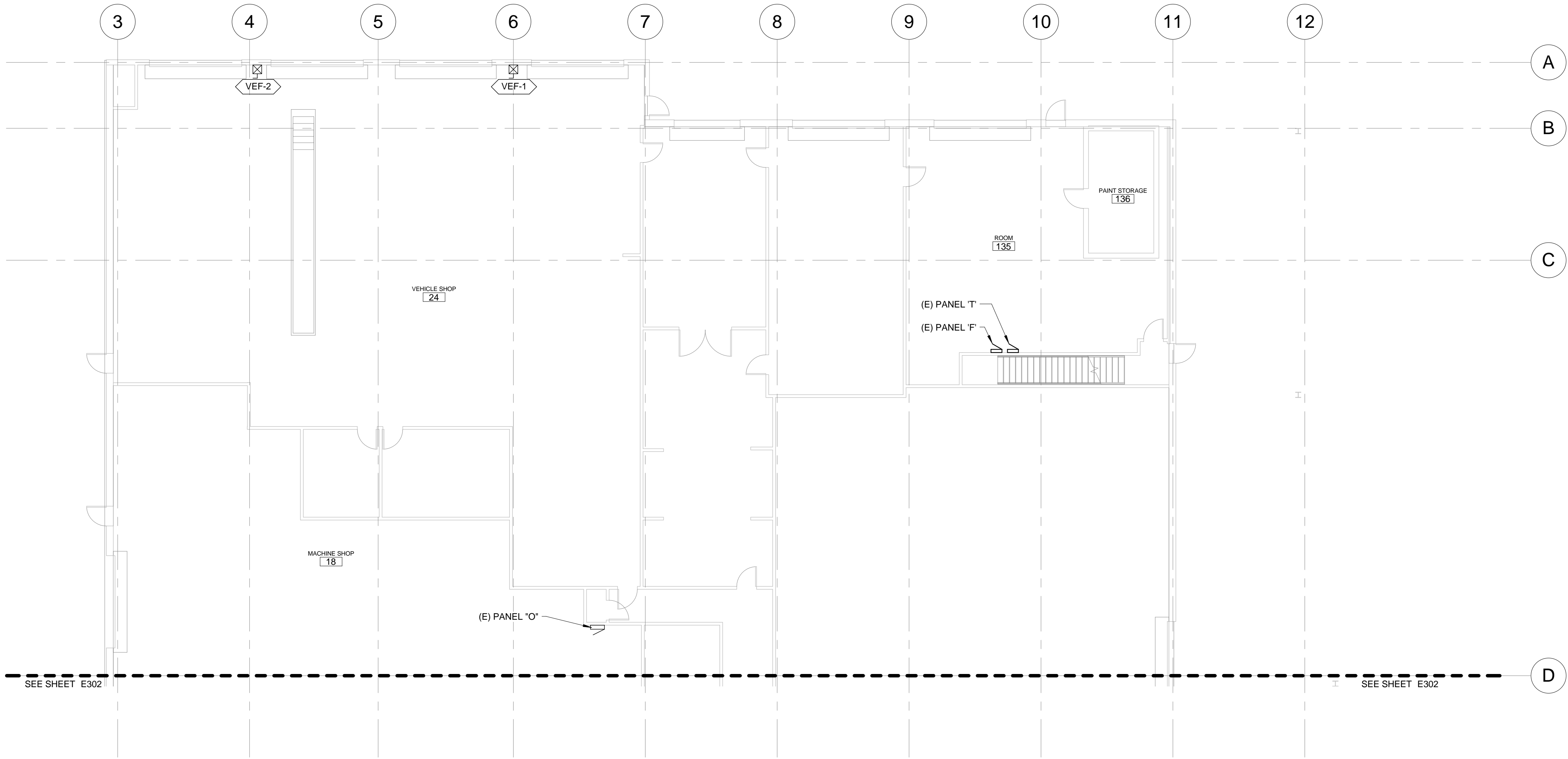
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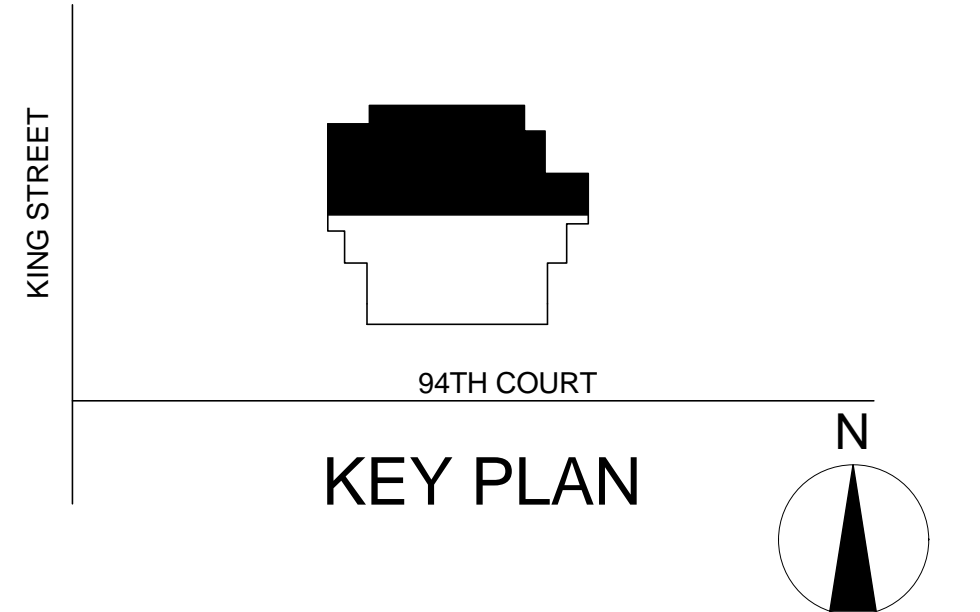
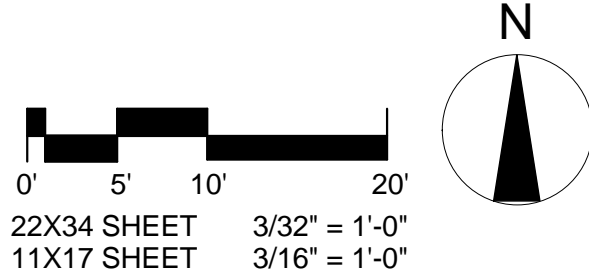
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 LIGHTING PLAN - LEVEL 2 SOUTH

HORZ SCALE: AS NOTED 4/29/2016 GRID: 2431 E204 of
 PROJ. ID.: 2015022.05 SHEET

- SHEET NOTES:**
- SEE E602 THROUGH E604 FOR PANEL SCHEDULES.
 - SEE E601 FOR EQUIPMENT CONNECTION SCHEDULE.
 - REFER TO MECHANICAL FOR ADDITIONAL INFORMATION ON VEHICLE EXHAUST FAN INSTALLATION.



1 POWER & SIGNAL PLAN - LEVEL 1 NORTH
 E301 3/32" = 1'-0"



VERIFY SCALE		THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING.		IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.		FULL SIZE SCALE	
DATA	DRAWN BY	CHECKED BY	DATA	DRAWN BY	CHECKED BY	REV	DATE
BASE	---	---	TELEPHONE	---	---		
TOPOGRAPHY	---	---	ELECTRIC	---	---		
PROFILE	---	---	CABLE TV	---	---		
SANITARY SEWER	---	---	TRAFFIC SIGNAL	---	---		
STORM SEWER	---	---	DESIGN	---	---		
WATER	---	---	QUANTITIES	---	---		
GAS	---	---	MUN. FINAL CHECK	---	---		
PLAN CHECK				REVISIONS			

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 ELECTRICAL
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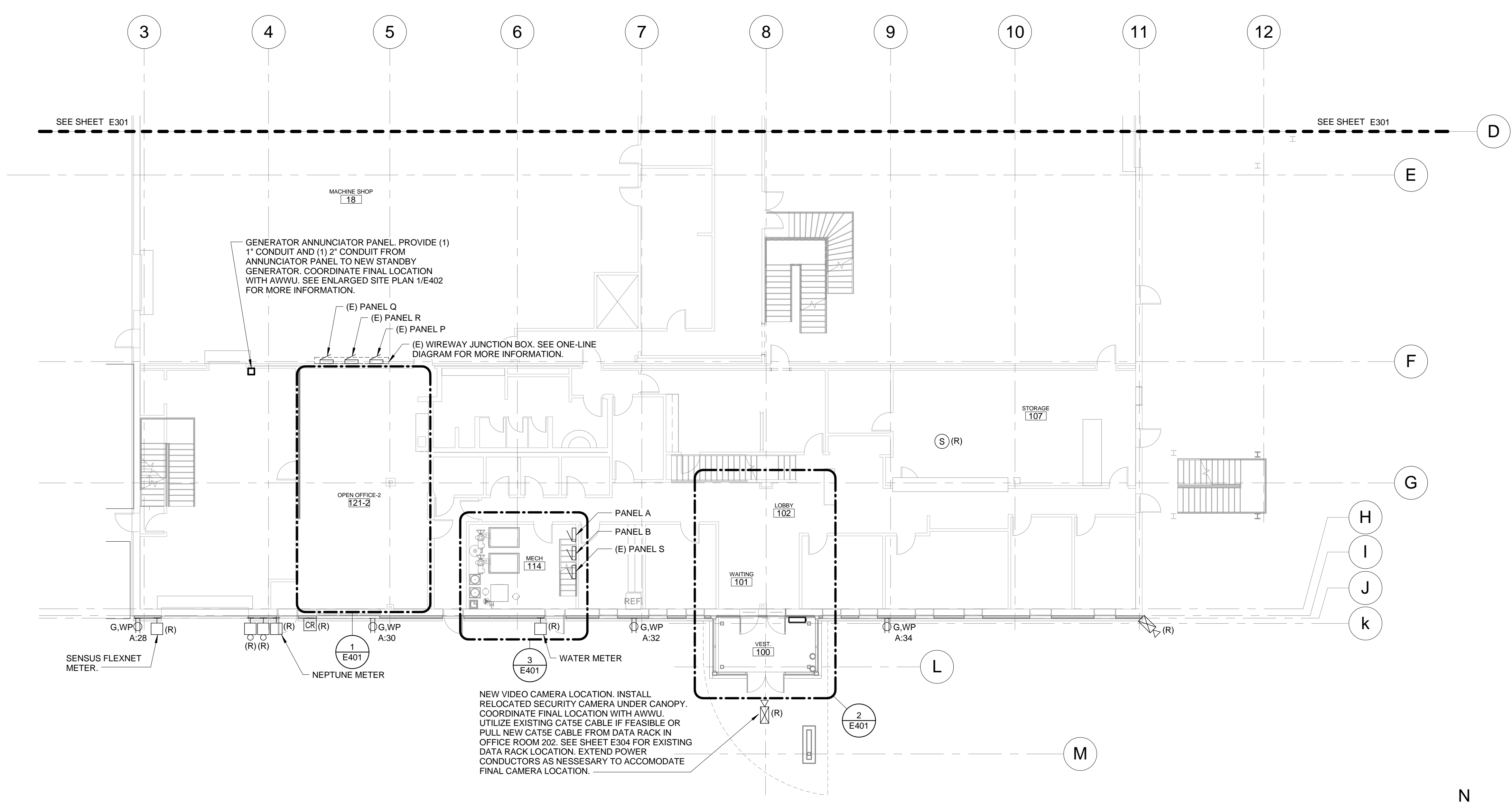
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 ANCHORAGE WATER & WASTEWATER UTILITY
 MUNICIPALITY OF ANCHORAGE

HORZ SCALE: AS NOTED	4/29/2016	GRID: 2431	E301 of
PROJ. ID.: 2015022.05		SHEET	

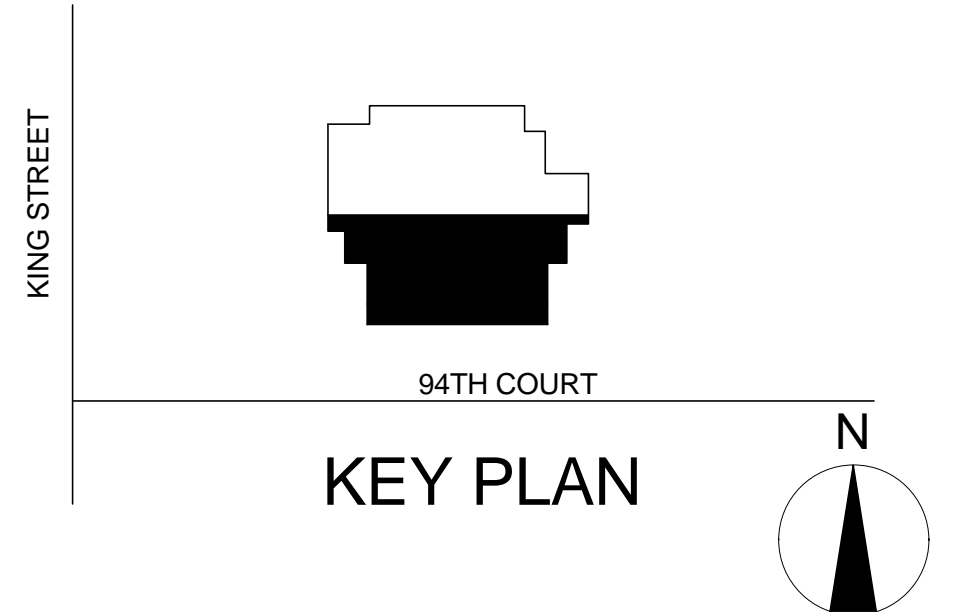
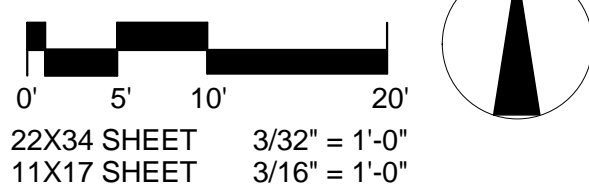
SHEET NOTES:

1. AN (R) ADJECENT TO A DEVICE INDICATES IT IS TO BE RE-INSTALLED IN NEW EXTERIOR WALL IN SAME LOCATION UNLESS OTHERWISE NOTED.
2. COORDINATE WITH ARCHITECTURAL FOR FINAL LOCATIONS OF ALL DEVICES TO BE INSTALLED.
3. SEE E602 THROUGH E604 FOR PANEL SCHEDULES.

AWWU PLAN SET NO. XXXX



1 POWER & SIGNAL PLAN - LEVEL 1 SOUTH
 E302 3/32" = 1'-0"



DESIGN DEVELOPMENT

PLOT DATE: 4/29/2016 6:17:03 PM
 PLOT SCALE: AS SHOWN
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DATA	DRAWN BY	CHECKED BY	DATE	REV	DATE	DESCRIPTION	BY
BASE	---	TELEPHONE	---				
TOPOGRAPHY	---	ELECTRIC	---				
PROFILE	---	CABLE TV	---				
SANITARY SEWER	---	TRAFFIC SIGNAL	---				
STORM SEWER	---	DESIGN	---				
WATER	---	QUANTITIES	---				
GAS	---	MUN. FINAL CHECK	---				
PLAN CHECK				REVISIONS			

RECORD DRAWING Note: To be filled out on original drawings upon project completion.

1. DATA PROVIDED BY: _____
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2. DATA TRANSFERRED BY: _____
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CONTRACTOR: _____ TITLE: _____
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 COMPANY: _____ TITLE: _____
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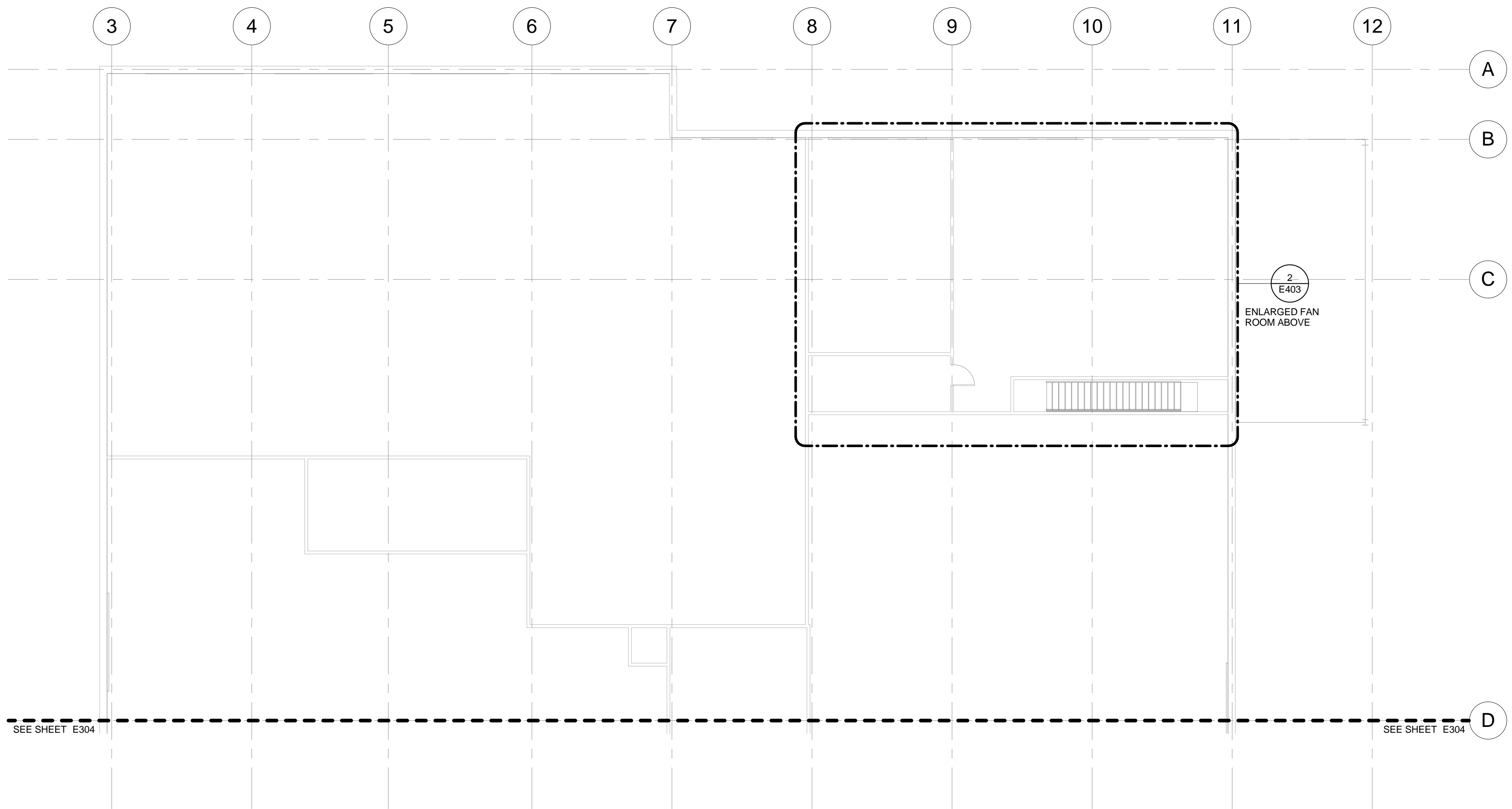
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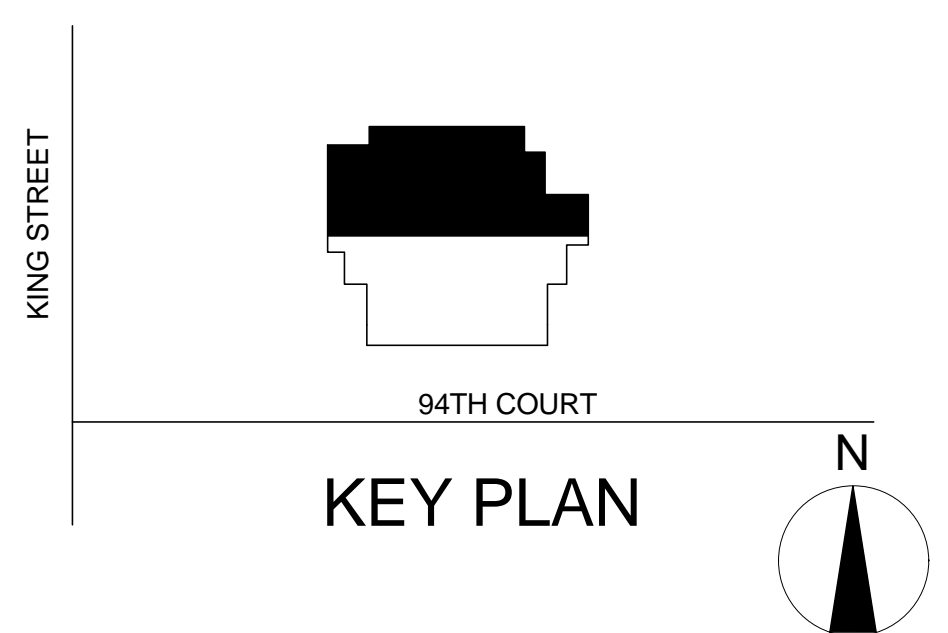
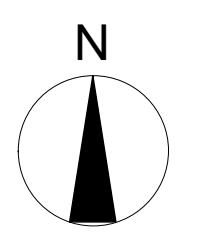
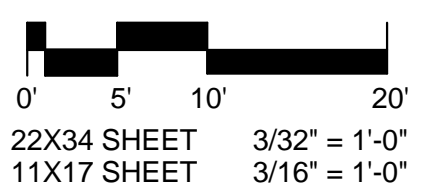
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 KING STREET MAIN BUILDING UPGRADE
 ELECTRICAL
 POWER & SIGNAL PLAN - LEVEL 1 SOUTH

AWWU
 ANCHORAGE WATER & WASTEWATER UTILITY
 MUNICIPALITY OF ANCHORAGE

HORZ SCALE: AS NOTED 4/29/2016 GRID: 2431 E302 of
 VERT SCALE: AS NOTED
 PROJ. ID.: 2015022.05 SHEET



1 POWER & SIGNAL PLAN - LEVEL 2 NORTH
E303 3/32" = 1'-0"



VERIFY SCALE		THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING.		0' 1'		IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.		FULL SIZE SCALE	
DATA	DRAWN BY	CHECKED BY	DATA	DRAWN BY	CHECKED BY	REV	DATE	DESCRIPTION	BY
BASE	---	---	TELEPHONE	---	---				
TOPOGRAPHY	---	---	ELECTRIC	---	---				
PROFILE	---	---	CABLE TV	---	---				
SANITARY SEWER	---	---	TRAFFIC SIGNAL	---	---				
STORM SEWER	---	---	DESIGN	---	---				
WATER	---	---	QUANTITIES	---	---				
GAS	---	---	MUN. FINAL CHECK	---	---				
PLAN CHECK					REVISIONS				

RECORD DRAWING		Note: To be filled out on original drawings upon project completion.	
1. DATA PROVIDED BY:	_____	3. 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.	_____
This will serve to certify that these Record Drawings are a true and accurate representation of the project as constructed.			
CONTRACTOR:	_____	DATA TRANSFER CHECKED BY:	_____
BY:	_____	COMPANY:	_____
DATE:	_____	BY:	_____
DATE:	_____	TITLE:	_____
2. DATA TRANSFERRED BY:	_____	DATE:	_____
COMPANY:	_____		
DATE:	_____		

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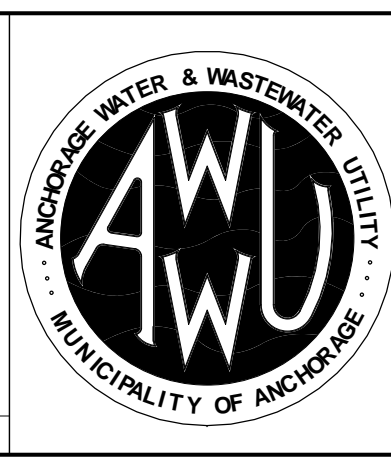
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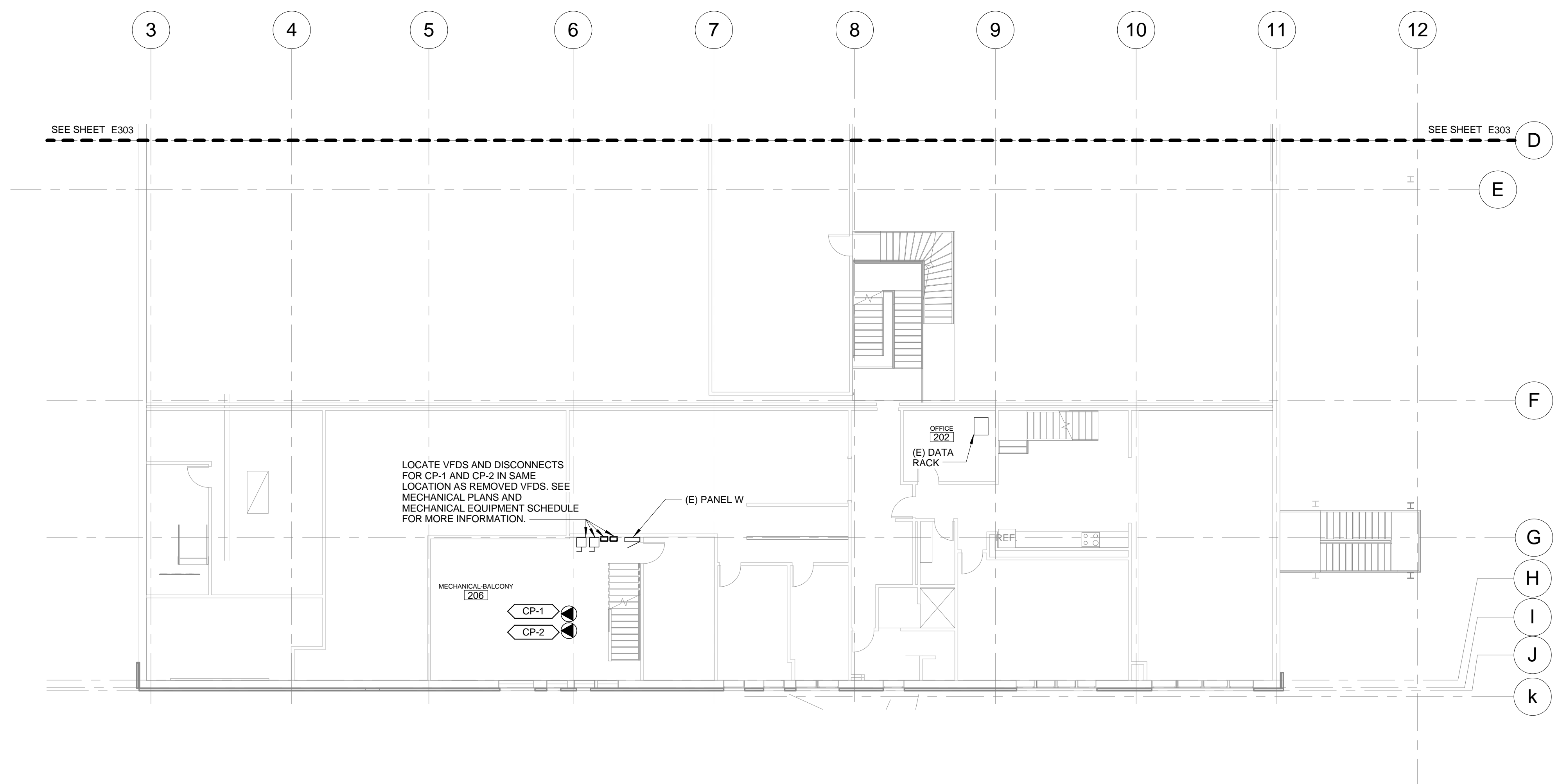
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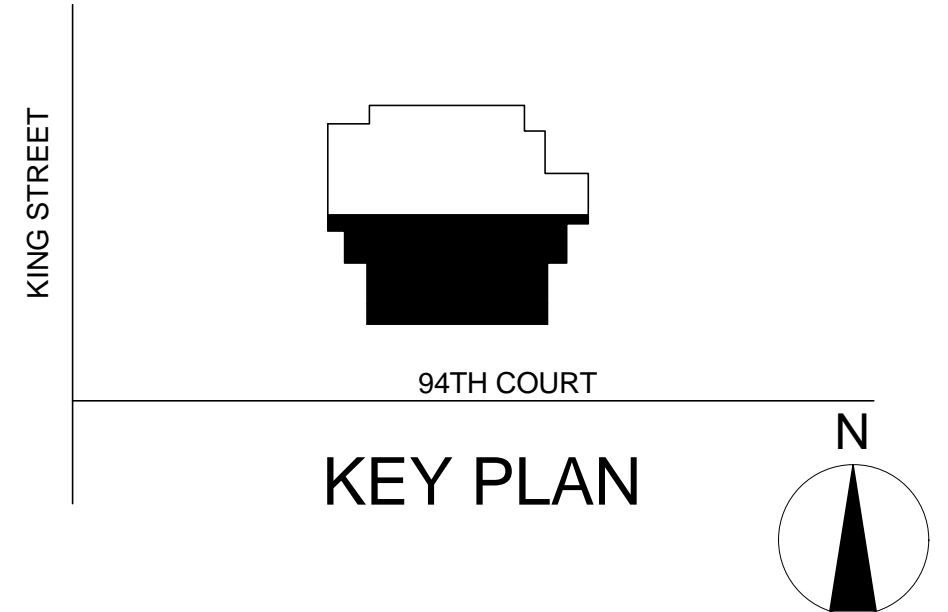
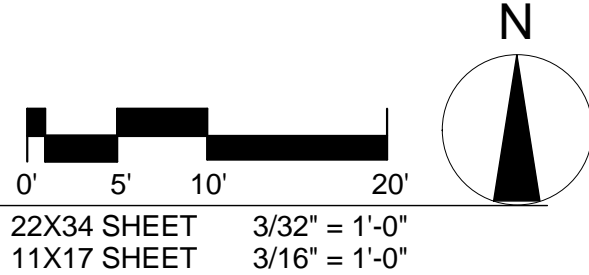


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POWER & SIGNAL PLAN - LEVEL 2 NORTH			
HORZ SCALE: AS NOTED	4/29/2016	GRID: 2431	E303 of
PROJ. ID.: 2015022.05			SHEET

PLOT DATE: 4/29/2016 6:17:05 PM
PLOT SCALE: AS SHOWN



1 POWER & SIGNAL PLAN - LEVEL 2 SOUTH
E304 3/32" = 1'-0"



VERIFY SCALE		THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING.		0" = 1"		IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.		FULL SIZE SCALE	
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BASE	---	---	TELEPHONE	---	---				
TOPOGRAPHY	---	---	ELECTRIC	---	---				
PROFILE	---	---	CABLE TV	---	---				
SANITARY SEWER	---	---	TRAFFIC SIGNAL	---	---				
STORM SEWER	---	---	DESIGN	---	---				
WATER	---	---	QUANTITIES	---	---				
GAS	---	---	MUN. FINAL CHECK	---	---				
PLAN CHECK					REVISIONS				

RECORD DRAWING Note: To be filled out on original drawings upon project completion.

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BY: _____ TITLE: _____
DATE: _____

2. DATA TRANSFERRED BY: _____
COMPANY: _____
DATE: _____

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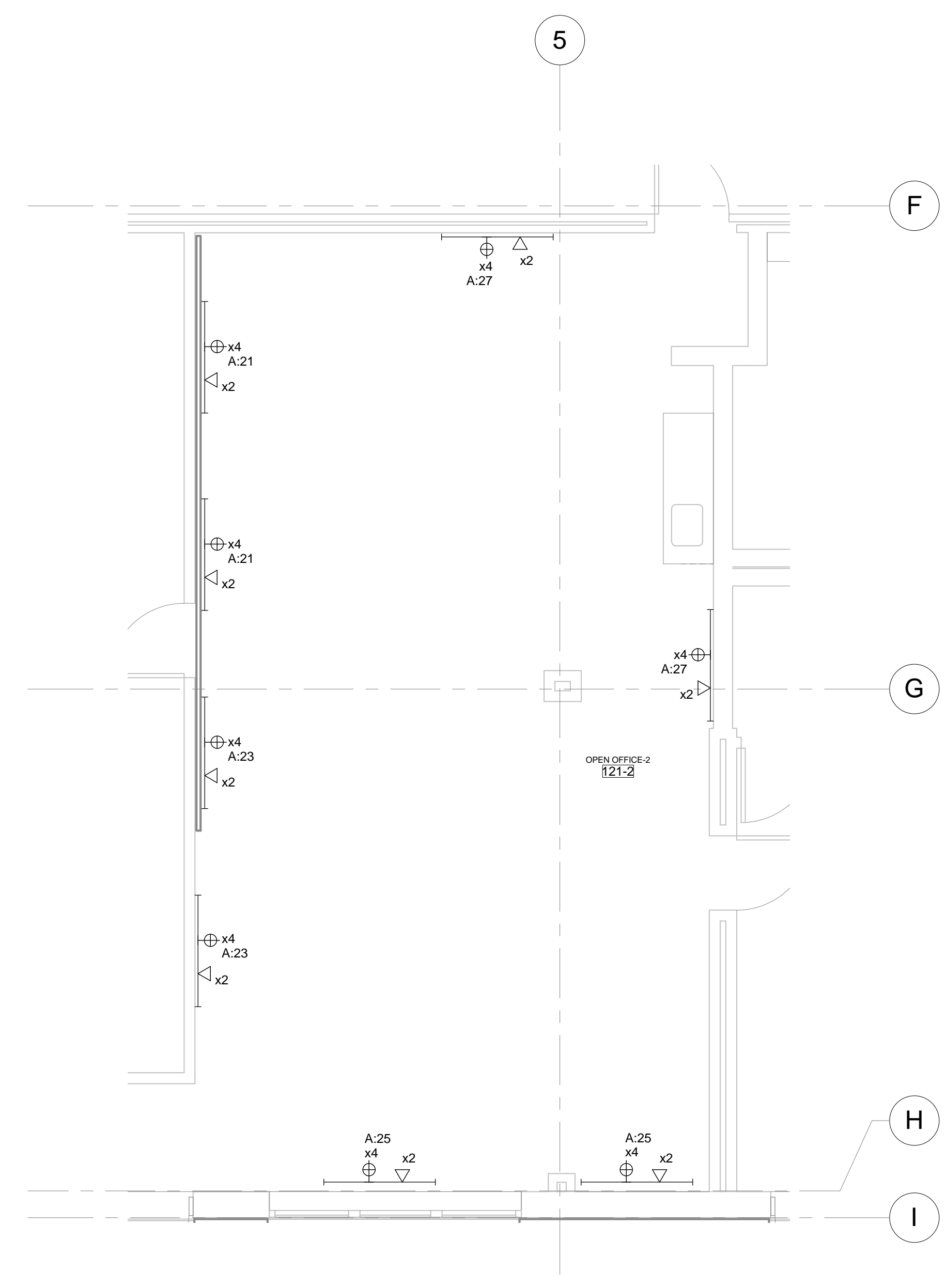
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ELECTRICAL
POWER & SIGNAL PLAN - LEVEL 2 SOUTH

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HORZ SCALE: AS NOTED	4/29/2016	GRID: 2431	E304 of
PROJ. ID.: 2015022.05	SHEET		

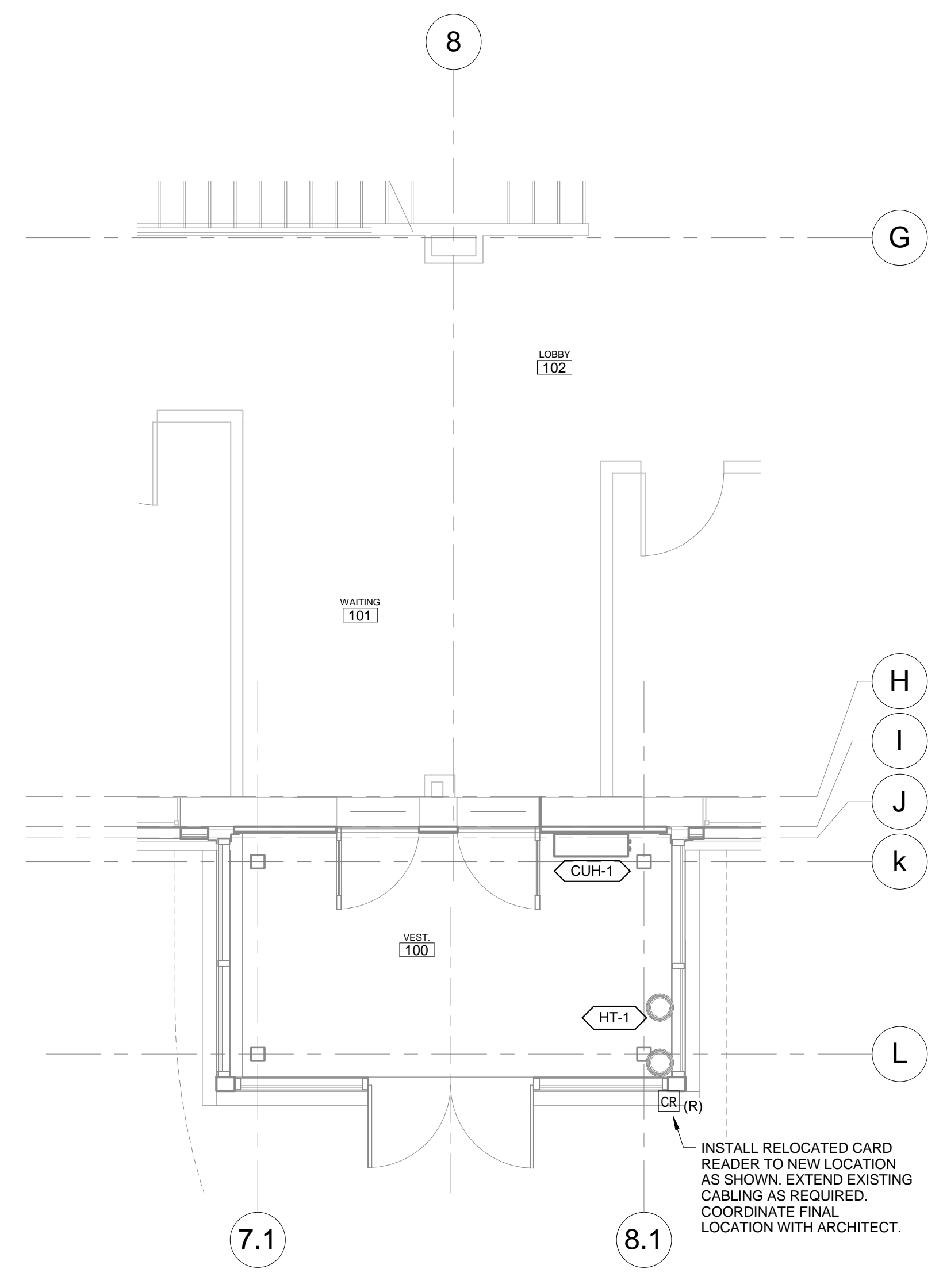
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PLOT SCALE: AS SHOWN



DETAIL NOTE:

1. PROVIDE SURFACE MOUNTED WIREMOLD 4000 WITH DATA AND POWER OUTLETS IN THE LOCATIONS SHOWN. TRANSITION DATA CABLING AND POWER CONDUCTORS IN CONDUIT ABOVE T-GRID CEILING TO SURFACE MOUNTED WIREMOLD UPON ENTERING OPEN OFFICE 121. PROVIDE NO MORE THAN ONE VERTICAL SECTION OF WIREMOLD PER WALL AND TRANSITION TO HORIZONTAL AT 36" ABOVE FINISHED FLOOR. REFER TO E502 FOR TELECOMMUNICATIONS RISER DIAGRAM AND OUTLET DETAILS.
2. SEE E602 THROUGH E604 FOR PANEL SCHEDULES.

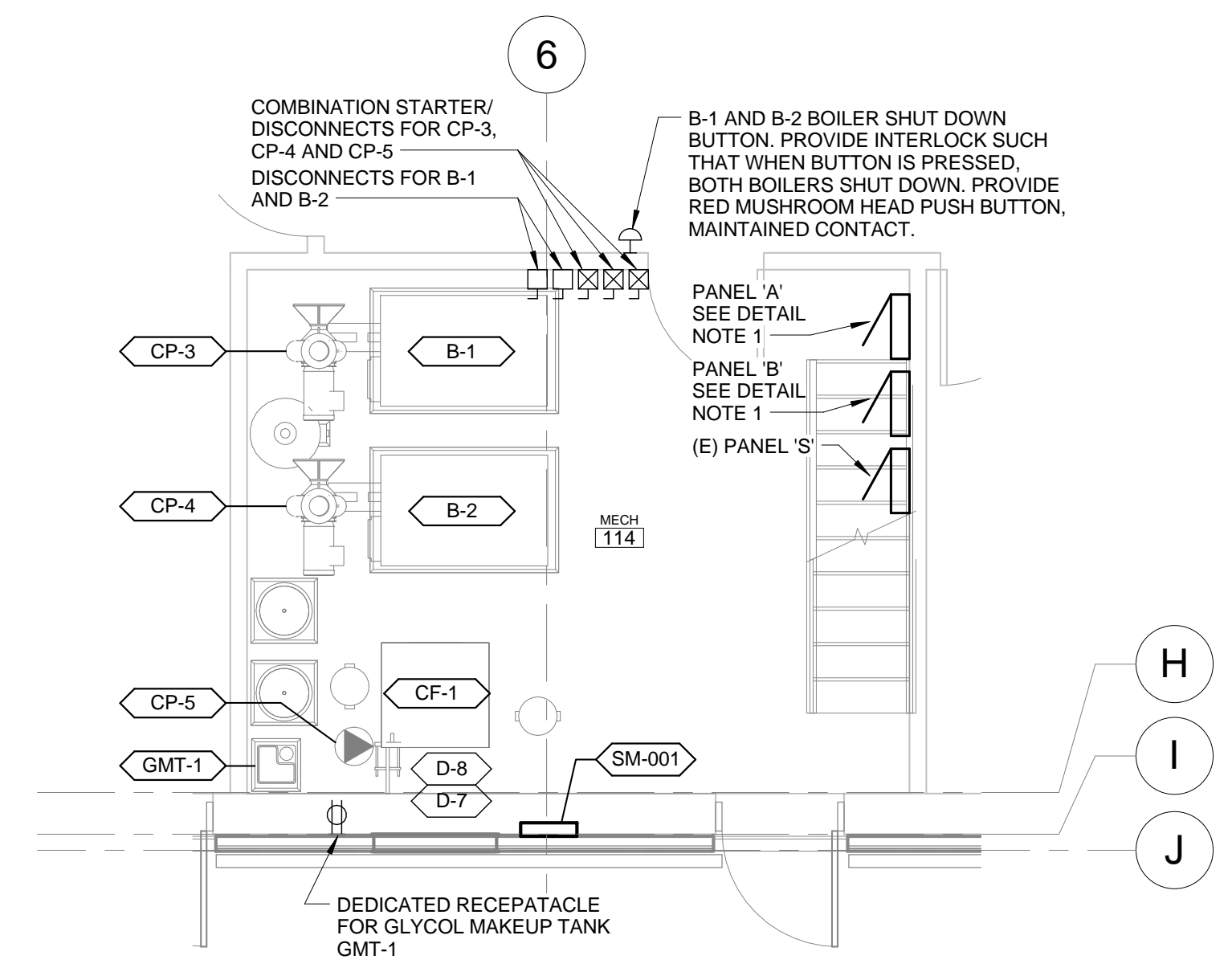
1 ENLARGED ELECTRICAL PLAN - OPEN OFFICE 121
E401 1/4" = 1'-0"



DETAIL NOTE:

1. SEE MECHANICAL PLANS AND THE MECHANICAL EQUIPMENT SCHEDULE FOR HEAT TRACE INSTALLATION LOCATION INTO STORM DRAIN PIPING.

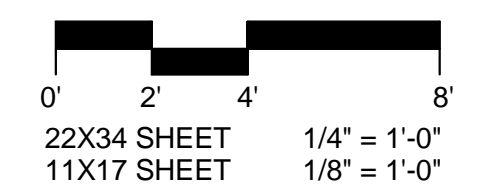
2 ENLARGED ELECTRICAL PLAN - WAITING/VEST 100
E401 1/4" = 1'-0"



DETAIL NOTE:

1. PROVIDE NEW PANELS 'A' AND 'B' IN LOCATION OF REMOVED PANELS 'A' AND 'B' AS SHOWN. PROVIDE JUNCTION BOXES AS NECESSARY TO EXTEND EXISTING BRANCH CIRCUITS TO NEW PANELS. SPLICES ARE NOT ALLOWED.

3 ENLARGED MECH 114 ELECTRICAL PLAN - LEVEL 1
E401 1/4" = 1'-0"



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DATA	DRAWN BY	CHECKED BY	DATE	REV	DATE	DESCRIPTION	BY	DATE	REVISIONS
BASE	---	TELEPHONE	---						
TOPOGRAPHY	---	ELECTRIC	---						
PROFILE	---	CABLE TV	---						
SANITARY SEWER	---	TRAFFIC SIGNAL	---						
STORM SEWER	---	DESIGN	---						
WATER	---	QUANTITIES	---						
GAS	---	MUN. FINAL CHECK	---						

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DATA TRANSFER CHECKED BY: _____ COMPANY: _____ BY: _____ TITLE: _____ DATE: _____

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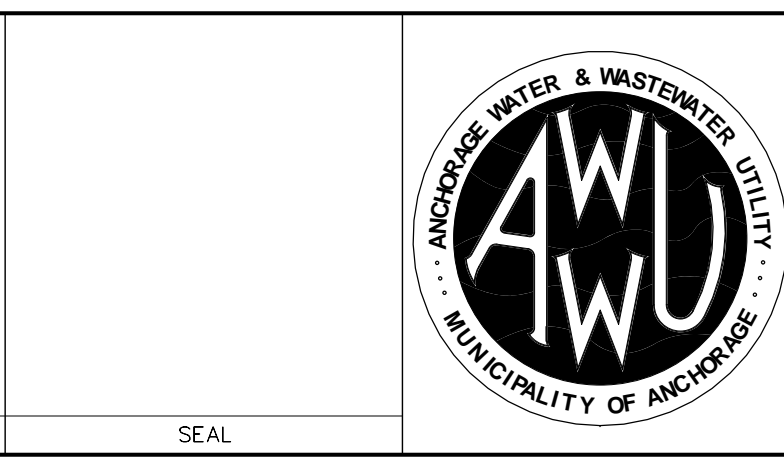
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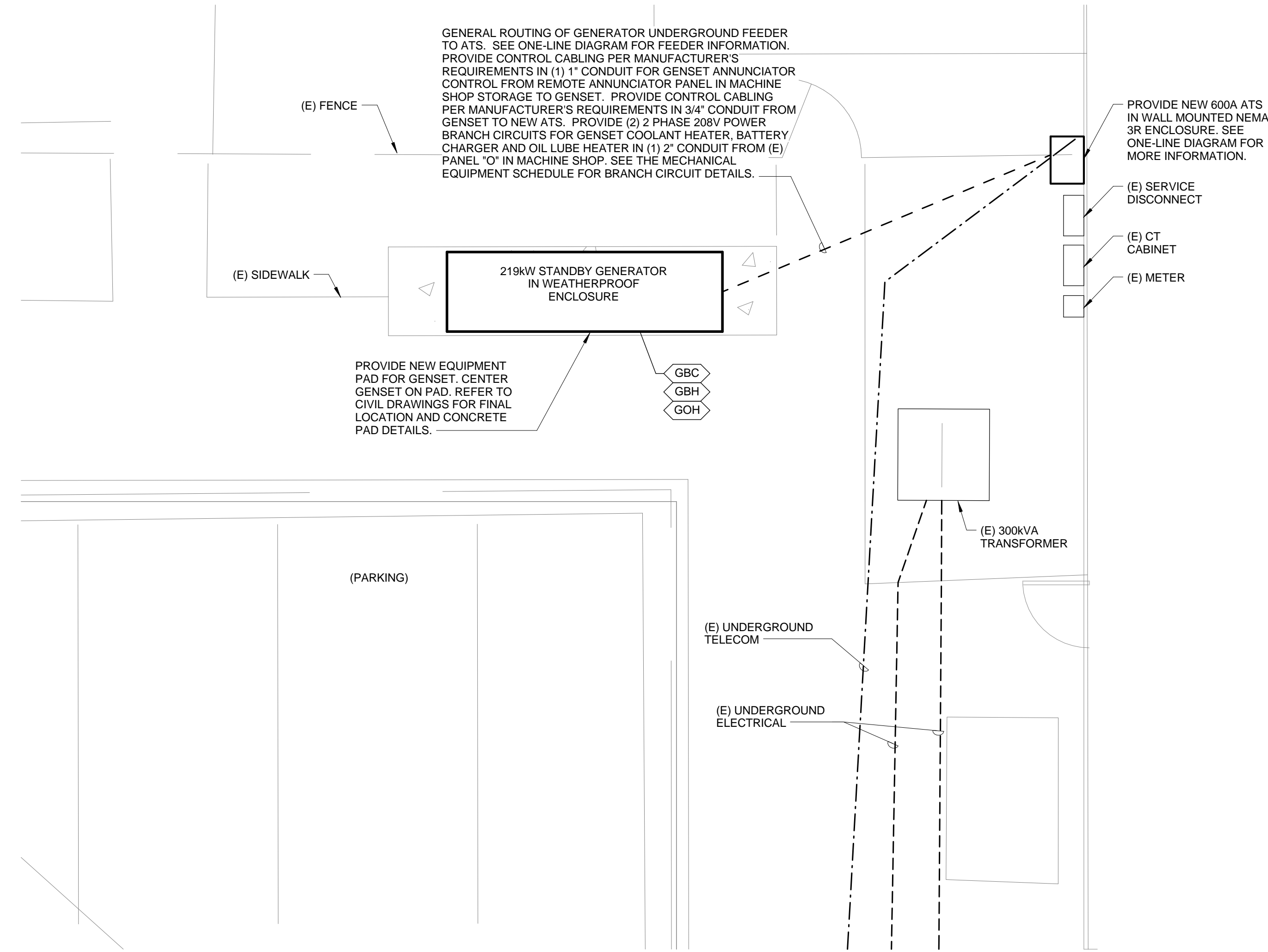
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HORZ SCALE: AS NOTED 4/29/2016 GRID: 2431 E401 of
VERT SCALE: AS NOTED
PROJ. ID.: 2015022.05 SHEET

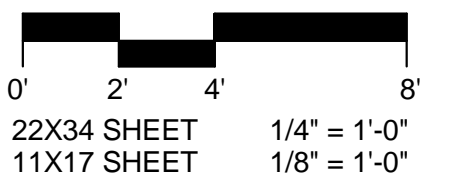
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SHEET NOTES:

- COORDINATE THE GENERATOR SET FINAL LOCATION WITH AWWU AND THE PROJECT CIVIL ENGINEER.
- REFER TO DIAGRAMS ON E501 FOR ADDITIONAL INFORMATION.



1 ENLARGED STANDBY GENERATOR LOCATION
E402 1/4" = 1'-0"



PLOT DATE: 4/29/2016 6:17:06 PM

PLOT SCALE: AS SHOWN

FILE PATH AND NAME: C:\Users\morrow\Documents\150954-KSMBU-MEP2016_morrow.rvt

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DATA	DRAWN BY	CHECKED BY	DATA	DRAWN BY	CHECKED BY	REV	DATE	DESCRIPTION	BY
BASE	---	---	TELEPHONE	---	---				
TOPOGRAPHY	---	---	ELECTRIC	---	---				
PROFILE	---	---	CABLE TV	---	---				
SANITARY SEWER	---	---	TRAFFIC SIGNAL	---	---				
STORM SEWER	---	---	DESIGN	---	---				
WATER	---	---	QUANTITIES	---	---				
GAS	---	---	MUN. FINAL CHECK	---	---				
PLAN CHECK					REVISIONS				

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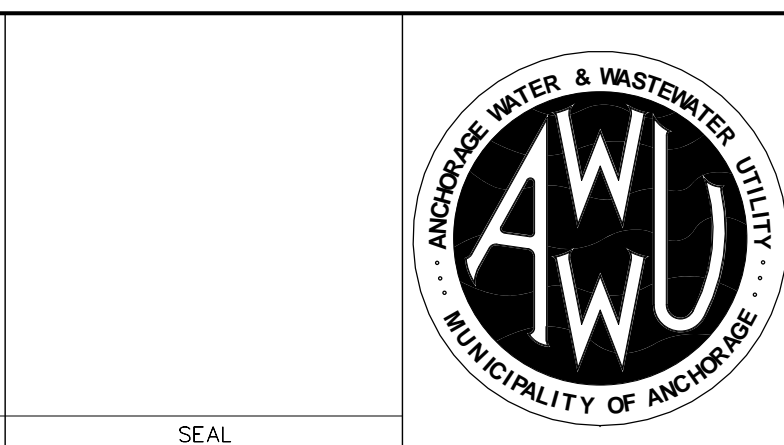
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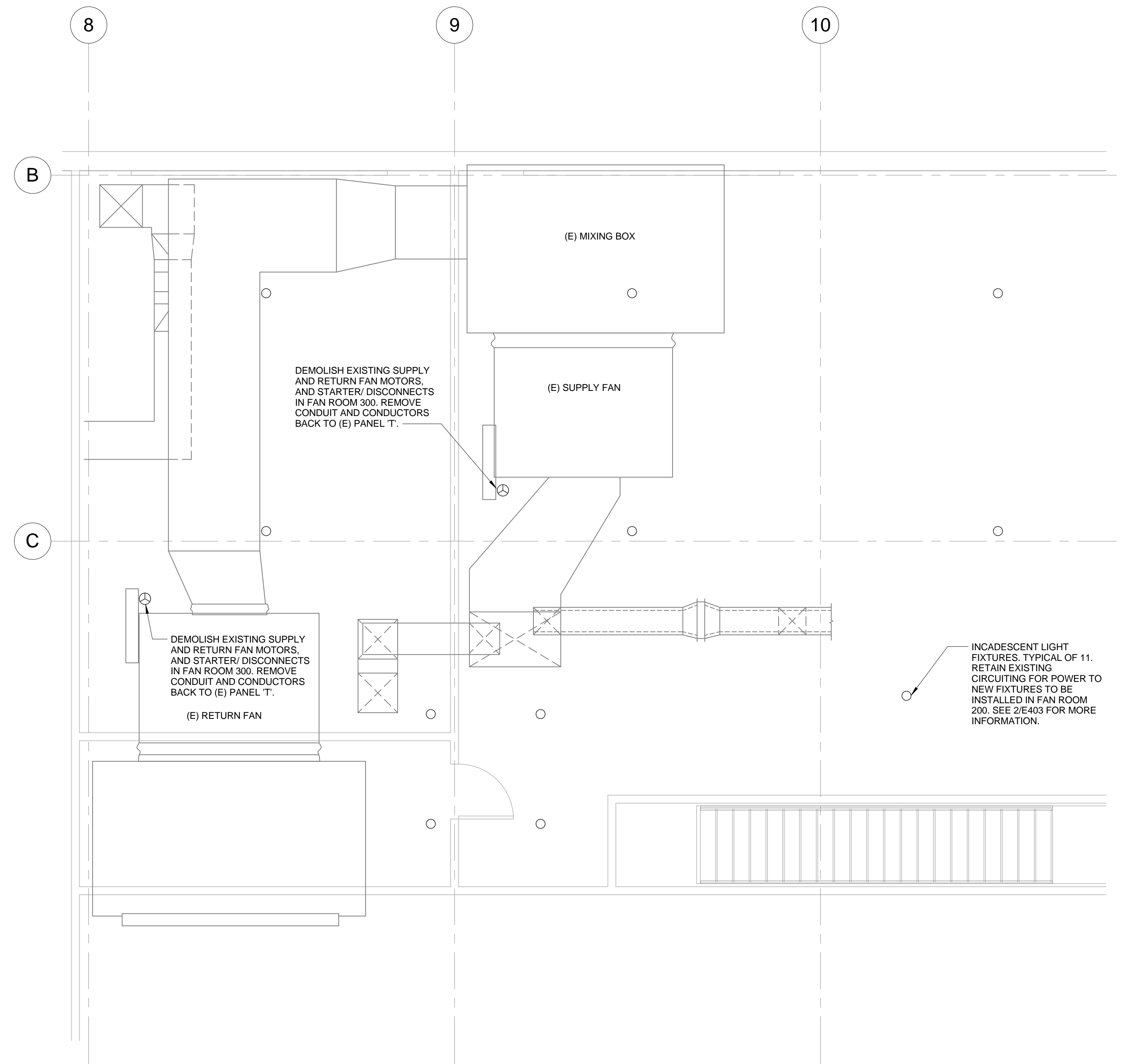
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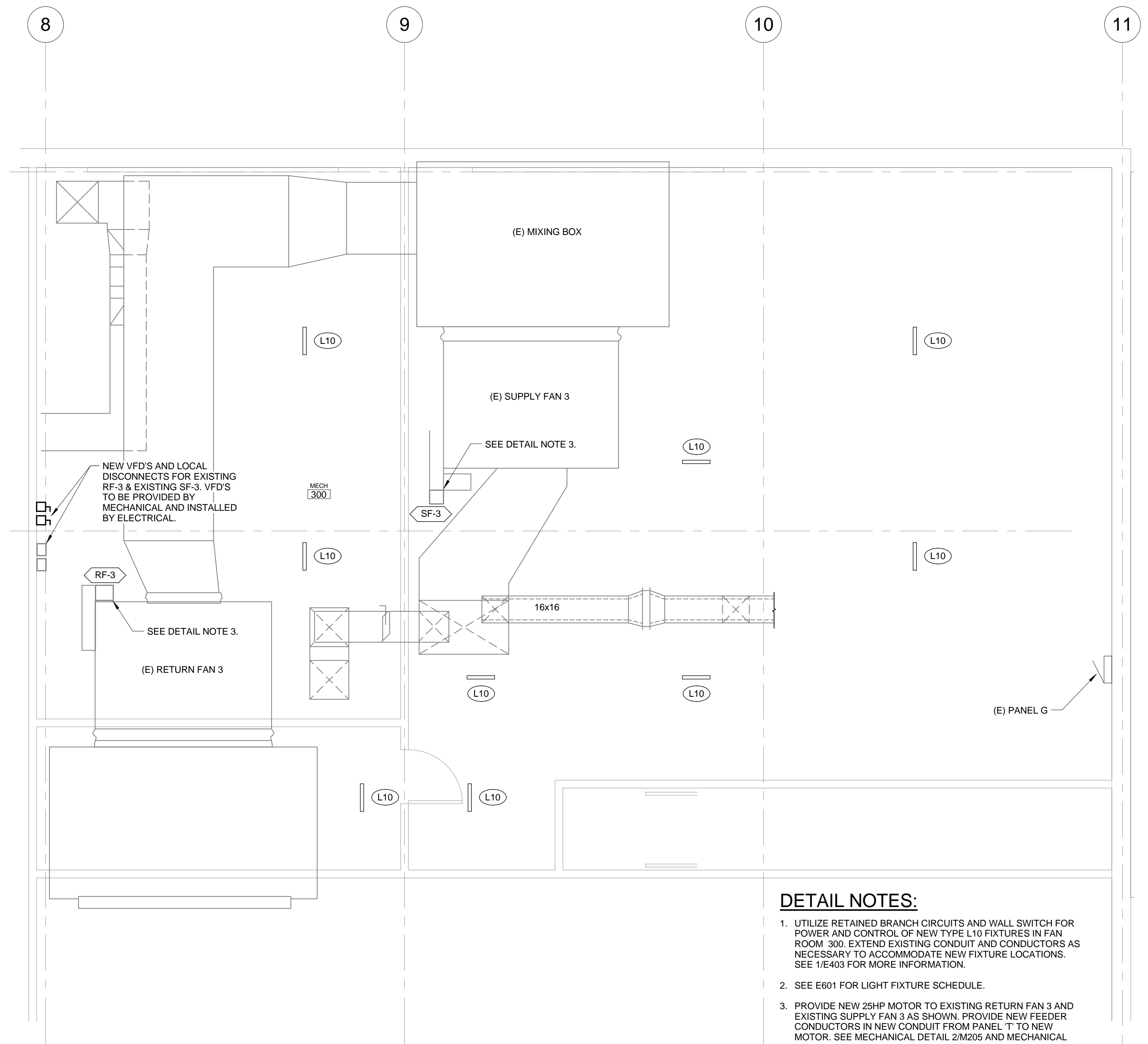
MUNICIPALITY OF ANCHORAGE WATER & WASTEWATER UTILITY KING STREET MAIN BUILDING UPGRADE ELECTRICAL ENLARGED PLANS			
HORZ SCALE: AS NOTED	4/29/2016	GRID: 2431	E402 of
PROJ. ID: 2015022.05			SHEET

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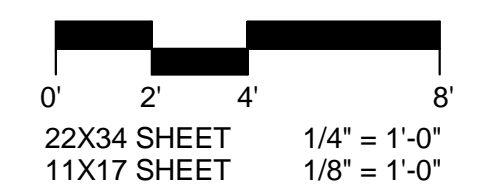


1 DEMOLITION ENLARGED FAN ROOM 300 - LEVEL 3
E403 1/4" = 1'-0"



2 ELECTRICAL PLAN - ENLARGED FAN ROOM 300 - LEVEL 3
E403 1/4" = 1'-0"

- DETAIL NOTES:**
- UTILIZE RETAINED BRANCH CIRCUITS AND WALL SWITCH FOR POWER AND CONTROL OF NEW TYPE L10 FIXTURES IN FAN ROOM 300. EXTEND EXISTING CONDUIT AND CONDUCTORS AS NECESSARY TO ACCOMMODATE NEW FIXTURE LOCATIONS. SEE 1/E403 FOR MORE INFORMATION.
 - SEE E601 FOR LIGHT FIXTURE SCHEDULE.
 - PROVIDE NEW 25HP MOTOR TO EXISTING RETURN FAN 3 AND EXISTING SUPPLY FAN 3 AS SHOWN. PROVIDE NEW FEEDER CONDUCTORS IN NEW CONDUIT FROM PANEL T TO NEW MOTOR. SEE MECHANICAL DETAIL 2/M205 AND MECHANICAL EQUIPMENT SCHEDULE FOR DETAILS.



VERIFY SCALE		THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING.		0" = 1"		IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.		FULL SIZE SCALE	
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BASE	---	---	TELEPHONE	---	---				
TOPOGRAPHY	---	---	ELECTRIC	---	---				
PROFILE	---	---	CABLE TV	---	---				
SANITARY SEWER	---	---	TRAFFIC SIGNAL	---	---				
STORM SEWER	---	---	DESIGN	---	---				
WATER	---	---	QUANTITIES	---	---				
GAS	---	---	MUN. FINAL CHECK	---	---				
PLAN CHECK					REVISIONS				

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COMPANY: _____
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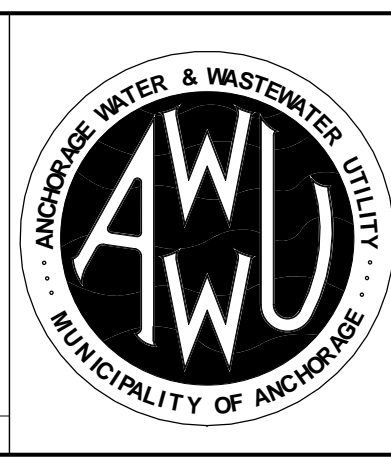
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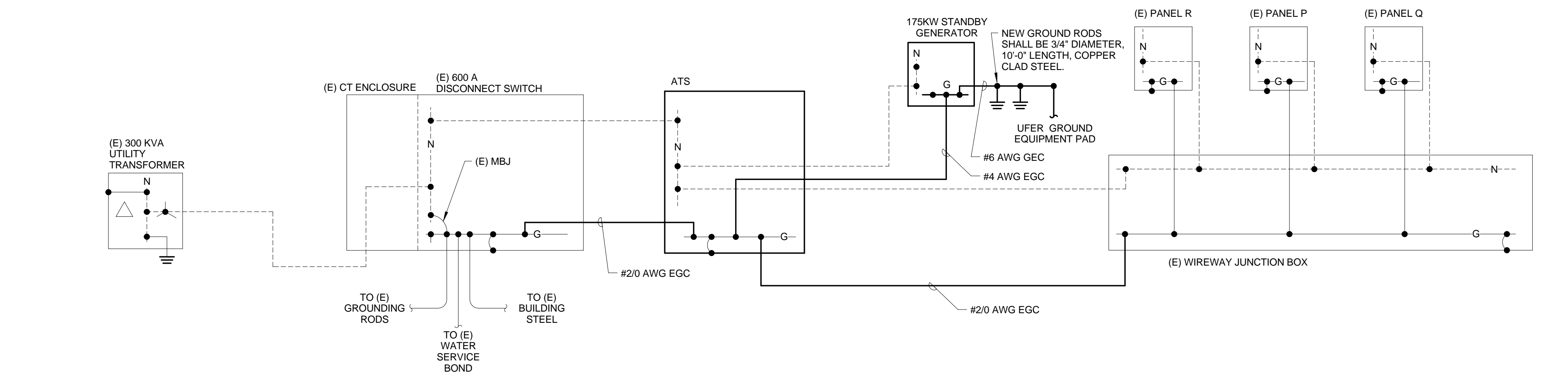
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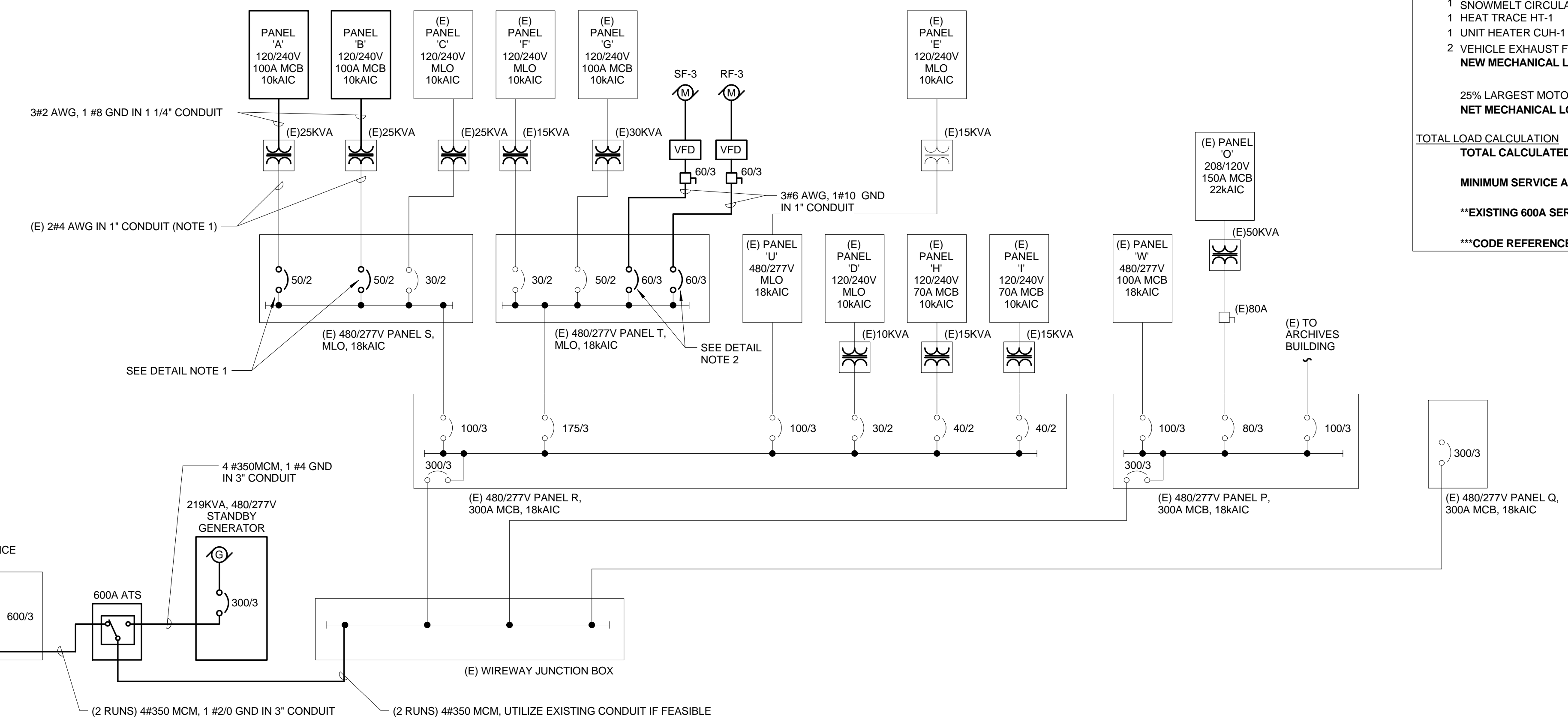
HORZ SCALE: AS NOTED 4/29/2016 GRID: 2431 E403 of
VERT SCALE: AS NOTED
PROJ. ID.: 2015022.05 SHEET

LOAD CALCULATION	
SITE DATA:	
SERVICE VOLTAGE: 480/277V	MAIN BREAKER AMPS: 600A
SERVICE CONFIGURATION: 3PH, 4W	UTILITY TRANSFORMER: 300KVA
ELECTRICAL SERVICE LOAD CALCULATION	
NEC CODE REFERENCE: 220.87 DETERMINING EXISTING LOADS	
EXISTING LARGEST DEMAND (December 2014):	159.0 KW
NEC 220.87(2) DEMAND FACTOR:	125%
	198.75
ASSUMING 0.9PF	0.9
EXISTING NEC DEMAND:	220.83 KVA
220.44 RECEPTACLE LOADS	
16 RECEPTACLES	0.18 KVA EACH
NET RECEPTACLE LOAD:	2.88 KVA
220.50 MECHANICAL LOADS	
EQUIPMENT REMOVED:	
2 BOILERS B-1 AND B-2	2.60 5.20 KVA
2 BUILDING CIRCULATION PUMP (10HP)	11.60 23.20 KVA
2 FAN MOTORS (25 HP)	28.20 56.40 KVA
1 COOLING FAN (1/6 HP)	0.50 0.50 KVA
REMOVED MECHANICAL LOAD:	-85.30 KVA
NEW EQUIPMENT:	
1 COOLING FAN CF-1	1.18 1.18 KVA
1 RETURN FAN MOTOR RF-3 (25 HP)	28.20 28.20 KVA
1 SUPPLY FAN MOTOR SF-3 (25 HP)	28.20 28.20 KVA
1 CONDENSING BOILER B-1	7.20 7.20 KVA
1 CONDENSING BOILER B-2	7.20 7.20 KVA
1 GYLCOL MAKEUP PACKAGE GMT-1	0.42 0.42 KVA
1 BUILDING CIRCULATION PUMP CP-1 (10 HP)	11.60 11.60 KVA
1 BUILDING CIRCULATION PUMP CP-2 (10 HP)	11.60 11.60 KVA
1 BOILER B-1 CIRCULATION PUMP CP-3 (7 1/2 HP)	9.10 9.10 KVA
1 BOILER B-2 CIRCULATION PUMP CP-4 (7 1/2 HP)	9.10 9.10 KVA
1 SNOWMELT CIRCULATION PUMP CP-5 (1/3 HP)	0.86 0.86 KVA
1 HEAT TRACE HT-1	0.24 0.24 KVA
1 UNIT HEATER CUH-1	0.30 0.30 KVA
2 VEHICLE EXHAUST FAN VEF-1, VEF-2 (1 1/2 HP)	2.38 4.75 KVA
NEW MECHANICAL LOAD:	119.95 KVA
25% LARGEST MOTOR (25HP @480V)	7.05 KVA
NET MECHANICAL LOAD (REMOVED + NEW + 25% OF LARGEST MOTOR):	41.70 KVA
TOTAL LOAD CALCULATION	
TOTAL CALCULATED NEC LOAD:	265 KVA
MINIMUM SERVICE AMPS AT 480V	320 A
**EXISTING 600A SERVICE IS ADEQUATE	
***CODE REFERENCES BASED ON 2014 NEC	



2 GROUNDING RISER DIAGRAM
E501 N.T.S.

- DETAIL NOTES:**
- PROVIDE TWO NEW 50A/2P CIRCUIT BREAKERS TO PANEL 'S' AS SHOWN. FIELD VERIFY EXISTING FEEDER SIZES TO PANEL 'A' AND PANEL 'B' TRANSFORMERS FROM PANEL 'S'. VERIFY EXISTING CONDUCTORS AND GROUND FROM PANEL 'S' TO THE TRANSFORMER PRIMARIES ARE SIZED FOR A MINIMUM 50 AMP LOAD.
 - PROVIDE TWO NEW 60A/3P CIRCUIT BREAKERS TO PANEL 'T' AS SHOWN.



1 ONE-LINE DIAGRAM
E501 N.T.S.

PLOT DATE: 4/29/2016 6:17:06 PM

PLOT SCALE: AS SHOWN

FILE PATH AND NAME: C:\Users\morrow\Documents\150954-KSMBU-MEP2016_morrow.rvt

VERIFY SCALE		THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING.		IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.		FULL SIZE SCALE	
DATA	DRAWN BY	CHECKED BY	DATE	REV	DATE	DESCRIPTION	BY
BASE	---	TELEPHONE	---				
TOPOGRAPHY	---	ELECTRIC	---				
PROFILE	---	CABLE TV	---				
SANITARY SEWER	---	TRAFFIC SIGNAL	---				
STORM SEWER	---	DESIGN	---				
WATER	---	QUANTITIES	---				
GAS	---	MUN. FINAL CHECK	---				
PLAN CHECK				REVISIONS			

RECORD DRAWING Note: To be filled out on original drawings upon project completion.

- DATA PROVIDED BY: This will serve to certify that these Record Drawings are a true and accurate representation of the project as constructed.
- DATA TRANSFERRED BY: COMPANY: _____ DATE: _____
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CONTRACTOR: _____ TITLE: _____ DATA TRANSFER CHECKED BY: _____

BY: _____ TITLE: _____ COMPANY: _____

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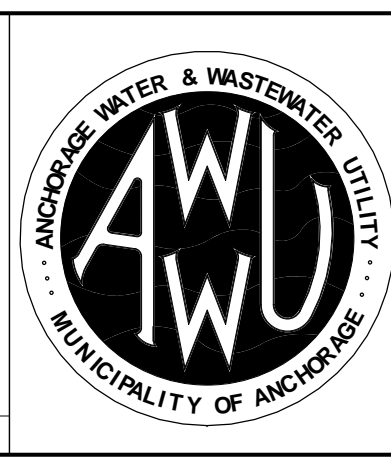
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Anchorage, Alaska 99501

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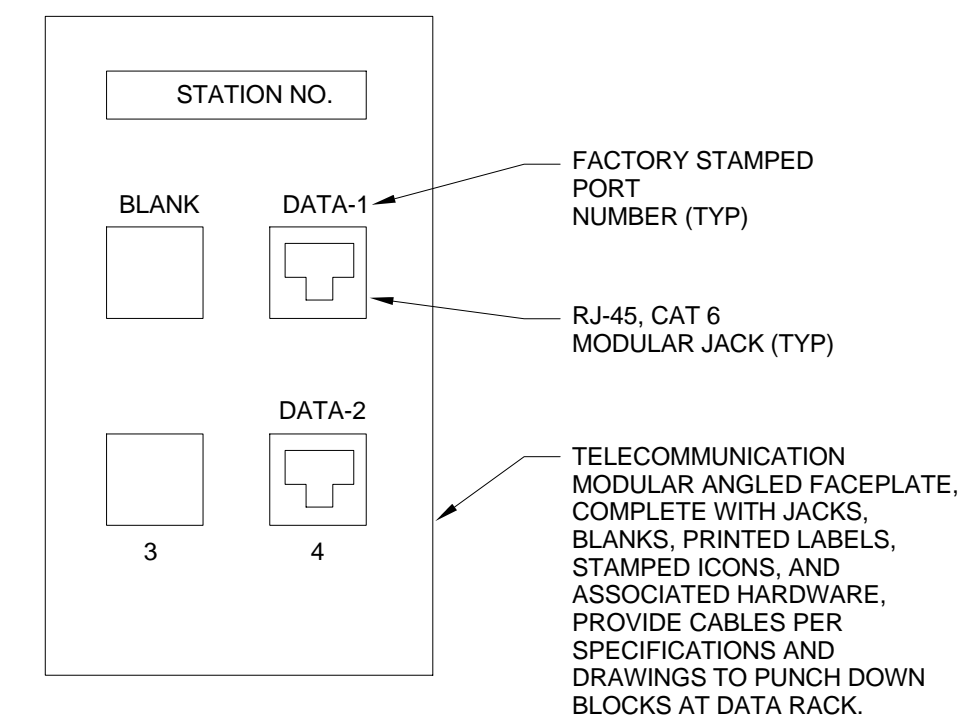
CONSULTANT SEAL



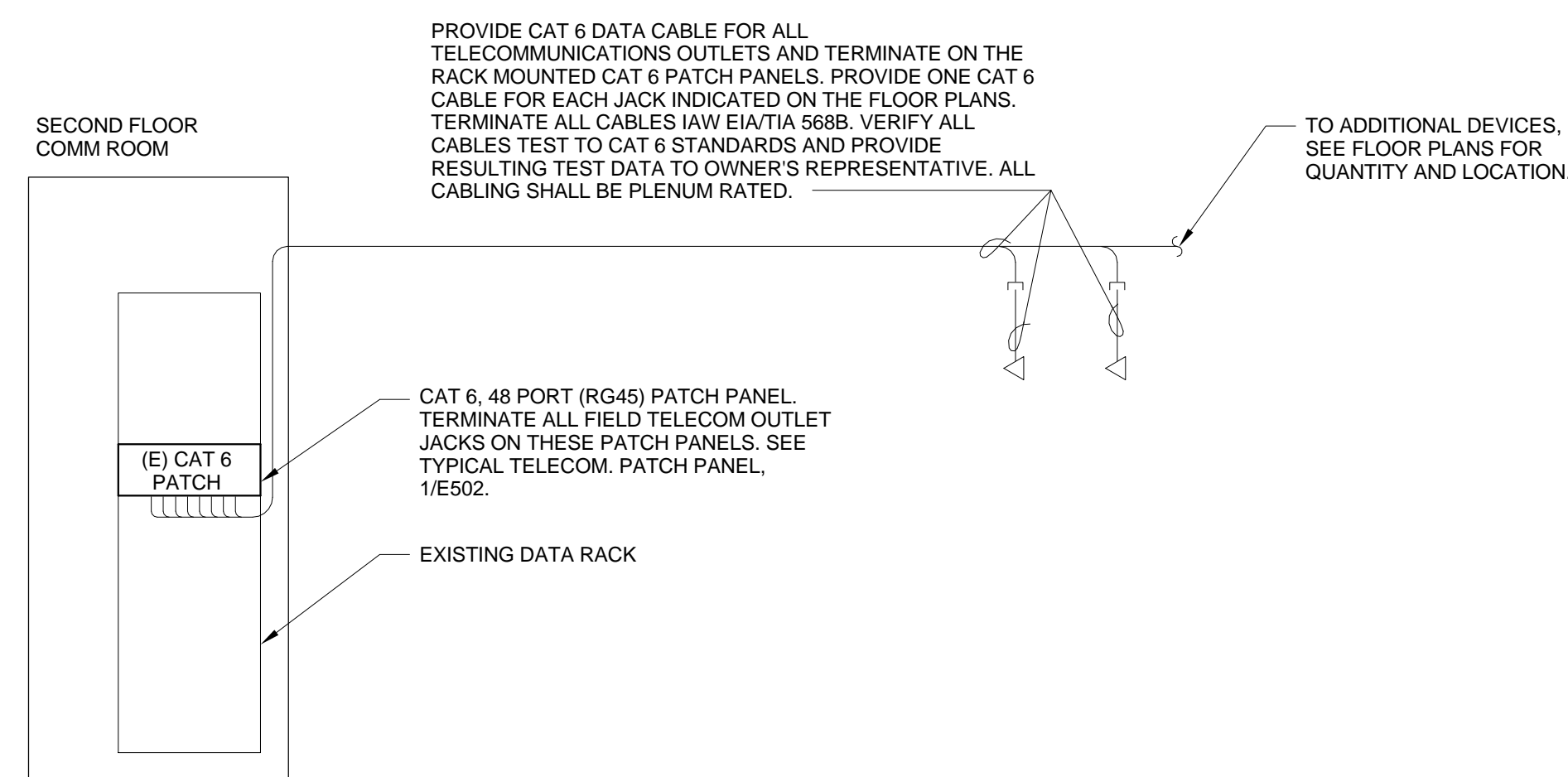
MUNICIPALITY OF ANCHORAGE WATER & WASTEWATER UTILITY			
KING STREET MAIN BUILDING UPGRADE			
ELECTRICAL DETAILS AND DIAGRAMS			
HORZ SCALE: AS NOTED	4/29/2016	GRID: 2431	E501 of
PROJ. ID: 2015022.05			SHEET

DETAIL NOTES:

1. EACH DEVICE PLATE SHALL BE 4 PORT MINIMUM WITH (2) RJ-45 JACKS, UNLESS OTHERWISE NOTED ON THE DRAWINGS.
2. TERMINATE EACH CAT 6 CABLE ON RJ-45 CAT 6 RATED JACK. PROVIDE LABEL DENOTING ROOM NUMBER AND JUNCTION BOX NUMBER AS SHOWN ON THE FLOOR PLANS OFF EACH DEVICE PLATE WHERE NOTED ABOVE AS STATION NUMBER.
3. ALL LABELS SHALL BE PRINTED WITH THERMAL OR LASER PRINTER SYSTEMS.



1 TYPICAL TELECOMMUNICATIONS OUTLET
E502 N.T.S.



2 TELECOMMUNICATIONS RISER DIAGRAM
E502 N.T.S.

PLOT DATE: 4/29/2016 6:17:07 PM

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DATA	DRAWN BY	CHECKED BY	DATA	DRAWN BY	CHECKED BY	REV	DATE	DESCRIPTION	BY
BASE	---	---	TELEPHONE	---	---				
TOPOGRAPHY	---	---	ELECTRIC	---	---				
PROFILE	---	---	CABLE TV	---	---				
SANITARY SEWER	---	---	TRAFFIC SIGNAL	---	---				
STORM SEWER	---	---	DESIGN	---	---				
WATER	---	---	QUANTITIES	---	---				
GAS	---	---	MUN. FINAL CHECK	---	---				
PLAN CHECK					REVISIONS				

RECORD DRAWING Note: To be filled out on original drawings upon project completion.

1. DATA PROVIDED BY: _____
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DATE: _____

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BY: _____ TITLE: _____
DATE: _____

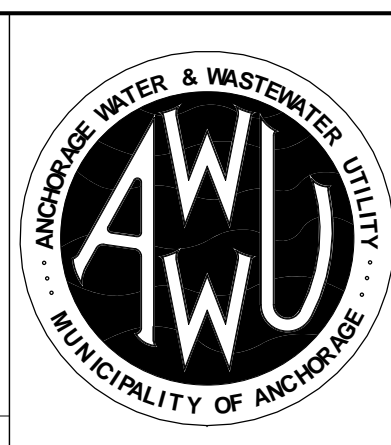
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HORZ. SCALE: AS NOTED
VERT. SCALE: AS NOTED
PROJ. ID.: 2015022.05

4/29/2016
GRID: 2431
E502 of SHEET

MECHANICAL EQUIPMENT SCHEDULE

TAG	DESCRIPTION	LOCATION	VOLTAGE	CONTROLLER	HP	LOAD	PANEL	CIRCUIT	BREAKER	FEEDER	NOTES
RF-3	EXISTING RETURN FAN	FAN ROOM 300	480/3	D, VFD	25	28.2 KVA	T	1,3,5	60A/3P	1" C, 3#6 & 1#10 GND	(E) FAN TO REMAIN, REPLACE 25HP FAN MOTOR. MECHANICAL TO PROVIDE VFD, ELECTRICAL TO INSTALL. SEE MECHANICAL PLANS FOR MORE INFORMATION.
SF-3	EXISTING SUPPLY FAN	FAN ROOM 301	480/3	D, VFD	25	28.2 KVA	T	7,9,11	60A/3P	1" C, 3#6 & 1#10 GND	(E) FAN TO REMAIN, REPLACE 25HP FAN MOTOR. MECHANICAL TO PROVIDE VFD, ELECTRICAL TO INSTALL. SEE MECHANICAL PLANS FOR MORE INFORMATION.
CF-1	COOLING/COMBUSTION AIR FAN	MECHANICAL ROOM 114	120/1	D	1/2	480 VA	B	42	20A/1P	3/4" C, 2#12 & 1#12 GND	
B-1	CONDENSING BOILER	MECHANICAL ROOM 114	480/3	INT, D	N/A	7.2 KVA	W	1,3,5	20A/3P	3/4" C, 3#12 & 1#12 GND	
B-2	CONDENSING BOILER	MECHANICAL ROOM 114	480/3	INT, D	N/A	7.2 KVA	W	14,16,18	20A/3P	3/4" C, 3#12 & 1#12 GND	
SM-001	SNOWMELT CONTROLLER	MECHANICAL ROOM 114	120/1	D	N/A	500 VA	A	2	20A/1P	3/4" C, 2#12 & 1#12 GND	MAINTAIN MINIMUM 36" CLEARANCE PER NEC FOR WORKING SPACE IN FRONT OF PANEL
GMT-1	GLYCOL MAKEUP PACKAGE	MECHANICAL ROOM 114	120/1	REC	1/10	420 VA	A	2	20A/1P	3/4" C, 2#12 & 1#12 GND	
CP-1	BUILDING CIRCULATION PUMP	MECHANICAL ROOM 206	480/3	D, VFD	10	11.6 KVA	W	7,9,11	20A/3P	3/4" C, 3#12 & 1#12 GND	
CP-2	BUILDING CIRCULATION PUMP	MECHANICAL ROOM 206	480/3	D, VFD	10	11.6 KVA	W	13,15,17	20A/3P	3/4" C, 3#12 & 1#12 GND	
CP-3	BOILER B-1 CIRCULATION PUMP	MECHANICAL ROOM 114	480/3	C	7 1/2	9.1 KVA	W	14,16,18	20A/3P	3/4" C, 3#12 & 1#12 GND	
CP-4	BOILER B-2 CIRCULATION PUMP	MECHANICAL ROOM 114	480/3	C	7 1/2	9.1 KVA	W	19,21,23	20A/3P	3/4" C, 3#12 & 1#12 GND	
CP-5	SNOWMELT CIRCULATION PUMP	MECHANICAL ROOM 114	480/3	C	3/4	1656 VA	W	27,29,31	20A/3P	3/4" C, 3#12 & 1#12 GND	
HT-1	HEAT TRACE	VESTIBULE 100	277/1	D	N/A	600 VA	W	25	20A/1P	3/4" C, 2#12 & 1#12 GND	PROVIDE 8W/FT. GUT TRACE INSTALL APPROXIMATELY 75' TO RAIN LEADER PIPE. SEE CIVIL AND MECHANICAL FOR MORE INFORMATION.
CUH-1	UNIT HEATER	VESTIBULE 100	120/1	D	1/20	300 VA	B	36	15A/1P	3/4" C, 2#12 & 1#12 GND	
D-7	OSA SHUT-OFF DAMPER	MECHANICAL ROOM 114	10VDC	DDC PANEL	N/A	2.5W	N/A	N/A	N/A	3/4" C, 2#18 AWG	PROVIDE PLENUM RATED CONTROL CABLING FROM NEW DAMPER TO EXISTING BUILDING DDC CONTROL PANEL IN MECH-BALCONY ROOM 206.
D-8	MIXING DAMPER	MECHANICAL ROOM 114	10VDC	DDC PANEL	N/A	2.5W	N/A	N/A	N/A	3/4" C, 2#18 AWG	PROVIDE PLENUM RATED CONTROL CABLING FROM NEW DAMPER TO EXISTING BUILDING DDC CONTROL PANEL IN MECH-BALCONY ROOM 206.
VEF-1	VEHICLE EXHAUST FAN	VEHICLE SHOP	208/3	D	1 1/2	2.4 KVA	O	20,22,24	20A/3P	3/4" C, 3#12 & 1#12 GND	REFER TO MECHANICAL SHEET M202 FOR CONTROLLER LOCATION AND EQUIPMENT DETAILS
VEF-2	VEHICLE EXHAUST FAN	VEHICLE SHOP	208/3	D	1 1/2	2.4 KVA	O	26,28,30	20A/3P	3/4" C, 3#12 & 1#12 GND	REFER TO MECHANICAL SHEET M202 FOR CONTROLLER LOCATION AND EQUIPMENT DETAILS
GBC	GENERATOR BATTERY CHARGER	AWWU O&M SITE	208/2	D	N/A	1.5KVA	O	29,31	20A/2P	2" C, 3#12 & 1#12 GND	INCLUDE GENERATOR BATTERY CHARGER, BATTERY HEATER AND OIL-LUBE HEATER BRANCH CIRCUIT CONDUCTORS IN (1) 2" CONDUIT FROM PANEL 'O' TO GENERATOR SET. SEE DETAIL 1 SHEET E-402 FOR DETAILS
GBH	GENERATOR BATTERY HEATER	AWWU O&M SITE	208/2	D	N/A	1.5KVA	O	33,35	20A/2P	2" C, 3#12 & 1#12 GND	INCLUDE GENERATOR BATTERY CHARGER, BATTERY HEATER AND OIL-LUBE HEATER BRANCH CIRCUIT CONDUCTORS IN (1) 2" CONDUIT FROM PANEL 'O' TO GENERATOR SET. SEE DETAIL 1 SHEET E-402 FOR DETAILS
GOH	GENERATOR OIL-LUBE HEATER	AWWU O&M SITE	120/1	D	N/A	150VA	O	37	20A/1P	2" C, 2#12 & 1#12 GND	INCLUDE GENERATOR BATTERY CHARGER, BATTERY HEATER AND OIL-LUBE HEATER BRANCH CIRCUIT CONDUCTORS IN (1) 2" CONDUIT FROM PANEL 'O' TO GENERATOR SET. SEE DETAIL 1 SHEET E-402 FOR DETAILS

CONTROLLER LEGEND:
 D=DISCONNECT, C=COMBINATION STARTER DISCONNECT, F=FACTOR CONNECTION, SW=SWITCH W/PILOT LIGHT, VFD=VARIABLE FREQUENCY DRIVE, T=THERMOSTAT, INT=INTEGRAL, SS=SOFTSTART
 R=REVERSIBLE, REC=RECEPTACLE
 VFD'S PROVIDED BY MECHANICAL, INSTALLED BY ELECTRICAL. PROVIDE AUX. CONTACTS IN ALL STARTERS AS REQUIRED FOR CONTROL FUNCTIONS.
 NOTE 1: CIRCUIT BREAKER MAY SERVE AS DISCONNECTING MEANS IF READILY ACCESSABLE AND LOCKABLE IN THE OPEN POSITION; OTHERWISE A DISCONNECT SWITCH IS REQUIRED.

LIGHT FIXTURE SCHEDULE

FIXT. ID.	FIXTURE DESCRIPTION	FIXTURE		LAMP TYPE	FIXTURE MOUNTING	MANUFACTURERS PART NO.	REMARKS
		VOLTAGE	WATTS				
L1	RETROFIT KIT - RECESS MOUNTED VOLUMETRIC LED 2' X 2' TROFFER WITH STEEL HOUSING AND ACRYLIC LINEAR PRISMATIC DIFFUSER, FULL RANGE DIMMING CONTROL VIA 0-10V	MVOLT	35W	4,000 LUMEN ARRAY LED, 4000K, 60,000 HOUR LIFE (L90)	RECESSED	LITHONIA NO. 2VTL2R-40L-EZ1-LP840 OR APPROVED EQUAL.	LED RETROFIT KIT TO BE INSTALLED AT EXISTING 2'x2' RECESSED FIXTURE LOCATIONS AS SHOWN ON PLANS. CONTRACTOR TO CONFIRM FITMENT OF RETROFIT KIT PRIOR TO INSTALLATION
L1E	SAME AS TYPE L1 WITH PROVISIONS FOR CONNECTION TO EMERGENCY LIGHTING CIRCUIT.	MVOLT	35W	3,300 LUMEN ARRAY LED, 4100K	RECESSED	LITHONIA NO. 2VTL2-33L-ADP-EZ1-L841-N100-EMG OR APPROVED EQUAL.	LED RETROFIT KIT TO BE INSTALLED AT EXISTING 2'x2' RECESSED FIXTURE LOCATIONS AS SHOWN ON PLANS. CONTRACTOR TO CONFIRM FITMENT OF RETROFIT KIT PRIOR TO INSTALLATION. FIXTURE WILL TURN ON TO FULL BRIGHTNESS UPON LOSS OF NORMAL POWER.
L2	SURFACE/PENDANT MOUNTED 4' LED STRIP LIGHTING FIXTURE, COLD-ROLLED STEEL CHANNEL AND COVER	MVOLT	33W	3,000 LUMEN ARRAY LED, 4000K	SURFACE/PENDANT	LITHONIA ZL1D-L48-3000LM-FST-MVOLT-40K-80CRI-WH	REFER TO LIGHTING PLANS FOR MOUNTING
L3	EXTERIOR WALL MOUNTED CUT OFF AREA LED AREA FIXTURE. DIE CAST ALUMINUM HOUSING, FULLY GASKETED DIE CAST DOOR FRAME WITH GLASS LENS, WIDE THROW DISTRIBUTION.. UL LISTED WET LOCATION. FUSED, -40 DEGREE F. IESNA BUG RATING OF B2-U0-G2	MVOLT	52W	3,570 LUMEN ARRAY LED, 4200K	WALL	LSI XPWS3-WT-LED-48-350-NW-UE	WALL MOUNT AT APPROXIMATELY 20'. COORDINATE FINAL LOCATIONS WITH ARCHITECTURAL
L4	SURFACE MOUNTED 8' LED STRIP LIGHTING FIXTURE, COLD-ROLLED STEEL CHANNEL AND COVER	MVOLT	60W	6,000 LUMEN ARRAY LED, 4000K	SURFACE	LITHONIA ZL1D-L96-6000LM-FST-MVOLT-40K-80CRI-WH	
L5	EXTERIOR WALL MOUNTED FIXTURE, DIE-CAST ALUMINUM HOUSING, IMPACT RESISTANT POLYCARBONATE LENS.	120V	19W	1,017 LUMEN ARRAY LED, 5000K	WALL	LITHONIA TWSLED-1-50K-120-PE	PROVIDE WITH INTEGRAL PHOTOCELL CONTROL AND WIRE GUARD ACCESSORY (LITHONIA PART#TWSWG)
L6	6" DIAMETER RECESSED LED DOWNLIGHT, IMPACT-MODIFIED ACRYLIC FACE PLATE, 16-GAUGE GALVANIZED STEEL ADJUSTABLE MOUNTING BARS.	120V	31W	1,400 LUMEN LED, 3500K	RECESSED	GOTHOM ALED-35-14-6-DFD-120	
L7	2'x4' RECESSED LED FIXTURE, ONCE PIECE STEEL ASSEMBLY, POLYESTER POWDER PAINT FINISH.	MVOLT	30W	3,000 LUMEN LED, 4000K	RECESSED	LITHONIA 2ALL4-CTRF-30L-EZ1-LP840	
L8	LED ACCENT LIGHT, DIE-CAST ALUMINUM MOISTURE PROOF HOUSING, CORROSION RESISTANT POWDER COAT FINISH.	MVOLT	19W	1,316 LUMEN LED, 4000K	SURFACE ABOVE CANOPY	LITHONIA DSXF1-LED-1-AS30/40K-MFL-MVOLT-THK-PE-DBLXD	
L9	HIGH BAY SUSPENDED TSHO LIGHT, HEAVY DUTY 22-GAUGE STEEL CONSTRUCTION, EASY ACCESS BALLAST CHANNEL.	MVOLT	324W	26,700 LUMEN 6 LAMP TSHO, 3500K	PENDANT	LITHONIA IBZ-654L-WD-ACRP-LP835	PROVIDE WITH INTEGRAL PHOTOCELL DIMMING CONTROL
L10	PENDANT MOUNTED 4' T8 LIGHT FIXTURE, DIE-EMBOSSED REFLECTOR, HEAVY GAUGE STEEL CONSTRUCTION, RUST RESISTANT FINISH	MVOLT	64W	5,700 LUMEN 2 LAMP T8, 3500K	PENDANT	LITHONIA AF10-2-32-MVOLT BALLAST	PROVIDE WITH CHAIN FOR SUSPENDED MOUNTING
L11	RECESS MOUNTED VOLUMETRIC LED 2' X 2' TROFFER WITH STEEL HOUSING AND ACRYLIC LINEAR PRISMATIC DIFFUSER, FULL RANGE DIMMING CONTROL VIA 0-10V	MVOLT	42W	4,000 LUMEN ARRAY LED, 4000K, 60,000 HOUR LIFE (L90)	RECESSED	LITHONIA NO. 2VTL2-40L-ADP-EZ1-LP840 OR APPROVED EQUAL.	
L11E	SAME AS TYPE L11 WITH PROVISIONS FOR CONNECTION TO EMERGENCY LIGHTING CIRCUIT.	MVOLT	42W	1,400 LUMEN ARRAY LED, 4000K	RECESSED	LITHONIA NO. 2VTL2-40L-ADP-EZ1-LP840-EL14L OR APPROVED EQUAL.	
X1	CEILING OR WALL MOUNTED, UNIVERSAL MOUNT EXIT SIGN, WHITE THERMOPLASTIC HOUSING.	MVOLT	2W	LED GREEN LETTERING.	SURFACE	LITHONIA LQM-S-W-3-G-120/277 OR APPROVED EQUAL	
E1	EMERGENCY LIGHT FIXTURE WITH TWO LED LAMPS AND CAPABLE OF POWERING REMOTE LED HEADS. WHITE THERMOPLASTIC HOUSING. NIMH BATTERY AND INTEGRAL SELF TEST CAPABILITY.	120/277	2W	TWO 1W LED	WALL	DUAL LITE EV-4D-I OR APPROVED EQUAL	
ER	REMOTE EMERGENCY LIGHT ADJUSTABLE LED HEAD, WIRED REMOTE TO EMERGENCY LIGHT FIXTURE TYPE B1. CONSTRUCTED OF CAST ALUMINUM UL LISTED WET LOCATION. FOR USE WITH SELF-DIAGNOSTIC FIXTURES.	LV	1W	ONE 1W LED	SURFACE	DUAL LITE EVO-S-W OR APPROVED EQUAL	PROVIDE WITH WIREGUARD

VERIFY SCALE

THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING.

0' 1'

IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.

FULL SIZE SCALE

HORZ SCALE: _____

VERT SCALE: _____

RECORD DRAWING

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BY: _____ TITLE: _____

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DATA	DRAWN BY	CHECKED BY	DATE	REVISION	DESCRIPTION	BY
BASE	---	---	---	---	TELEPHONE	---
TOPOGRAPHY	---	---	---	---	ELECTRIC	---
PROFILE	---	---	---	---	CABLE TV	---
SANITARY SEWER	---	---	---	---	TRAFFIC SIGNAL	---
STORM SEWER	---	---	---	---	DESIGN	---
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GAS	---	---	---	---	MUN. FINAL CHECK	---

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ELECTRICAL SCHEDULES

HORZ SCALE: AS NOTED	VERT SCALE: 4/29/2016	GRID: 2431	E 601 of
PROJ. ID.: 2015022.05		SHEET	

PANEL		(E) PANEL "T"												277/480V, 3 PHASE, 4 WIRE			MOUNTING: SURFACE			
LOCATION		ROOM 135 SOUTH WALL												400 AMP BUS MAIN LUGS ONLY			GRND BUS: EQUIPMENT			
SPECIAL																	SHORT CKT: 18 kAIC SCCR			
C T	NOTES	CIRCUIT DESCRIPTION	LOAD (AMPS)			BKR TRIP	POLES	WIRE SIZE	CKT NO	BUS NO	WIRE SIZE	POLES	BKR TRIP	LOAD (AMPS)			CIRCUIT DESCRIPTION	NOTES	C T	
			A	B	C									A	B	C				
5	2	RETURN FAN RF-3 VFD	34			60	3	6	1	A	2	6	3	50	12		12		1	6
	*			34					3	B	4									
	*				34				5	C	6									
5	2	SUPPLY FAN SF-3 VFD	34			60	3	6	7	A	8	12	3	20	2		12		1	5
	*			34					9	B	10				2					
	*				34				11	C	12									
6	1	TRANSFORMER "F"	22			30	3	10	13	A	14	12	1	20						
	*			22					15	B	16									
	*				22				17	C	18	12	1	20		2			1	1
TOTAL			90	90	90									14	14	16	TOTAL			
TOTAL CONNECTED AMPS:			A: 105			B: 105			C: 107											
CATEGORY (CT)		CONNECTED LOAD (KVA)			NEC DEMAND FACTOR	NEC DEMAND LOAD (KVA)	NOTES:													
		THIS PNL	FED THRU	TOTAL			1.	2.	3.											
1	LIGHTING	1		1	100%	1	1. EXISTING LOAD AND CIRCUIT BREAKER (NO WORK)													
2	RECEPTACLES				50% OVER 10 KVA		2. REPLACE EXISTING MULTI-POLE CIRCUIT BRKR													
3	EQUIPMENT (CONTINUOUS)				100%		3. REUSE EXISTING CIRCUIT BRKR													
4	EQUIPMENT (NON-CONTINUOUS)				100%															
5	MOTORS Largest Motor 25 HP	58		58	100%	65														
6	NO DIVERSITY	29		29	100%	29														
7	NOT USED				100%															
TOTAL KVA		88		88		94														
NEC 215.2 MINIMUM FEEDER RATING: 122																				

PANEL		(E) PANEL "W"												277/480V, 3 PHASE, 4 WIRE			MOUNTING: SURFACE		
LOCATION		MECHANICAL ROOM 206												225 AMP BUS 225 AMP MAIN BREAKER			GRND BUS: EQUIPMENT		
SPECIAL																	SHORT CKT: 18 kAIC SCCR		
C T	NOTES	CIRCUIT DESCRIPTION	LOAD (AMPS)			BKR TRIP	POLES	WIRE SIZE	CKT NO	BUS NO	WIRE SIZE	POLES	BKR TRIP	LOAD (AMPS)			CIRCUIT DESCRIPTION	NOTES	C T
			A	B	C									A	B	C			
5	1	AHU-1	21	21		40	3		1	A	2	12	3	15	5	5	5	1	5
	*								3	B	4								
	*								5	C	6								
5	2	CP-1	14			25	3	10	7	A	8	12	3	15	2			1	5
	*			14					9	B	10				2				
	*				14				11	C	12								
5	2	CP-2	14			25	3	10	13	A	14	12	3	20	11			3	5
	*			14					15	B	16				11				
	*				14				17	C	18								
5	4	CIRCULATION PUMP CP-4	11			20	3	12	19	A	20								
	*			11					21	B	22								
	*				11				23	C	24								
4	4,5	HEAT TRACE HT-1	2			20	1	12	25	A	26								
4	4	SNOWMELT CIRCULATION PUMP CP-5	2			20	3	12	27	B	28								
4			2			2			29	C	30								
4			2						31	A	32								
		SPACE							33	B	34								
		SPACE							35	C	36								
		SPACE							37	A	38								
		SPACE							39	B	40								
		SPACE							41	C	42								
TOTAL			64	62	62									17	17	17	TOTAL		
TOTAL CONNECTED AMPS:			A: 81			B: 79			C: 79										
CATEGORY (CT)		CONNECTED LOAD (KVA)			NEC DEMAND FACTOR	NEC DEMAND LOAD (KVA)	NOTES:												
		THIS PNL	FED THRU	TOTAL			1.	2.	3.										
1	LIGHTING				100%		1. EXISTING LOAD AND CIRCUIT BREAKER (NO WORK)												
2	RECEPTACLES				50% OVER 10 KVA		2. REPLACE EXISTING MULTI-POLE CIRCUIT BRKR												
3	EQUIPMENT (CONTINUOUS)				100%		3. REUSE EXISTING CIRCUIT BRKR												
4	EQUIPMENT (NON-CONTINUOUS)	2		2	100%	2	4. PROVIDE NEW CIRCUIT BRKR												
5	MOTORS Largest Motor 15 HP	64		64	100%	68	5. PROVIDE 30mA GFP CIRCUIT BRKR												
6	NO DIVERSITY				100%														
7	NOT USED				100%														
TOTAL KVA		66		66		71													
NEC 215.2 MINIMUM FEEDER RATING: 85																			

PLOT DATE: 4/29/2016 6:17:09 PM
PLOT SCALE: AS SHOWN

FILE PATH AND NAME: C:\Users\morrow\Documents\150954-KSMBU-MEP2016_morrow.rvt

VERIFY SCALE		THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING.		0' 1'		IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.		FULL SIZE SCALE HORZ SCALE: VERT SCALE:	
DATA	DRAWN BY	CHECKED BY	DATA	DRAWN BY	CHECKED BY	REV	DATE	DESCRIPTION	BY
BASE	---	---	TELEPHONE	---	---				
TOPOGRAPHY	---	---	ELECTRIC	---	---				
PROFILE	---	---	CABLE TV	---	---				
SANITARY SEWER	---	---	TRAFFIC SIGNAL	---	---				
STORM SEWER	---	---	DESIGN	---	---				
WATER	---	---	QUANTITIES	---	---				
GAS	---	---	MUN. FINAL CHECK	---	---				
PLAN CHECK					REVISIONS				

RECORD DRAWING		Note: To be filled out on original drawings upon project completion.	
1. DATA PROVIDED BY:	_____	3. 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.	_____
This will serve to certify that these Record Drawings are a true and accurate representation of the project as constructed.			
CONTRACTOR:	_____	DATE:	_____
BY:	_____	TITLE:	_____
DATE:	_____	DATA TRANSFER CHECKED BY:	_____
COMPANY:	_____	BY:	_____
DATE:	_____	TITLE:	_____
DATE:	_____	DATE:	_____

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KING STREET MAIN BUILDING UPGRADE
ELECTRICAL SCHEDULES

HORZ SCALE: AS NOTED
VERT SCALE: AS NOTED
PROJ. ID: 2015022.05

4/29/2016
GRID: 2431
E603 of

SHEET

PANEL LOCATION SPECIAL		(E) PANEL "F" ROOM 135 SOUTH WALL										MOUNTING: SURFACE						
		120/240V, 1 PHASE, 3 WIRE										GRND BUS: EQUIPMENT						
		225 AMP BUS MAIN LUGS ONLY										SHORT CKT: 10 KAIC SCCR						
C T	NOTES	CIRCUIT DESCRIPTION	LOAD (AMPS)		BKR TRIP	POLES	WIRE SIZE	CKT NO	BUS	CKT NO	WIRE SIZE	POLES	BKR TRIP	LOAD (AMPS)		CIRCUIT DESCRIPTION	NOTES	C T
			A	B										A	B			
2	1	2ND FLOOR RECEPTACLES	3		20	1	12	1	L1	2	12	1	20	3		RECEPTACLES 3RD FLOOR	1	2
1	4	LIGHTS SECOND FLOOR		3	20	1	12	3	L2	4	12	1	20	2		LIGHTS 3RD FLOOR	1	1
2	1	RECEPTACLES 1ST FLOOR NORTH EAST	3		20	1	12	5	L1	6	10	1	30	3		OUTLETS ON POSTS MAIN SHOP	1	2
1	1	LIGHTS 1ST FLOOR NORTH EAST		2	20	1	12	7	L2	8	10	1	30	3		OUTLETS ON POSTS MAIN SHOP	1	2
1	1	LIGHT EXTERIOR EAST MANDOOR	2		15	1	12	9	L1	10	12	1	20	3		RECEPTS SOUTH WALL NEXT TO XFMR	1	2
1	1	LIGHTS EXTERIOR EAST		2	15	1	12	11	L2	12	12	1	20	3		RECEPTS SOUTH WALL NEXT TO XFMR	1	2
2	1	RECEPTACLES SOUTH WALL	3		20	1	12	13	L1	14	12	1	20	12		MECHANICAL RM 301 DDC PNL	1	4
2	1	RECEPTACLES SOUTH WALL		3	20	1	12	15	L2	16	12	1	15	2		HPS LIGHT EXTERIOR	1	1
2	1	RECEPTACLES ON COLUMN	3		20	1	12	17	L1	18	12	1	20	3		RECEPTACLES WEST WALL	1	2
1	1	LIGHTS EXTERIOR		2	20	1	12	19	L2	20	12	1	15	2		LIGHTS WEST WALL	1	1
4	1	UNIT HEATER	2		20	1	12	21	L1	22	12	1	15	4		FAN PAINT ROOM	1	4
2	1	RECEPTACLES 2ND FLOOR SOUTH WALL		3	15	1	12	23	L2	24	12	1	20	3		RECEPTS SOUTH WALL NEXT TO XFMR	1	2
2	1	RECEPTACLES 2ND FLOOR EAST	3		15	1	12	25	L1	26	12	1	20	4		REEL COORD	1	4
2	1	RECEPTACLES 2ND FLOOR COUNTER		3	20	1	12	27	L2	28	12	1	15	4		ALARM PANEL GAS PUMP ISLAND	1	4
2	1	RECEPTACLES 2ND FLOOR NORTH OFFICE	3		20	1	12	29	L1	30	8	2	40	20		FUEL ISLAND	1	4
2	1	RECEPTACLES 2ND FLOOR LOUNGE		3	20	1	12	31	L2	32				20		*	1	
4	1	WATER HEATER 2ND FLOOR		8	20	1	12	33	L1	34	12	1	20	1		FAN CARPENTRY SHOP CF-13	1	4
2	1	RECEPTACLES 2ND FLOOR SOUTH		3	20	1	12	35	L2	36	12	1	20			UNKNOWN-OFF	2	
4	1	HEAT TRACE SOUTHEAST ROOF		4	20	2	12	37	L1	38	12	1	20			UNKNOWN-OFF	2	
								39	L2	40	10	2	30			UNKNOWN-OFF	2	
								41	L1	42						*		
		SPACE																
TOTAL			35	24										53	38	TOTAL		
TOTAL CONNECTED AMPS:			L1: 88		L2: 62													

CATEGORY (CT)	CONNECTED LOAD (KVA)			NEC DEMAND FACTOR	NEC DEMAND LOAD (KVA)	NOTES:
	THIS PNL	FED THRU	TOTAL			
1	LIGHTING	2	2	100%	2	1. EXISTING LOAD AND CIRCUIT BREAKER (NO WORK)
2	RECEPTACLES	7	7	50% OVER 10 KVA	7	2. FIELD VERIFY LOAD INFORMATION
3	EQUIPMENT (CONTINUOUS)			100%		3. PROVIDE NEW CIRCUIT BRKR
4	EQUIPMENT (NON-CONTINUOUS)	10	10	100%	10	4. REUSE EXISTING CIRCUIT BRKR
5	MOTORS No Motors			100%		5. RECONNECT EXISTING CONDUCTORS
6	NO DIVERSITY			100%		
7	NOT USED			100%		
TOTAL KVA		19	19		19	
NEC 215.2 MINIMUM FEEDER RATING: 79						

PANEL LOCATION SPECIAL		(E) PANEL "O" MACHINE SHOP NORTH WALL										MOUNTING: SURFACE								
		120/208V 3 PHASE, 4 WIRE										GRND BUS: EQUIPMENT								
		225 AMP BUS 150 AMP MAIN BREAKER										SHORT CKT: 22 KAIC SCCR								
C T	NOTES	CIRCUIT DESCRIPTION	LOAD (AMPS)			BKR TRIP	POLES	WIRE SIZE	CKT NO	BUS	CKT NO	WIRE SIZE	POLES	BKR TRIP	LOAD (AMPS)			CIRCUIT DESCRIPTION	NOTES	C T
			A	B	C										A	B	C			
2	1	M.S. FOREMAN OFFICE RECEPTACLES	6		20	1	12	1	A	2	12	1	20	5			CORRIDOR LIGHTING	1	1	
2	1	M.S. OFFICE RECEPTACLES		6	20	1	12	3	B	4	12	1	20		9		SCADA COMPUTER	1	1	
2	1	V.S. OFFICE RECEPTACLES			8	20	1	12	5	C	6	12	1	20		9	V.S. OFFICE LIGHTING	1	1	
2	1	V.S. FOREMAN OFFICE RECEPTACLES	5		20	1	12	7	A	8	12	1	20	13			WH-1	1	4	
2	1	M.S. COFFEE RECEPTACLE		2	20	1	12	9	B	10	12	1	20		3		M.S. OFFICE LIGHTS	1	1	
2	1	M.S. MICROWAVE RECEPTACLE			2	20	1	12	11	C	12	12	1	20		5		TELEPHONE ROOM OUTLETS	1	2
2	1	M.S. FRIDGE RECEPTACLE	2		20	1	12	13	A	14	12	1	20	5			TELEPHONE ROOM OUTLETS	1	2	
2	1	M.S. OFFICE RECEPTACLES		5	20	1	12	15	B	16	12	1	20		16		UNKNOWN LOAD	5	6	
2	1	V.S. OFFICE RECEPTACLES			6	20	1	12	17	C	18	12	1	20		5		NORTH WALL RECEPTACLE	1	2
2	1	NORTH BENCH LIGHTS AND RECEPTACLE	4		20	1	12	19	A	20	12	3	20	7			EXHAUST FAN VEF-1	4	5	
		SPARE						21	B	22										
4	1	V.S. FOREMAN HEATER			13	20	1	12	23	C	24					7				
4	1	V.S. OFFICE HEATER	8		20	2	12	25	A	26	12	3	20	7			EXHAUST FAN VEF-2	4	5	
		*		8				27	B	28					7					
4	4	GENERATOR BATTERY CHARGER			6	20	2	12	29	C	30									
		*		6				31	A	32										
4	4	GENERATOR BATTERY HEATER		6	20	2	12	33	B	34							SPACE			
		*						35	C	36							SPACE			
4	4	GENERATOR OIL-LUBE HEATER	1		20	1	12	37	A	38							SPACE			
		SPACE						39	B	40							SPACE			
		SPACE						41	C	42							SPACE			
TOTAL			32	27	40									35	40	31	TOTAL			
TOTAL CONNECTED AMPS:			A: 67		B: 67		C: 71													

CATEGORY (CT)	CONNECTED LOAD (KVA)			NEC DEMAND FACTOR	NEC DEMAND LOAD (KVA)	NOTES:
	THIS PNL	FED THRU	TOTAL			
1	LIGHTING	3	3	100%	3	1. EXISTING LOAD AND CIRCUIT BREAKER (NO WORK)
2	RECEPTACLES	7	7	50% OVER 10 KVA	7	2. REPLACE EXISTING MULTI-POLE CIRCUIT BRKR
3	EQUIPMENT (CONTINUOUS)			100%		3. REUSE EXISTING CIRCUIT BRKR
4	EQUIPMENT (NON-CONTINUOUS)	8	8	100%	8	4. PROVIDE NEW CIRCUIT BRKR
5	MOTORS Largest Motor 1.5 HP	5	5	100%	5	5. FIELD VERIFY LOAD INFORMATION
6	NO DIVERSITY	2	2	100%	2	
7	NOT USED			100%		
TOTAL KVA		25	25		25	
NEC 215.2 MINIMUM FEEDER RATING: 73						

PLOT DATE: 4/29/2016 6:17:09 PM

PLOT SCALE: AS SHOWN

FILE PATH AND NAME: C:\Users\morrow\Documents\150954-KSMBU-MEP2016_morrow.rvt

VERIFY SCALE THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING. 0' = 1"

IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.

FULL SIZE SCALE: HORZ SCALE: VERT SCALE:

DATA	DRAWN BY	CHECKED BY	DATE	REV	DESCRIPTION	BY
BASE	---	---			TELEPHONE	---
TOPOGRAPHY	---	---			ELECTRIC	---
PROFILE	---	---			CABLE TV	---
SANITARY SEWER	---	---			TRAFFIC SIGNAL	---
STORM SEWER	---	---			DESIGN	---
WATER	---	---			QUANTITIES	---
GAS	---	---			MUN. FINAL CHECK	---

PLAN CHECK REVISIONS

RECORD DRAWING Note: To be filled out on original drawings upon project completion.

1. DATA PROVIDED BY: _____ 3. 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.

This will serve to certify that these Record Drawings are a true and accurate representation of the project as constructed.

CONTRACTOR: _____ DATE: _____ TITLE: _____ DATA TRANSFER CHECKED BY: _____ COMPANY: _____ DATE: _____

2. DATA TRANSFERRED BY: _____ DATE: _____ TITLE: _____

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HORZ SCALE: AS NOTED 4/29/2016 GRID: 2431 E604 of

PROJ. ID: 2015022.05 SHEET