Engineering Report

for the:

Dom-Mar Transfer and Recycling Facility
1118 and 1138 Dolsontown Road
Wawayanda, New York 10940
NYSDEC Permit No. T.B.D.

March 2022

prepared for:

DOM KAM LLC
366 Highland Avenue Ext.
Middletown, New York 10940

prepared by:

EnSol
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PN 029-A0001

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1. Introduction

1.1 Facility Description

The Dom-Mar Transfer and Recycling Facility will be comprised of two main process areas, a recyclables area and a solid waste area, as well as an administration building for general operations support. Activities conducted within the solid waste area will consist of consolidation and transfer of municipal solid waste (MSW), Construction and Demolition debris (C&D), and Industrial Waste (IW) for disposal. Activities conducted within the recyclables area will consist of consolidation and transfer of various recyclable materials (Old Corrugated Containers (OCC), Single Stream Recyclables (SSR), Source Separated Organics (SSO), unadulterated wood, and Product Stewardship materials) for further processing. Concrete, asphalt, rock, brick, soil, brush, unadulterated wood, and metal from the C&D will be separated through simple floor sorting and transferred for further processing. The operation intends to adapt to meet a variety of market conditions and future opportunities, with a proposed design capacity of 950 tons per day (tpd) based on weekly average comprised of an average of 829 tpd of solid waste (MSW, C&D, and IW combined) and 121 tpd of all combined recyclables. The Facility will not accept medical or hazardous wastes, friable asbestos, liquids or septage, or any other unauthorized materials as defined in the regulations and this application.

The Facility will operate as a Transfer Facility, a C&D Handling and Recovery Facility, and a Recyclables Handling and Recovery Facility in accordance with Subpart 362-3, Subpart 361-5, and Subpart 361-1 respectively. A transfer facility is defined in Title 6 of the New York Codes, Rules and Regulations (6 NYCRR) Part 360 in paragraph 360.2(b)(276) as "… a facility that receives solid waste for the purpose of subsequent transfer to another Facility for further processing, treatment, transfer, or disposal.". A C&D handling and recovery facility is defined in Title 6 of the New York Codes, Rules and Regulations (6 NYCRR) Part 360 in paragraph 360.2(b)(62) as "… a facility that processes and separates construction and demolition debris in order to extract recyclable materials.". A Recyclables Handling and Recovery Facility is defined in Title 6 of the New York Codes, Rules and Regulations (6 NYCRR) Part 360 in paragraph 360.2(b)(221) as "a facility that processes source-separated non-putrescible recyclables.".

Main features of the Facility include a gated entrance with two queuing lanes, inbound and outbound truck scales, transfer station building with separate MSW/C&D/IW and recyclables transfer areas, administrative office building, a trailer parking area, and outside storage area for separated concrete, asphalt, rock, brick, soil, recovered from the C&D. The Site Plan and Floor Plan for the proposed transfer station building are included as **Sheets 2 and 3** and elevations of the proposed facility are included within the architectural drawing set included as **Attachment 1**.

All material unloading, handling, and loading activities will occur within the transfer station building. Features of the transfer station building include a 8-inch-thick steel fiber reinforced (5,000 psi) concrete floor, floor drains that are connected to the sanitary sewer system, concrete push walls for MSW, C&D, and IW storage, and recyclables processing and storage. The Facility yard will be surfaced with asphalt pavement suitable for heavy truck traffic. Site design includes a sanitary sewer force main, municipal water supply, natural gas and electrical service, environmentally friendly stormwater management system, and landscaping.

1.2 Site Description

Existing conditions of the site are shown on **Sheet 1** of the Permit Drawings. The total area owned by the applicant consists of adjacent tax map parcels 6-1-3.31 and 6-1-3.32. The tax parcels 6-1-3.31 and 6-1-

3.32, which are respectively located at 1138 and 1118 Dolsontown Road, shall be combined into one parcel through a lot line change plat to be submitted to the Town of Wawayanda Planning Board and the Orange County Clerk. Parcel 6-1-3.32 contains multiple vacant farm buildings and a silo, the property is classified as a dairy farm. Parcel 6-1-3.31 contains a residential house, and a commercial building, the property is classified as a one-use small building.

The parcels are within the Masonic Creek-Wallkill River Watershed (HUC-12: 020200070401). The ground surface generally slopes down from Dolsontown Road to the south on Parcel 6-1-3.32 to Monhagen Brook which flows west to east across the property. On Parcel 6-1-3.31 the ground surface generally slopes to the east to an unnamed tributary to Monhagen Brook which flows north to south across the property. The topography of the site is steeper in the northern portion with approximately 3 to 8% slopes and flatter in the southern portion with 0 to 3% slopes. The existing ground cover consists of predominately grassed areas with wooded and brushed covered areas throughout the remainder of the site. Non-jurisdictional wet meadow wetlands are in the southeastern portion of the site and jurisdictional shallow emergent marsh wetland is located adjacent to Monhagen Brook and the unnamed tributary to Monhagen Brook. The wetland boundaries and the apparent jurisdiction are from the Wetland Delineation Report for Dolsontown Road prepared by EnSol Inc. dated December 2020.

1.3 Type and Quantity of Materials

Collecting reliable and current data regarding the rate of waste generation is a daunting effort; however, based on a review of readily available information regarding waste generation in the Mid-Hudson and northeast Pennsylvania region, it is estimated that about 1,400 tons of MSW are generated each day in the Service Area. It is further assumed that no less than 800 to 1,000 tons of C&D debris, commercial waste, institutional waste, and industrial wastes are generated each day in the service area and its surrounding Counties.

The Facility operation intends to adapt to meet a variety of market conditions and future opportunities. The proposed design capacity of the Dom-Mar Transfer and Recycling Facility is 950 tons per day (tpd) as a maximum weekly average.

While the design capacity for this Facility addresses current and projected market conditions, future opportunities, and DOM KAM LLC's business plan for growth, it is also largely a function of access, building size, equipment volume/production rate capabilities, equipment and personnel movements, and safety. The proposed maximum average processing rate is doable and allows for upsets in waste stream generation due to seasonal fluctuation, and the inevitable natural disasters that occur in the Northeast USA which are reported to generate debris volumes equivalent to five to 15 times the normal generation rates. The ability of the Facility to respond to natural and man-made disasters is discussed further in Section 6 of the Facility Manual as well as within the Emergency Response Plan (Attachment 2 of the Facility Manual).

The material stream is expected to be approximately 271,700 tons per year (tpy) comprised of:

- MSW, including putrescible materials with a loose density estimated at 500 pounds per cubic yard (pcy)
- C&D with a loose density estimated at 1,500 pcy.
- IW waste with a loose density estimated at 500 pcy (note: Facility must first obtain the minimum waste characterization information included in Section 4 Waste Control Plan).
- OCC with a loose density estimated at 350 pcy.

- SSR with a loose density estimated at 160 pcy.
- SSO with a loose density estimated at 500 pcy.
- Unadulterated wood with a loose density estimated at 300 pcy.
- Metals with a loose density estimated at 1,755 pcy.
- Concrete/asphalt/brick/rock with a loose density estimated at 2,000 pcy.
- Electronic waste/product stewardship items with a loose density estimated at 500 pcy.
- Tires with a loose density estimated at 200 pcy.

The facility will not accept medical or hazardous wastes, friable asbestos, liquids or septage, or any other unauthorized materials. Unacceptable waste is discussed in Section 4 of the Facility Manual.

2. Description of Operations

2.1 Process Description

Access to the Facility will be through the gated truck entrance on Dolsontown Road. Materials will arrive at the Facility in roll-off trucks, front, rear and side loaders, and dump trucks. The trucks will be initially weighted at the inbound truck scale. All material unloading, handling, and loading activities will be conducted within the enclosed building. MSW/C&D/IW will be handled and stored separately to prevent co-mingling. Walking floor transfer trailers will drive through the Transfer Station via two sets of in-bound and out-bound overhead doors. Transfer trailers will be loaded within two sunken loading pits on each side of the MSW/C&D/IW Transfer Area. Outbound material will be top loaded into the transfer trailers by the loader, and excavator with grapple for transport to the disposal or processing facility. The loaded transfer trailers shall be weighed within the sunken loading pits via truck axle scales. The empty delivery trucks will be weighted at the outbound truck scale. Process flow diagrams illustrating the movement of materials through the facility are included as **Attachment 2** and the Facility Traffic circulation is shown on **Sheet 6**.

Simple floor sorting to recover concrete, asphalt, rock, brick, soil, brush, unadulterated wood, incidental tires, and metal from the C&D for transfer to a C&D Debris Handling and Recovery Facility for further processing will be done whenever feasible. Simple floor sorting to recover OCC, metal, and incidental tires from the MSW for transfer to a Recyclables Handling and Recovery Facility for further processing will also be done whenever feasible. All sorting and recovery operations will take place within the enclosed building. Recovered materials shall be stored in 40 cubic yard roll off containers which will be moved to the Recyclables Area of the Facility. Recovered concrete, asphalt, rock, brick, soil, shall be stored in the designated outdoor concrete bunkers.

All recyclables processing and storage will take place within the enclosed building. Recyclables (OCC, SSR, SSO, unadulterated wood, and electronics/product stewardship items) shall be delivered to a tipping floor within an enclosed area separate from the MSW/C&D/IW transfer operations via three overhead doors. Storage and handling of the various recyclables shall be conducted in the material-specific dedicated areas as shown on the Floor Plan included on **Sheet 3**.

The OCC/fiber, SSR, electronics/product stewardship items, and unadulterated wood shall be stored within separate concrete block bunkers. The OCC and fiber shall be compacted into bales via a horizontal baler. The bales shall be stored and loaded onto a transfer trailer by a forklift at the loading docks near the northeast corner of the Recycling Area. The SSR shall be loaded into a transfer trailer within the sunken loading pit by a front wheel loader. The unadulterated wood may be loaded into a transfer trailer within the sunken loading pit by a front wheel loader or processed through a slow speed shredder to reduce the particle size directly into a transfer trailer within the sunken loading pit. The Product Stewardship/electronic waste shall be placed on a pallet and shrink wrapped using an automatic wrapping machine. The wrapped pallets shall then be loaded onto a transfer trailer at the loading docks using a forklift. SSR shall be transferred to a sealed 40 cubic yard roll off container to be transferred to an organics recycling Facility for further processing.

2.2 Process Equipment

The Facility will maintain sufficient process equipment to safely and efficiently conduct material handling and transfer operations. This equipment will include the following pieces of equipment (or equivalent):

- Cat 320 Excavator with TG 4.5 cubic yard trash grapple (1);
- 22 Ton, 53-foot-long walking floor transfer trailers, (as needed);
- MAC 106-2 horizontal baler;
- Crown RC 5700 Forklift;
- Impaktor 250 mobile slow speed shredder;
- CAT 980G wheel loader with 4-cubic yard bucket (2);
- Azimuth-3000 semi-automatic pallet wrapper;
- Four sunken loading dock RoughDeck AX 60,000 lbs axle scales;
- Avery Weigh-Tronix IMTS 70x10-135T BridgeMont, Low-Profile Motor Inbound and outbound truck scales;
- Atlantic Nuclear Corporation Model 375P-1000 or equivalent Radiation Detector;
- Atlantic Nuclear Corporation Model 193-6 or equivalent handheld Radiation Detector;
- Yard Goat Semi-Tractor; and,
- Various material-dedicated roll off containers.

Specifications for each piece of equipment are included in **Attachment 3**. The Operator will rent or lease equipment from local vendors where appropriate when on-site equipment is being serviced or is otherwise not available. Additionally, where a specific equipment need is identified, the Operator may rent, lease or purchase the equipment from area vendors.

Equipment operators will be responsible for ensuring that equipment is routinely inspected and maintained in accordance with manufacturers' recommendations for safe operation. Equipment manuals will be provided to operators. All equipment will be equipped with mufflers so as not to exceed a maximum allowable 80-decibel combustion-powered equipment noise source level (when measured 50 feet from the source). At minimum, the truck scale will be inspected and tested for accuracy on an annual basis. Re-calibrations will be performed as needed.

2.3 Process Design and Performance

The Facility process design information/calculations are included as Tables 1 through 3 in **Attachment 3**. Table 1 shows the Facility throughput and capacity and lists the respective storage structure type, size, volume, and capacity in tons for each material to be accepted. Table 1 also shows the Facility throughput including the expected maximum average daily rate, the average annual rate, and the maximum daily rate based on the Facility performance in weight and volume for each material type.

Table 2 lists the Facility process equipment and storage structures for each material type. The capacity for each storage structure and the relevant processing equipment for each material is listed in tons and tons per day respectively. The expected detention time is also provided for each storage structure and processing equipment on Table 2. The detention time for each storage area represents the time to fill the storage area based on the maximum average daily receipt rate for the material to be stored.

The MSW/C&D/IW facility performance is controlled by the excavator with grapple. The equipment capacity assumes a grapple capacity of 4.5 cubic yards, a cycle time of 25 seconds, and two minutes to switch out transfer trailers. The time to fill a 53 foot long 22-ton capacity transfer trailer is estimated at approximately 10 minutes, the number of trailers that can be filled over 10 operating hours is 59. The resulting equipment capacity is 1,298 tons per day.

The OCC and fiber facility performance is controlled by the horizontal baler capacity. The reported horizontal baler capacity is 10.6 tons per hour assuming the OCC and fiber is loaded through the baler hopper by a front wheel loader. The capacity over 10 operating hours is approximately 106 tons per day.

The unadulterated wood facility performance is controlled by the slow speed shredder. The reported shredder capacity is 15 tons per hour and shall reduce the wood particle size to approximately six to nine inches. The capacity over 10 operating hours is approximately 132 tons per day.

The SSR facility performance is controlled by the front wheel loader. The equipment capacity assumes a bucket capacity of 4 cubic yards, and an estimated cycle time of one minute. Assuming two minutes to switch out transfer trailers, and a transfer trailer capacity of 11 tons, the number of trailers that can be filled over 10 operating hours is approximately 17, the resulting capacity is 187 tons per day.

The Product Stewardship/electronic waste facility performance is controlled by the automatic pallet wrapping machine. The reported rate of the automatic pallet wrapping machine is 10 loads per hour. Assuming 1,800 lbs per pallet the estimated capacity is approximately 90 tons per day over 10 operating hours.

The concrete, asphalt, rock, brick, soil, SSO, incidental tires, and metal is sorted into 40 cubic yard roll off containers at the tipping floor. Once full the roll off containers shall be transported to C&D and Recycling Material Processing Facilities.

Tables 3-1 Waste/Truck Traffic and 3-2 Employee/Visitor Traffic show the estimated daily traffic flow to and from the Facility based on the maximum average material receipt rate. Table 3-3 shows the maximum amount of waste trucks that can be accommodated onsite based on the maximum daily processing rate. Collectively, the calculations presented in Tables 1 through 3 exhibit that the relevant processing and transportation capacities are sufficient compared to the expected maximum daily rate for each material type.

3. Noise Evaluation

A detailed model was developed to predict noise levels generated by the Facility operations. All sound modeling was completed using the SoundPlan Essential software provided by Navcon Engineering Network. The model considers the 3-D effects of existing buildings, topography, vegetation, distance attenuation, atmospheric absorption, and the ground. Noise generated from the facility operational equipment and the truck and personal vehicle traffic was modeled. The predicted noise levels across the site were compared to the NYSDEC subdivision 360.19(j) day and nighttime requirements as well as the Town of Wawayanda code requirements. The Noise Evaluation results are included in **Attachment 4**.

Based on the model results, predicted noise levels meet the applicable NYSDEC Part 360 and the Town of Wawayanda requirements. Since operations at the facility satisfy the operational noise provision specified in subdivision 360.19(j), a Noise Monitoring and Control Plan is not required. Noise impacts will be minimized by conducting all material handling operations inside the building with the Transfer Trailer outbound doors closed. Internal combustion engine equipment used at the Facility will be equipped with mufflers.

4. Drainage and Water Supply

4.1 Water Supply

Potable water will be supplied to the Facility via a water line to be connected to an extension from the west of the existing 12-inch Class 52 DIP water main inside the north ROW of Dolsontown Road. Hydrant test data for the water line and a waterCAD analysis of the expected pressure within the extended water line prepared by The Chazen Companies, of Latham, New York is included in **Attachment 5**.

Water for fire control will be available from an onsite hydrant near the northwest corner of the transfer building.

4.2 Sanitary Waste and Leachate

Sanitary facilities will be available in the transfer station building. The project includes the installation of a sanitary pumping station and new sanitary force main to connect to the 12-inch PVC Town of Wawayanda Sewer District # 1 trunk sewer. The applicant is concurrently seeking review and approval of the engineering plans by the Town of Wawayanda Water and Sewer Department, with all proposed sanitary sewer mains and structures within the ROW to be dedicated to Sewer District #1. The proposed pump station specification, and an analysis of the pump station operating point prepared by The Chazen companies are included in **Attachment 6**.

Leachate is expected to primarily be derived from precipitation gathered on vehicle cabs, trailers, or chassis, and incidental liquid contained within materials received within the building. Leachate generation is expected to be kept at a minimum as all unloading, processing, and storage operations will be conducted inside the fully enclosed building. To ensure any leachate generated in the building is adequately contained and is properly treated for disposal, floor drainage inside the building is directed toward drop inlets as identified on the Floor Drain Plan and Profile included on **Sheet 10** included in **Attachment 1**. The outdoor loaded-trailer parking area will be covered to minimize the potential for precipitation-based leachate generation and the floor of the parking area will be sloped towards a drop inlet. This system of floor drains will convey collected liquids through an oil/water separator to the sanitary pumping station, which will pump the leachate through a force main to the existing sewer for treatment and disposal.

Typical details for the floor drains, the drainpipe trench, clean-outs, manholes, the oil/water separator, are included on **Sheet 5** included in **Attachment 1**. The flow capacity of the drainpipe was determined assuming a minimum diameter of eight inches and a minimum slope of one percent and compared to the estimated design flow rate. The flow to the drainpipe will primarily consist of the wash water used to clean the Facility's tipping floors. Leachate flow to the system was assumed to be 500 gallons per day. Manholes located north of the Transfer Station building and cleanouts located along each main floor drain will be used to clean and maintain the drain system. The minimum oil water separator size was determined according to the Highland Tank Co. Oil/Water Separators Sizing Guide for Indoor Applications. The required oil water separator size was calculated as 3,700 gallons. The drainpipe and oil water separator calculations and oil water separator specification are included in **Attachment 7**.

4.3 Stormwater

The stormwater management system is shown on **Sheet 2** of the Permit Drawings. Stormwater runoff from developed areas will be conveyed to treatment elements including a bioretention basin, and two wet ponds. Stormwater north of the Transfer Station Building shall be collected by catch basins and directed

to Wet Pond 2 by a storm sewer. Wet Pond 2 will discharge to the unnamed tributary which flows south to Monhagen Brook. Stormwater runoff south and west of the Transfer Station Building will be collected by stormwater channels and directed to a bioretention basin and then to Wet Pond 1. Wet Pond 1 will discharge to the shallow emergent marsh adjacent to Monhagen Brook. The stormwater management system design was completed in accordance with the New York State Stormwater Management Design Manual. The stormwater management system details are shown on **Sheet 7**, and a profile of the stormwater pipe is shown on **Sheet 8**.

A Notice of Intent for coverage under the NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activity Permit No. GP-0-20-001 including a Storm Water Pollution Prevention Plan (SWPPP) will be submitted to NYSDEC prior to construction of the Facility. A Notice of Intent for coverage under the SPDES Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity including a Storm Water Pollution Prevention Plan (SWPPP) will be submitted to NYSDEC prior to operation of the Facility. The SWPPP will also be prepared to meet the requirements of the Town of Wawayanda Site Plan and Special Use Permit. The objective of the SWPPP is to minimize the number and amount of pollutants in stormwater runoff and to maintain compliance with stormwater regulatory requirements. The SWPPP identifies potential pollutant sources, pollution prevention measures and BMPs (best management practices), monitoring procedures, and inspection and reporting requirements.

5. Geotechnical Analysis and Foundation Design

A Geotechnical Subsurface Investigation was conducted for the proposed Facility, the associated Report which describes the investigation procedures, presents the findings, and discusses the associated evaluations, including foundation design and construction recommendations is included in **Attachment 8.**

Foundation Design Documentation for the Transfer and Recycling Facility building is included in **Attachment 9.**

6. Safety

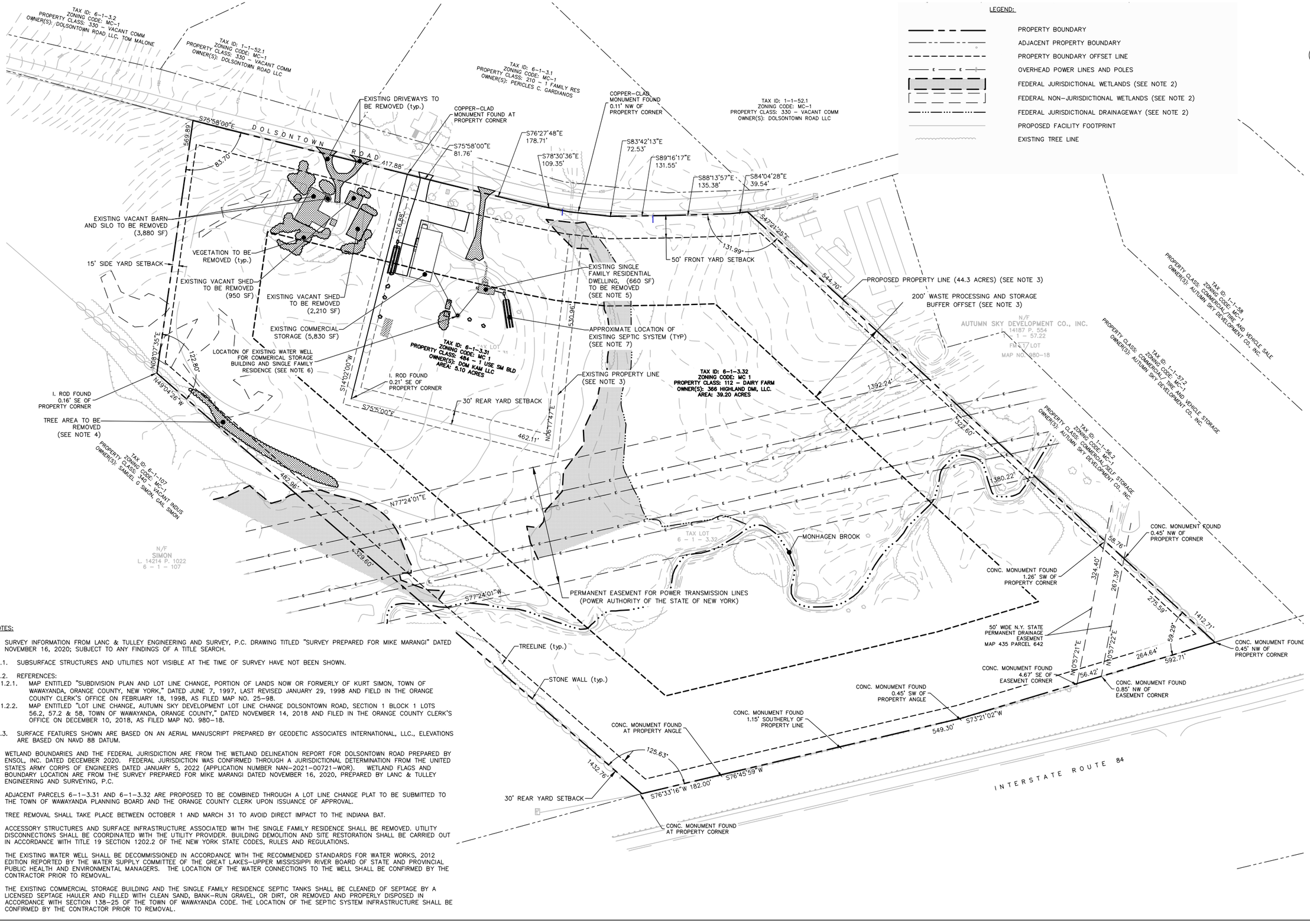
All materials will be handled and stored in a manner that will ensure no hazards to employees or the public are created. No hazardous waste will be stored at the site. On-site access routes will be maintained to allow unrestricted movement of Facility vehicles and emergency response equipment. Fire extinguishers will be maintained at strategic locations in the transfer building and all commercial material-hauling vehicles.

Emergency response actions are detailed in the Contingency Plan (Section 6.0 of the Facility Manual) and the Emergency Response Plan (Attachment 2 of the Facility Manual).

Drawings

EnSol, Inc.

ENGINEERING + ENVIRONMENTAL



NOTES:

1. SURVEY INFORMATION FROM LANC & TULLEY ENGINEERING AND SURVEY, P.C. DRAWING TITLED "SURVEY PREPARED FOR MIKE MARANGI" DATED NOVEMBER 16, 2020; SUBJECT TO ANY FINDINGS OF A TITLE SEARCH.

   1.1. SUBSURFACE STRUCTURES AND UTILITIES NOT VISIBLE AT THE TIME OF SURVEY HAVE NOT BEEN SHOWN.

   1.2. REFERENCES:
   - 1.2.1. MAP ENTITLED "SUBDIVISION PLAN AND LOT LINE CHANGE, PORTION OF LANDS NOW OR FORMERLY OF KURT SIMON, TOWN OF WAWAYANDA, ORANGE COUNTY, NEW YORK," DATED JUNE 7, 1997, LAST REVISED JANUARY 29, 1998 AND FIELD IN THE ORANGE COUNTY CLERK'S OFFICE ON FEBRUARY 18, 1998, AS FILED MAP NO. 25-98.
   - 1.2.2. MAP ENTITLED "LOT LINE CHANGE, AUTUMN SKY DEVELOPMENT LOT LINE CHANGE DOLSONTOWN ROAD, SECTION 1 BLOCK 1 LOTS 56.2, 57.2 & 58, TOWN OF WAWAYANDA, ORANGE COUNTY," DATED NOVEMBER 14, 2018 AND FILED IN THE ORANGE COUNTY CLERK'S OFFICE ON DECEMBER 10, 2018, AS FILED MAP NO. 980-18.

   1.3. SURFACE FEATURES SHOWN ARE BASED ON AN AERIAL MANUSCRIPT PREPARED BY GEODETIC ASSOCIATES INTERNATIONAL, LLC., ELEVATIONS ARE BASED ON NAVD 88 DATUM.

2. WETLAND BOUNDARIES AND THE FEDERAL JURISDICTION ARE FROM THE WETLAND DELINEATION REPORT FOR DOLSONTOWN ROAD PREPARED BY ENSOL, INC. DATED DECEMBER 2020. FEDERAL JURISDICTION WAS CONFIRMED THROUGH A JURISDICTIONAL DETERMINATION FROM THE UNITED STATES ARMY CORPS OF ENGINEERS DATED JANUARY 5, 2022 (APPLICATION NUMBER NAN-2021-00721-WOR). WETLAND FLAGS AND BOUNDARY LOCATION ARE FROM THE SURVEY PREPARED FOR MIKE MARANGI DATED NOVEMBER 16, 2020, PREPARED BY LANC & TULLEY ENGINEERING AND SURVEYING, P.C.

3. ADJACENT PARCELS 6-1-3.31 AND 6-1-3.32 ARE PROPOSED TO BE COMBINED THROUGH A LOT LINE CHANGE PLAT TO BE SUBMITTED TO THE TOWN OF WAWAYANDA PLANNING BOARD AND THE ORANGE COUNTY CLERK UPON ISSUANCE OF APPROVAL.

4. TREE REMOVAL SHALL TAKE PLACE BETWEEN OCTOBER 1 AND MARCH 31 TO AVOID DIRECT IMPACT TO THE INDIANA BAT.

5. ACCESSORY STRUCTURES AND SURFACE INFRASTRUCTURE ASSOCIATED WITH THE SINGLE FAMILY RESIDENCE SHALL BE REMOVED. UTILITY DISCONNECTIONS SHALL BE COORDINATED WITH THE UTILITY PROVIDER. BUILDING DEMOLITION AND SITE RESTORATION SHALL BE CARRIED OUT IN ACCORDANCE WITH TITLE 19 SECTION 1202.2 OF THE NEW YORK STATE CODES, RULES AND REGULATIONS.

6. THE EXISTING WATER WELL SHALL BE DECOMMISSIONED IN ACCORDANCE WITH THE RECOMMENDED STANDARDS FOR WATER WORKS, 2012 EDITION REPORTED BY THE WATER SUPPLY COMMITTEE OF THE GREAT LAKES-UPPER MISSISSIPPI RIVER BOARD OF STATE AND PROVINCIAL PUBLIC HEALTH AND ENVIRONMENTAL MANAGERS. THE LOCATION OF THE WATER CONNECTIONS TO THE WELL SHALL BE CONFIRMED BY THE CONTRACTOR PRIOR TO REMOVAL.

7. THE EXISTING COMMERCIAL STORAGE BUILDING AND THE SINGLE FAMILY RESIDENCE SEPTIC TANKS SHALL BE CLEANED OF SEPTAGE BY A LICENSED SEPTAGE HAULER AND FILLED WITH CLEAN SAND, BANK-RUN GRAVEL, OR DIRT, OR REMOVED AND PROPERLY DISPOSED IN ACCORDANCE WITH SECTION 138-25 OF THE TOWN OF WAWAYANDA CODE. THE LOCATION OF THE SEPTIC SYSTEM INFRASTRUCTURE SHALL BE CONFIRMED BY THE CONTRACTOR PRIOR TO REMOVAL.

IT IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW, ARTICLE 145 SECTION 7209, FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER OR LAND SURVEYOR TO ALTER AN ITEM IN ANY WAY.

NO.	REVISION	BY	DATE

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Niagara Falls, NY 14301
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DAVID A. LENOX, P.E.
NYSPE LICENSE NO. 093384

CLIENT: DOM KAM LLC

SITE:
DOM-MAR TRANSFER AND RECYCLING FACILITY
TOWN OF WAWAYANDA
COUNTY OF ORANGE
STATE OF NEW YORK

PROJECT:
NYSDEC SOLID WASTE MANAGEMENT FACILITY PERMIT APPLICATION

TITLE:
EXISTING CONDITIONS AND DEMOLITION PLAN

ISSUE: REVIEW

DES:	DRN:	CHK:
DAL	SJD	DAL

PROJECT NO: 029-A0001
DATE: MARCH 2022

GRAPHIC SCALE: 0' 50' 100'

FILE: Sheet 1 - Existing Conditions.dwg

REV NO: 0
SHEET NO: 1

X:\AA\pj\Marangi Disposal\029-A0001 TS Permit Application\Drawings\1. NYSDEC Part 360 Application Drawings\NYSDEC Part 360 Permit Drawings\Sheet 1 - Existing Conditions.dwg, 3/2/2022 1:32:55 PM

905 LF 12"ø CLASS 52 DUCTILE IRON PIPE WATER LINE EXTENSION

1,390 LF SANITARY FORCE MAIN DISCHARGE TO 12" PVC SEWER AT EXISTING SANITARY MANHOLE ON DOLSONTOWN ROAD

TAX ID: 1-1-52.1
PROPERTY CLASS: 330 - VACANT COMM
ZONING CODE: MC-1
OWNER(S): DOLSONTOWN ROAD LLC

TAX ID: 5-1-3.1
PROPERTY CLASS: 210 - 1 FAMILY RES
ZONING CODE: MC-1
OWNER(S): PERICLES C. GARDIANOS

TAX ID: 6-1-107
PROPERTY CLASS: 340 - VACANT INDUS
ZONING CODE: MC-1
OWNER(S): SAMUEL G SIMON, GAIL SIMON

ADMINISTRATIVE OFFICE BUILDING ENTRANCE AND EXIT

TRANSFER AND RECYCLING AND TRUCK MAINTENANCE ENTRANCE AND EXIT

DOLSONTOWN ROAD

50' FRONT YARD SETBACK

25 LF 12" HDPE CULVERT
NE INV. 455.9
SW INV. 455.3

VEE SHAPED SWALE 2:1 SIDES MIN DEPTH 1.5'

85 LF 18" HDPE CULVERT
N INV. 454.5
S INV. 454.0

40 LF 18"ø HDPE CULVERT
NW INV. 454.5
SE INV. 454.0

4' WDE SIDEWALK

SANITARY PUMP STATION

OIL-WATER SEPARATOR

LOADING DOCK TRUCK TURNING LANE

15' SIDE YARD SETBACK

EMPLOYEE AND VISITOR PARKING AREA

ADMIN OFFICE BUILDING
2 FLOORS 3,160 SF/EA
FINISH FLOOR ELEVATION: 459.00

BIORETENTION BASIN EL. 454.0

6"ø SCH40 PERFORATED PVC UNDERDRAIN @ 20' O.C. INV 450.8

DIESEL FUEL TANKS

6"ø SCH40 PVC UNDERDRAIN DISCHARGE PIPE
N INV. 450.8
SE INV. 450.0

30' REAR YARD SETBACK

RESIDENTIAL RECREATION

34 LF 18" HDPE
N INV. 452.0
S INV. 450.5

34 LF 18" HDPE
W INV. 450.7
E INV. 450.5

32 LF 24" HDPE
W INV. 450.5
E INV. 450.3

84 LF 24" HDPE
W INV. 450.3.
E INV. 449.8

54 LF 24" HDPE
N INV. 449.8
S INV. 449.5

55 LF 24" HDPE
S INV. 451.0
N INV. 450.7

CB-1 454.5
CB-2 454.5
CB-3 454.5
CB-4 454.5
CB-5 452.5
CB-6 454.4
CB-7 455.5

COVERED 53' TRAILER PARKING AREA
FF 454.6

RECYCLING AREA

TRANSFER STATION (42,000 SF)
FINISH FLOOR ELEVATION: 459.00

DEEP TRANSFER TRAILER LOADING FINISH FLOOR ELEVATION: 455.00

50' CONCRETE APRON (typ.)

7% RAMP TO DEEP LOADING (typ.)

85 LF 18"ø HDPE CULVERT
NW INV. 450.8
SE INV. 450.2

RECYCLABLE MATERIAL STORAGE BUNKERS
2,300 SF
450 CY

VEE SHAPED SWALE 2:1 SIDES MIN DEPTH 1.5'

WET POND 1

POND OUTLET STRUCTURE

VEGETATED EMERGENCY SPILLWAY ELEV. 453.25

40 LF 18"ø HDPE CULVERT
N INV. 450.2
S INV. 450.0

STONE RIP RAP OUTLET PROTECTION

STONE RIP RAP OUTLET PROTECTION

40 LF 18"ø HDPE CULVERT
W INV. 447.0
E INV. 446.8

EXISTING COMMERCIAL STORAGE (5,830 SF)

VEGETATED EMERGENCY SPILLWAY ELEV. 450.0

WET POND 2

POND OUTLET STRUCTURE

346 LF 24" HDPE
W INV. 449.1
E INV. 447.3

71 LF 24" HDPE
W INV. 449.5
E INV. 449.1

10' CONCRETE APRON (typ.)

SPEED BUMP

RADIATION DETECTOR

RADIATION DETECTOR BUFFER ZONE

DRIVER ASSIST TERMINAL (typ.)

OUTBOUND TRUCK SCALE

BOLLARD (typ.)

INBOUND TRUCK SCALE

CB-8 451.0

41 LF 24" HDPE
S INV. 447.3
N INV. 447.0

PERMANENT EASEMENT FOR POWER TRANSMISSION LINES (POWER AUTHORITY OF NEW YORK)

200' PROPERTY BOUNDARY OFFSET FOR WASTE PROCESSING BUFFER

LEGEND:

- EXISTING GROUND MAJOR CONTOUR
- EXISTING GROUND MINOR CONTOUR
- PROPOSED GRADING MAJOR CONTOUR
- PROPOSED GRADING MINOR CONTOUR
- PROPERTY BOUNDARY
- PROPERTY BOUNDARY SETBACK
- EXISTING BUILDING
- JURISDICTIONAL FEDERAL WETLAND
- OUTDOOR SIGNAGE
- STANDARD DUTY PAVEMENT
- HEAVY DUTY PAVEMENT
- CONCRETE
- GRAVEL
- LITTER FENCE
- SANITARY SEWER
- WATER LINE
- UNDERGROUND ELECTRIC
- NATURAL GAS LINE
- PROPOSED SWALE
- PROPOSED STORM SEWER
- 3'X3' CATCH BASIN ID AND RIM ELEVATION
- LOCKING GATE
- BOREHOLE LOCATION

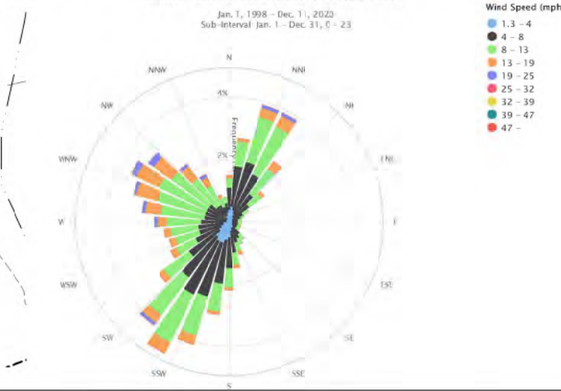
NOTES:

1. EXISTING PROPERTY LINE, BUILDINGS AND TOPOGRAPHY FROM A SURVEY PREPARED FOR MIKE MARANGI, DATED NOVEMBER 16, 2020, BY LANC & TULLY ENGINEERING AND SURVEYING, P.C.
2. ELEVATIONS BASED ON NAVD88 DATUM, HORIZONTAL DATUM IS NEW YORK STATE PLANE EAST.
2. WETLAND BOUNDARIES AND THE FEDERAL JURISDICTION ARE FROM THE WETLAND DELINEATION REPORT FOR DOLSONTOWN ROAD PREPARED BY ENSOL, INC. DATED DECEMBER 2020. FEDERAL JURISDICTION WAS CONFIRMED THROUGH A JURISDICTIONAL DETERMINATION FROM THE UNITED STATES ARMY CORPS OF ENGINEERS DATED JANUARY 5, 2022 (APPLICATION NUMBER NAN-2021-00721-WOR). WETLAND FLAGS AND BOUNDARY LOCATION ARE FROM THE SURVEY PREPARED FOR MIKE MARANGI DATED NOVEMBER 16, 2020, PREPARED BY LANC & TULLEY ENGINEERING AND SURVEYING, P.C.
3. EACH RESIDENTIAL, INDUSTRIAL, COMMERCIAL SUBDIVISION OR SITE PLANS SHALL CONTRIBUTE RECREATIONAL FEES CALCULATED ON THE BASIS OF GROSS FLOOR AREA FOR ALL NEW CONSTRUCTION.
4. THE EXISTING COMMERCIAL STORAGE BUILDING WATER LINE SHALL BE DISCONNECTED FROM THE EXISTING WATER WELL AND CONNECTED TO THE EXTENDED WATER LINE ALONG DOLSONTOWN ROAD. THE SANITARY LINE SHALL BE DISCONNECTED FROM THE EXISTING SEPTIC SYSTEM AND DRAIN TO THE SANITARY PUMP STATION TO BE DISCHARGED TO THE EXISTING SEWER LINE ON DOLSONTOWN ROAD VIA A FORCE MAIN.
5. BASED ON THE NEW YORK STATE HISTORIC PRESERVATION OFFICE (SHPO) LETTER DATED JUNE 15TH 2021 AND THE PHASE 1 ARCHAEOLOGICAL INVESTIGATION FOR THE DOM-MAR TRANSFER AND RECYCLING CENTER, TOWN OF WAWAYANDA, ORANGE COUNTY, NEW YORK, PERFORMED BY TRACKER ARCHAEOLOGY OF MONROE, NEW YORK, NO EVIDENCE OF ARCHEOLOGICAL SITES WERE FOUND WITHIN THE PROJECT'S AREA OF POTENTIAL EFFECTS. THE APPROXIMATE LOCATION OF A NEW YORK STATE MUSEUM-RECORDED ARCHAEOLOGICAL SITE NYSM 6169 DESCRIBED AS "CEMETERY" IS MAPPED IN THE PROJECT AREA. THE SHPO HUMAN REMAINS DISCOVERY PROTOCOL DATED JANUARY 2021 SHALL BE IMPLEMENTED SHOULD ANY EVIDENCE OF HUMAN REMAINS OR POSSIBLE BURIAL GROUNDS BE ENCOUNTERED DURING CONSTRUCTION.

MONTGOMERY ORANGE AP (NY) Wind Rose

Jan. 1, 1998 - Dec. 1:, 2020
Sub-Interval Jan. 1 - Dec. 31, 0 - 23

Wind Speed (mph)
- 1.3 - 4
- 4 - 8
- 8 - 13
- 13 - 19
- 19 - 25
- 25 - 32
- 32 - 39
- 39 - 47
- 47 -



IT IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW, ARTICLE 145 SECTION 7209, FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER OR LAND SURVEYOR TO ALTER AN ITEM IN ANY WAY.

NO.	REVISION	BY	DATE

EnSol
661 Main St.
Niagara Falls, NY 14301
716.285.3920

DAVIDA. LENOX, P.E.
NYSPE LICENSE NO. 093381

CLIENT:
DOM KAM LLC

SITE:
DOM-MAR TRANSFER AND RECYCLING FACILITY
TOWN OF: WAWAYANDA
COUNTY OF: ORANGE
STATE OF: NEW YORK

PROJECT:
NYSDEC SOLID WASTE MANAGEMENT FACILITY PERMIT APPLICATION

TITLE:
SITE PLAN

ISSUE:
REVIEW

DES:	DRN:	CHK:
DAL	SJD	DAL

PROJECT NO: 029-A0001
DATE: MARCH 2022

GRAPHIC SCALE:
0' 50' 100'

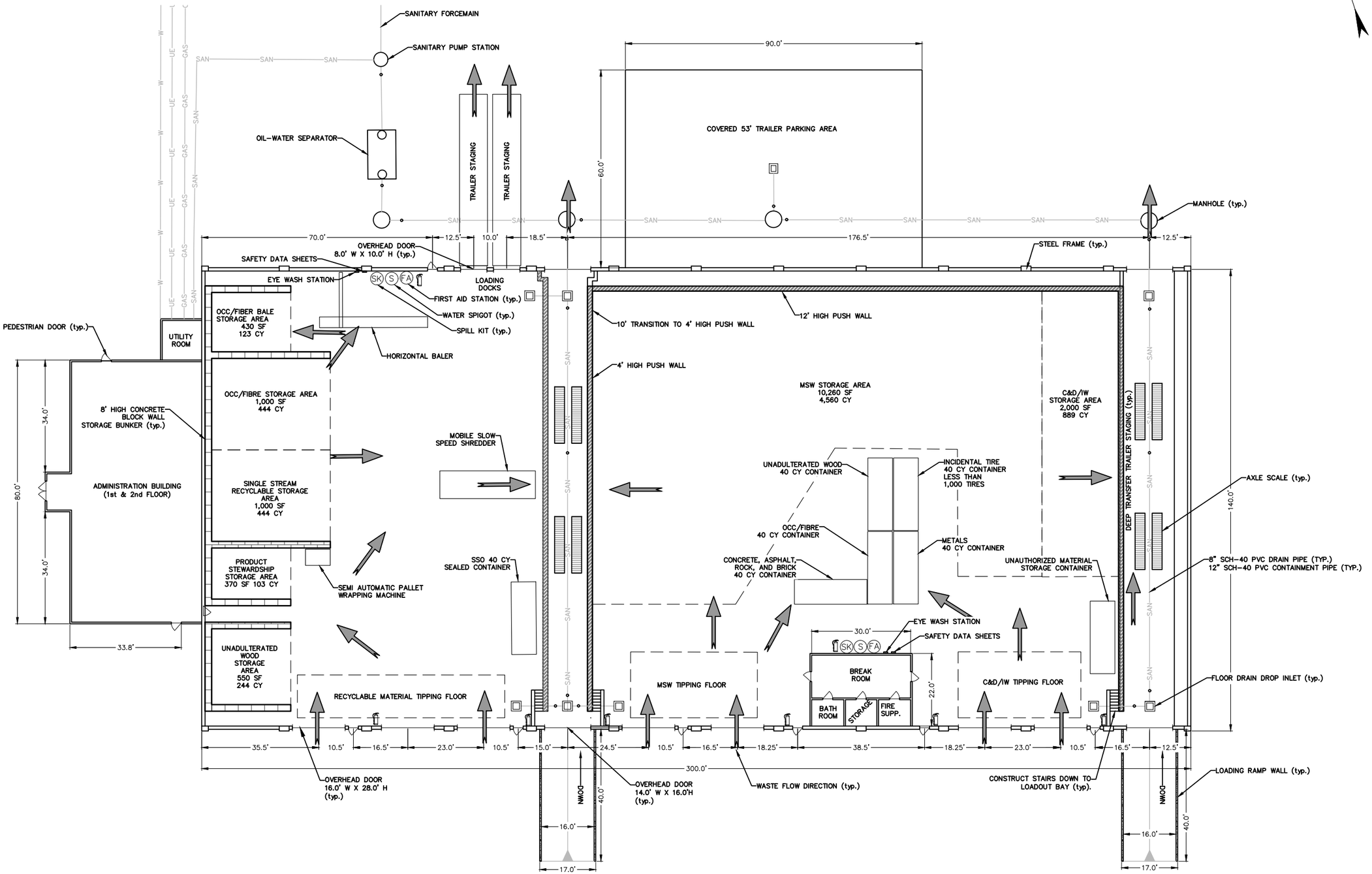
FILE:
Sheet 2 Arch - Site Plan REV2.dwg

REV NO: 0
SHEET NO: 2

X:\AA\pj\Marangi Disposal\029-A0001 TS Permit Application\Drawings\1. NYSDEC Part 360 Application Drawings\NYSDEC Part 360 Permit Drawings\Sheet 2 and 8 - Site Plan REV2.dwg, 3/3/2022 9:20:28 AM

NOTES:

1. THE FACILITIES PROPOSED WASTE ACCEPTANCE RATE IS 950 TONS PER DAY OF MATERIAL BASED ON A WEEKLY AVERAGE.
2. TIPPING AND PROCESS AREA FLOORS WILL NORMALLY BE WASHED DOWN ON A DAILY BASIS. ALL WASH WATERS WILL BE DIRECTED TO FLOOR SUMPS FROM WHICH THE WASH WATER WILL FLOW TO AN OIL–WATER SEPARATOR BEFORE DISCHARGING TO THE TOWN OF WAWAYANDA SANITARY SEWER DISTRICT #1.
3. IF IDENTIFIED DURING DELIVERY INSPECTIONS, ANY UNAUTHORIZED WASTES, OR SUSPECTED UNAUTHORIZED WASTE, WILL BE PLACED INTO THE DEDICATED STORAGE AREA. HAZARDOUS WASTES WILL BE EXPEDIENTLY AND PROPERLY DISPOSED OF AS SOON AS PRACTICABLE.
4. FIRE DETECTION AND SUPPRESSION SYSTEM SHALL BE IN ACCORDANCE WITH CHAPTER 9 FIRE PROTECTION SYSTEMS OF THE BUILDING CODE OF NEW YORK.



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NO.	REVISION	BY	DATE

EnSol
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DAVID A. LENOX, P.E.
NYSPE LICENSE NO. 093384

CLIENT:
DOM KAM LLC

SITE:
DOM-MAR TRANSFER AND RECYCLING FACILITY
TOWN OF WAWAYANDA
COUNTY OF ORANGE
STATE OF NEW YORK

PROJECT:
NYSDEC SOLID WASTE MANAGEMENT FACILITY PERMIT APPLICATION

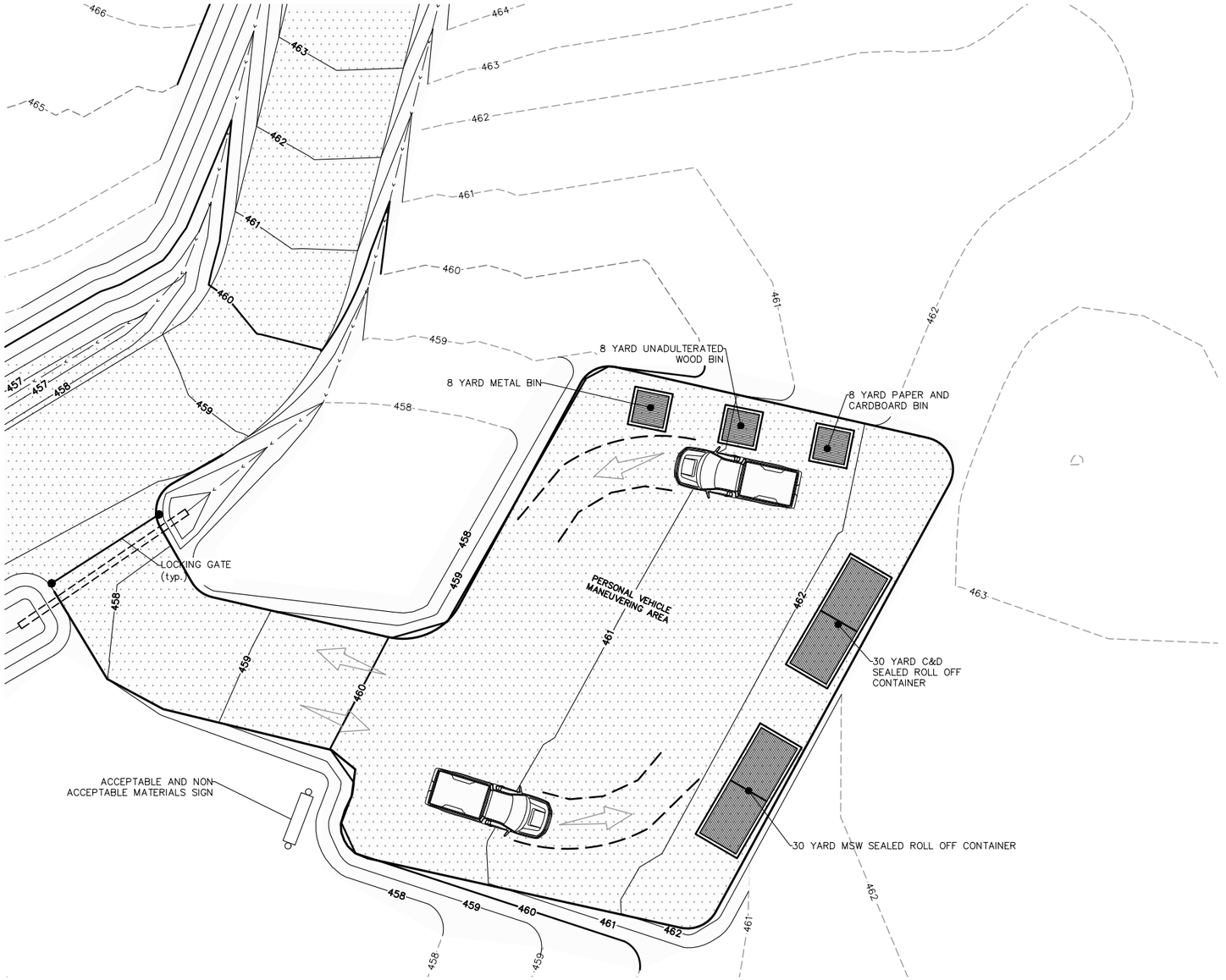
TITLE:
FLOOR PLAN

ISSUE:
REVIEW

DES:	DRN:	CHK:
JBB	JMS	JBB

PROJECT NO: 029-A0001
DATE: MARCH 2022
GRAPHIC SCALE: 0' 15' 30'
FILE: Sheet 3 And 10 - Floor Plan Rev4.dwg
REV NO: 0
SHEET NO: 3

X:\AA\pj\Marangi Disposal\029-A0001 TS Permit Application\Drawings\1. NYSDEC Part 360 Application Drawings\NYSDEC Part 360 Permit Drawings\Sheet 3 and 10 - Floor Plan rev4.dwg, 3/2/2022 10:08:10 AM



LEGEND:

- 450 — EXISTING GROUND MAJOR CONTOUR
- 451 — EXISTING GROUND MINOR CONTOUR
- **450** — PROPOSED GRADING MAJOR CONTOUR
- 448 — PROPOSED GRADING MINOR CONTOUR
- OUTDOOR SIGNAGE
- STANDARD DUTY PAVEMENT
- PROPOSED SWALE
- PERSONAL VEHICLE TRAFFIC FLOW

N

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NO.	REVISION	BY	DATE

EnSol
661 Main St.
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DAVID A. LENOX, P.E.
NYSPE LICENSE NO. 093384

CLIENT:
DOM KAM LLC

SITE:
DOM-MAR TRANSFER AND RECYCLING FACILITY
TOWN OF WAWAYANDA
COUNTY OF ORANGE
STATE OF NEW YORK

PROJECT:
NYSDEC SOLID WASTE MANAGEMENT FACILITY PERMIT APPLICATION

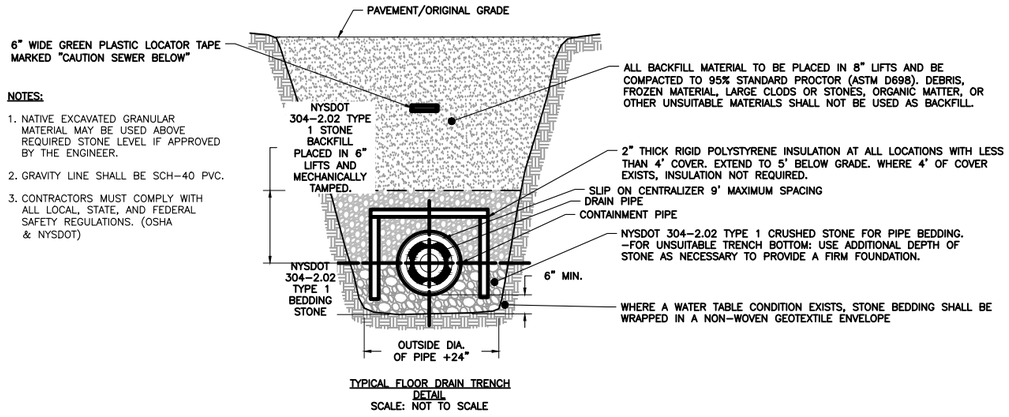
TITLE:
RESIDENTIAL DROP OFF AREA PLAN

ISSUE: REVIEW

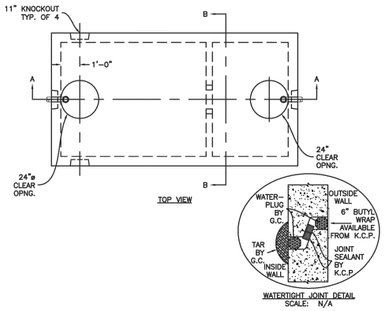
DES:	DRN:	CHK:
DAL	SJD	DAL

PROJECT NO: 20-0062
DATE: MARCH 2022
GRAPHIC SCALE: 0' 5' 10'
FILE: Sheet 4 - Res Drop Off.dwg
REV NO: 0
SHEET NO: 4

C:\AAAgj\Marangi Disposal\029-A0001 TS Permit Application\Drawings\1. NYSDEC Part 360 Application Drawings\NYSDEC Part 360 Permit Drawings\Sheet 4 - Res Drop Off.dwg, 3/2/2022 10:25:46 AM

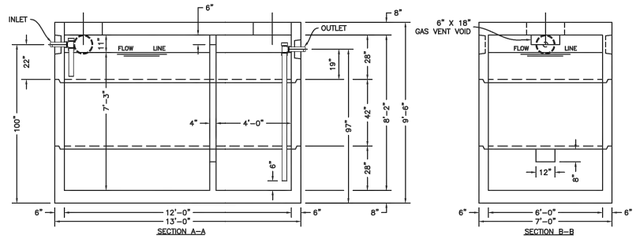


TYPICAL FLOOR DRAIN TRENCH DETAIL
SCALE: NOT TO SCALE



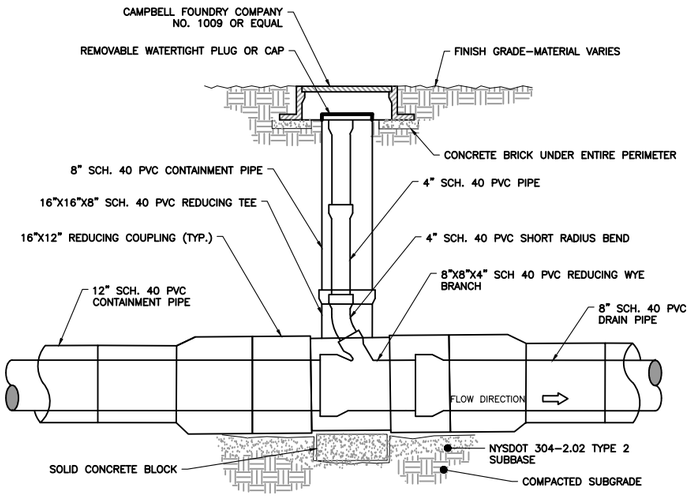
WATERTIGHT JOINT DETAIL
SCALE: N/A

SP-7A
SPECIFICATIONS:
CONCRETE: 5,000 P.S.I. @ 28 DAYS.
ENTRAINED AIR: 5% - 8%.
STEEL: A.S.T.M. A496-A615 GRADE 60-80 KSI.
DESIGN LOADING: ACI 318-99 TRAFFIC. USE ACI LOAD FACTORS. A.A.S.H.T.O. METHOD OF DESIGN. EQUIVALENT SOIL PRESSURE OF 40 (PCF).
LIVE LOAD: H20.
EARTH FILL: 0 TO 6'.
WATER TABLE: 3' BELOW GRADE.
WEIGHT:
TOP SECTION: 16,712 LBS.
MID-SECTION: 11,935 LBS.
BOTTOM SECTION: 18,007 LBS.
TOTAL: 46,654 LBS.
BAFFLE: PIPING: TEES, DROP LEGS & FITTINGS SUPPLIED AND INSTALLED BY G.C.

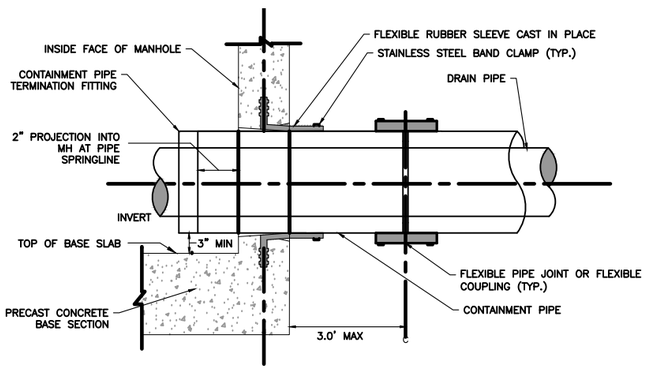


NOTE: DETAIL FROM KISTNER CONCRETE 3,700 GAL OIL SEPARATOR DETAIL

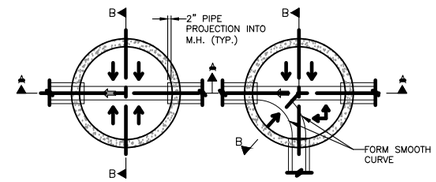
3,700 GALLON OIL WATER SEPARATOR DETAIL
SCALE: NOT TO SCALE

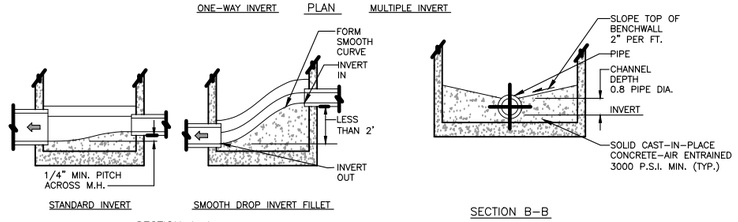


TYPICAL FLOOR DRAIN CLEAN OUT DETAIL
SCALE: NOT TO SCALE

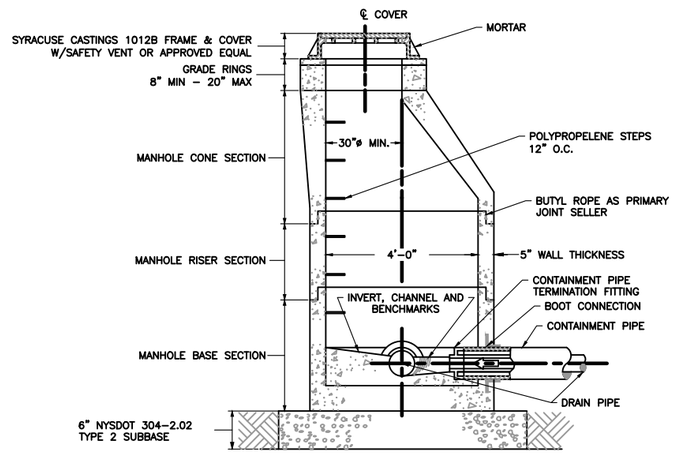


FLEXIBLE PIPE TO MANHOLE JOINT DETAIL
SCALE: NOT TO SCALE

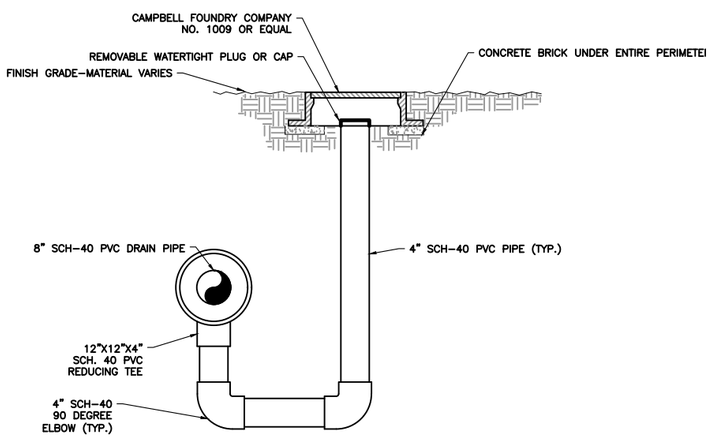




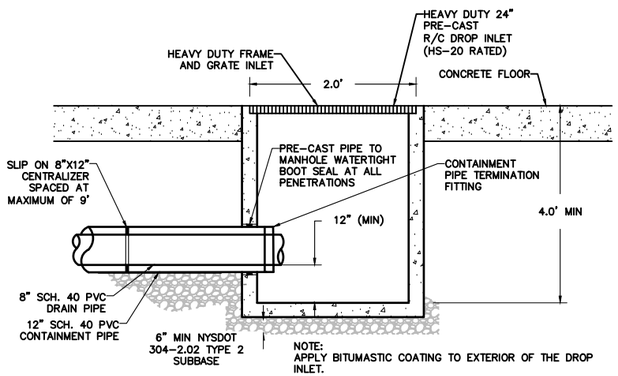
MANHOLE INLET AND OUTLET DETAILS
SCALE: NOT TO SCALE



TYPICAL PRECAST CONCRETE MANHOLE DETAIL
SCALE: NOT TO SCALE



TYPICAL LEAK DETECTION RISER DETAIL
SCALE: NOT TO SCALE



TYPICAL DROP INLET FLOOR DRAIN DETAIL
SCALE: NOT TO SCALE

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NO.	REVISION	BY	DATE

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Niagara Falls, NY 14301
716.285.3920

DAVID A. LENOX, P.E.
NYSPE LICENSE NO. 093384

CLIENT:
DOM KAM LLC

SITE:
DOM-MAR TRANSFER AND RECYCLING FACILITY
CITY OF WAWAYANDA
COUNTY OF ORANGE
STATE OF NEW YORK

PROJECT:
NYSDEC SOLID WASTE MANAGEMENT FACILITY PERMIT APPLICATION

TITLE:
LEACHATE COLLECTION SYSTEM DETAILS

ISSUE:
REVIEW

DES:	DRN:	CHK:
DAL	SJD	DAL

PROJECT NO: 029-A0001
DATE: MARCH 2022
GRAPHIC SCALE: NOTED
FILE: Sheet 5 And 11 - Leachate Collection And Misc. Details.dwg

REV NO: 0
SHEET NO: 5

LEGEND:

- PROPERTY BOUNDARY
- 450 EXISTING GROUND CONTOUR
- EMPLOYEE TRAFFIC FLOW
- INBOUND TRUCKING TRAFFIC FLOW
- WASTE TRANSFER TRUCKING TRAFFIC FLOW
- RECYCLABLES AREA TRAFFIC FLOW
- RESIDENTIAL DROP OFF TRAFFIC FLOW
- STANDARD DUTY ASPHALT
- HEAV DUTY ASPHALT
- CONCRETE
- GRAVEL

TRAFFIC PATTERN SUMMARIES:

- EMPLOYEES:
  - ENTER VIA THE EMPLOYEE/RESIDENTIAL ENTRANCE
  - PARKING AT DESIGNATED PARKING AREA
  - DEPART VIA THE EMPLOYEE/RESIDENTIAL ENTRANCE
- RESIDENTIAL DROP OFF
  - ENTER VIA THE EMPLOYEE/RESIDENTIAL ENTRANCE
  - UNLOAD AT DESIGNATED DROP OFF AREA
  - EXIT VIA THE EMPLOYEE/RESIDENTIAL ENTRANCE
- INBOUND TRUCKING
  - ENTER VIA THE TRUCKING ENTRANCE
  - WEIGH-IN AT OUTDOOR INBOUND SCALE
  - BACK IN TO TIPPING FLOOR(S) VIA OVERHEAD DOOR AS DIRECTED BY ATTENDANT (1-3 FOR RECYCLING OR 5-8 FOR WASTE TRANSFER)
  - DEPOSIT LOAD TO TIPPING FLOOR
  - EXIT BUILDING VIA OVERHEAD DOORS (1-3 FOR RECYCLING OR 5-8 FOR WASTE TRANSFER)
  - WEIGH-OUT AT OUTDOOR OUTBOUND SCALE
  - EXIT VIA TRUCKING ENTRANCE
- WASTE TRANSFER TRUCKING (LOADED IN TIPPING FLOOR PITS)
  - ENTER VIA THE TRUCKING ENTRANCE
  - WEIGH-IN AT EITHER OUTDOOR INBOUND SCALE OR PIT AXLE SCALES AS DIRECTED BY ATTENDANT
  - PULL FORWARD INTO DESIGNATED TIPPING FLOOR PIT VIA DOORS 4a OR 9a AS DIRECTED BY ATTENDANT
  - REMAIN FOR LOADING
  - WEIGH OUT VIA PIT AXLE SCALES
  - EXIT BUILDING VIA DOORS 4b OR 9b
  - EITHER TEMPORARILY PARK LOADED TRAILER IN DESIGNATED TRAILER STORAGE AREA OR
  - EXIT FACILITY VIA TRUCKING ENTRANCE
- RECYCLABLES AREA TRUCKING (LOADED AT RECYCLING AREA LOADING BAYS)
  - ENTER VIA THE TRUCKING ENTRANCE
  - WEIGH-IN AT EITHER OUTDOOR INBOUND SCALE OR PIT AXLE SCALES VIA DOOR 4a AS DIRECTED BY ATTENDANT
  - BACK EMPTY TRAILER UP TO LOADING BAY DOOR 10 OR 11 BY EITHER PULLING OUT THROUGH BUILDING VIA DOOR 4b OR CIRCLING THE FACILITY VIA THE SOUTHWEST TRUCKING LOOP
  - REMAIN FOR LOADING
  - CIRCLE THE FACILITY VIA THE SOUTHWEST TRUCKING LOOP TO WEIGH OUT AT THE OUTDOOR OUTBOUND SCALE
  - EITHER TEMPORARILY PARK LOADED TRAILER IN DESIGNATED TRAILER STORAGE AREA OR
  - EXIT FACILITY VIA TRUCKING ENTRANCE

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NO.	REVISION	BY	DATE

EnSol
661 Main St.
Niagara Falls, NY 14301
716.285.3920

DAVID A. LENOX, P.E.
NYSPE LICENSE NO. 093384

CLIENT:
DOM KAM LLC

SITE:
DOM-MAR TRANSFER AND RECYCLING FACILITY
TOWN OF WAWAYANDA
COUNTY OF ORANGE
STATE OF NEW YORK

PROJECT:
NYSDEC SOLID WASTE MANAGEMENT FACILITY PERMIT APPLICAITON

TITLE:
TRAFFIC CIRCULATION PLAN

ISSUE:
REVIEW

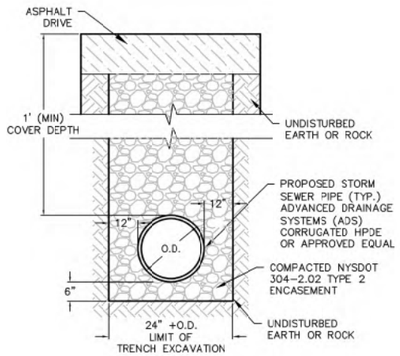
DES:	DRN:	CHK:
DL	JMS	DL

PROJECT NO: 029-A0001
DATE: MARCH 2022

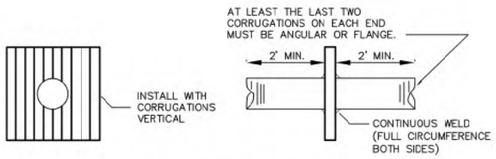
GRAPHIC SCALE: 0' 40' 80'

FILE: Sheet 6 - Traffic Circulation Plan.dwg

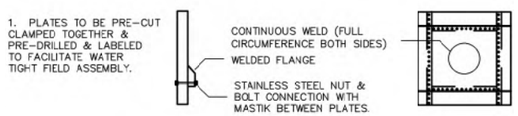
REV NO: 0
SHEET NO: 6



STORM PIPE TRENCH DETAIL
NOT TO SCALE



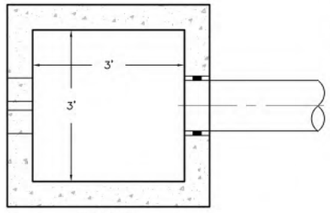
COLLAR WELDED IN PLACE ON BARREL SECTION



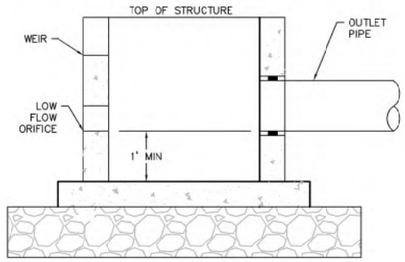
MULTI-PIECE COLLAR FOR LARGE PIPES

COLLAR FOR FLANGE JOINT PIPE

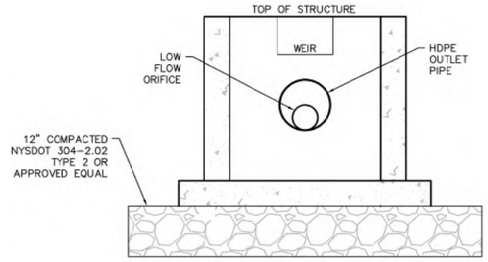
ANTI-SEEP COLLAR DETAIL
NOT TO SCALE



PLAN VIEW



SECTION VIEW

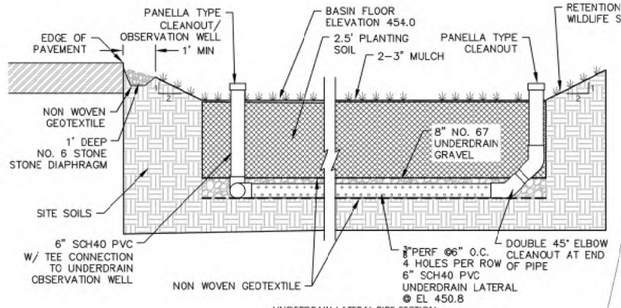


SECTION VIEW

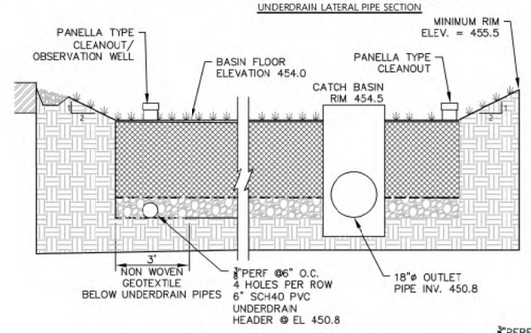
NOTES:
1. ALL OUTLET STRUCTURE INLETS TO BE COVERED BY REMOVABLE TRASH RACKS WITH OPENINGS SMALLER THAN THAT OF THE INLET (ORIFICE, WEIR, ETC.).

	WET POND 1 OUTLET		WET POND 2 OUTLET	
OUTLET	SIZE	ELEVATION	SIZE	ELEVATION
OUTLET PIPE	18 IN ø	450.2	18 IN ø	447.0
LOW FLOW ORIFICE	3 IN ø	450.2	3 IN ø	447.0
WEIR	12 IN	451.2	12 IN	448.2
TOP OF STRUCTURE	3 FT X 3 FT	452.1	3 FT X 3 FT	450.0

POND OUTLET STRUCTURE
NOT TO SCALE



UNDERDRAIN LATERAL PIPE SECTION



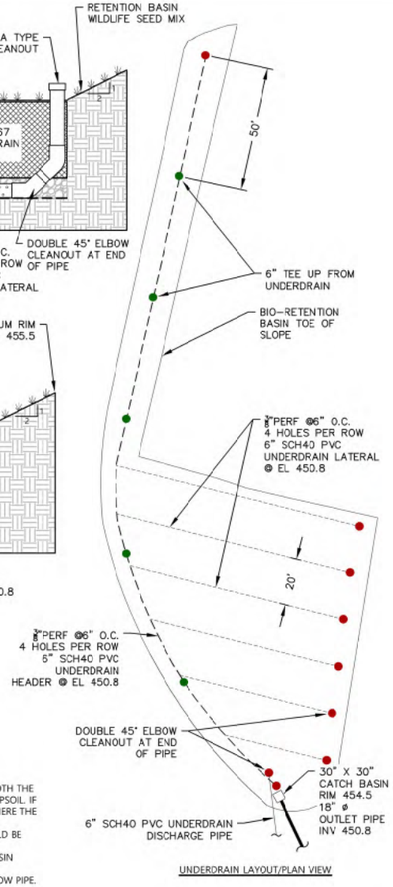
UNDERDRAIN HEADER PIPE AND CATCH BASIN SECTION

DETAIL NOTES:
1. PLANTING SOIL SHALL BE TESTED AND SHALL MEET THE FOLLOWING CRITERIA:

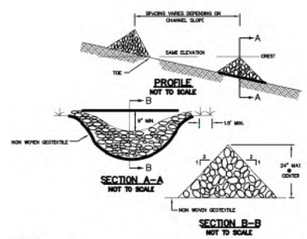
PH RANGE	5.2-7.0	SOLUBLE SALTS	NOT TO EXCEED 500PPM
ORGANIC MATTER	1.5 - 4%	CLAY	10 - 25%
MAGNESIUM	35 LB/AC	SILT	30 - 55%
PHOSPHORUS P_2O_5	75 LB/AC	SAND	35 - 60%
POTASSIUM K_2O	85 LB/AC		

2. ALL BIORETENTION AREAS SHALL HAVE A MINIMUM OF ONE TEST. EACH TEST SHALL CONSIST OF BOTH THE STANDARD SOIL TESTS (NOTE 1). A TEXTURAL ANALYSIS IS REQUIRED FOR THE SITE STOCKPILED TOPSOIL. IF TOPSOIL IS IMPORTED, THEN A TEXTURAL ANALYSIS SHALL BE PERFORMED FOR EACH LOCATION WHERE THE TOPSOIL WAS EXCAVATED.
3. COMPACTION OF BOTH THE BASE OF THE BIORETENTION AREA AND THE REQUIRED BACKFILL SHOULD BE MINIMIZED. USE EXCAVATION HOES WHEN POSSIBLE TO REMOVE ORIGINAL SOIL.
4. SEE APPENDIX C OF THE "NEW YORK STATE STORMWATER DESIGN MANUAL" FOR BIORETENTION BASIN SPECIFICATIONS.
5. ALL UNDERDRAIN PIPES TO HAVE A 3' (MIN) NONWOVEN GEOTEXTILE FABRIC PLACED DIRECTLY BELOW PIPE.

BIORETENTION BASIN DETAIL
NOT TO SCALE

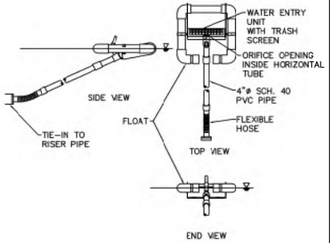


UNDERDRAIN LAYOUT/PLAN VIEW



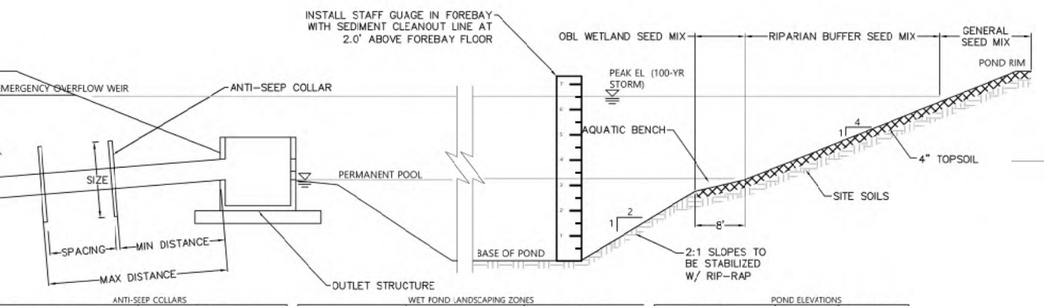
NOTES:
1. CHECK DAMS SHALL BE PLACED AT THE LOCATIONS SHOWN ON THE EROSION AND SEDIMENT CONTROL PLAN.
2. SET SPACING OF CHECK DAMS TO ASSUME THAT THE ELEVATIONS OF THE CREST OF THE DOWNSTREAM DAM IS AT THE SAME ELEVATION OF THE TOW OF THE UPSTREAM DAM.
3. EXTEND THE STONE A MINIMUM OF 1.5 FEET BEYOND THE DITCH BANKS TO PREVENT CUTTING AROUND THE DAM.
4. PROTECT THE CHANNEL DOWNSTREAM OF THE LOWEST CHECK DAM FROM SCOUR AND EROSION WITH STONE OR LINER AS APPROPRIATE.
5. ENSURE THAT CHANNEL APPURTENANCES SUCH AS CULVERT ENTRANCES BELOW CHECK DAMS ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONES.

STONE CHECK DAM DETAIL
NOT TO SCALE



	SEDIMENT BASIN 1	SEDIMENT BASIN 2
RISER TIE-IN	450.2'	447.0'
ORIFICE SIZE	2.0"	2.1"
4" PVC PIPE LENGTH	4.25' MIN	4' MIN

SEDIMENT BASIN SKIMMER
NTS



ANTI-SEEP COLLARS

	WET POND 1 (WEST POND)			WET POND 2 (EAST POND)		
#	SIZE (MIN)	SPACING	MAX DISTANCE	SIZE (MIN)	SPACING	MAX DISTANCE
1	4.5'	N.A.	18'	5.1'	N.A.	20'
2	3.0'	3.8'-10.5'	18'	3.3'	4.5'-12.6'	20'
3	2.4'	2.3'-6.3'	18'	2.6'	2.8'-7.7'	20'

NOTES:
1. FIRST COLLAR TC BE PLACED A MINIMUM DISTANCE WITHIN THE BERM SO THAT THE TOP OF THE COLLAR HAS A MINIMUM 1' OF COVER.

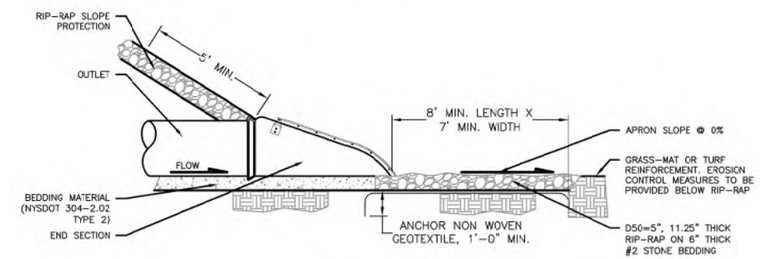
WET POND LANDSCAPING ZONES

ZONE	DEPTH RANGE	ELEVATION	
		WET POND 1	WET POND 2
DEEP WATER AREAS	18'-6'	446.2-448.7	443.0-445.5
SHALLOW WATER AREA	NORMAL POOL-18"	448.7-450.2	445.5-447.0
SHORELINE FRINGE	MAX POOL-NORMAL POOL	450.2-452.6	447.0-449.9

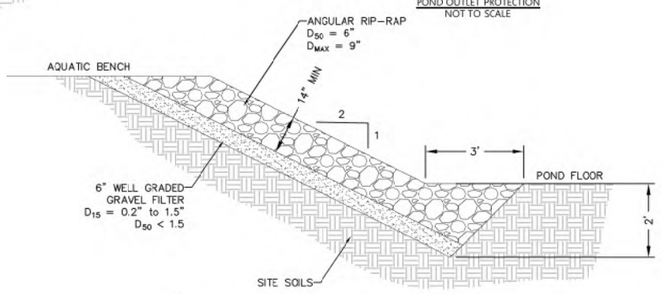
POND ELEVATIONS

ELEVATION	WET POND 1	WET POND 2
POND RIM	454.25	451.0
EMERGENCY OVERFLOW	453.25	450.0
PEAK (100-YR STORM)	452.8	450.0
PERMANENT POOL	450.2	447.0
EDGE OF AQUATIC BENCH	449.2	446.0
BASE OF POND	446.2	443.0

POND CROSS-SECTION
NOT TO SCALE

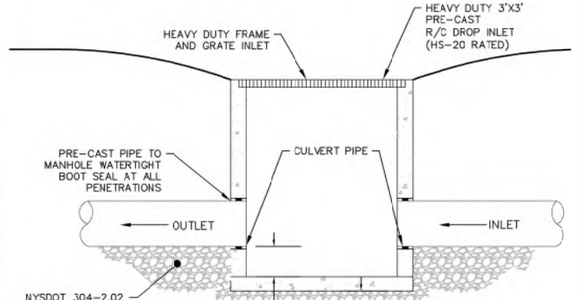


POND OUTLET PROTECTION
NOT TO SCALE



NOTES:
1. ALL 2:1 SLOPES WITHIN WET POND 1 AND WET POND 2 TO BE ARMORED WITH RIP-RAP TO PREVENT EROSION DUE TO SEEPAGE.

RIP-RAP ARMORED SLOPE PROTECTION
NOT TO SCALE



CATCH BASIN DETAIL
NOT TO SCALE

IT IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW, ARTICLE 145 SECTION 7209, FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER OR LAND SURVEYOR TO ALTER AN ITEM IN ANY WAY.

NO.	REVISION	BY	DATE

EnSol
661 Main St.
Niagara Falls, NY 14301
716.285.3920

CLIENT: DOM KAM LLC

SITE: DOM-MAR TRANSFER AND RECYCLING FACILITY
TOWN OF: WAWAYANDA
COUNTY OF: ORANGE
STATE OF: NEW YORK

PROJECT: NYSDEC SOLID WASTE MANAGEMENT FACILITY PERMIT APPLICATION

TITLE: STORMWATER DETAILS

ISSUE: REVIEW

DES:	DRN:	CHK:
BPB	BPB	DL

PROJECT NO: 029-A0001
DATE: MARCH 2022
GRAPHIC SCALE: NOTED
FILE: Sheet 7 - Stormwater Details.dwg

REV NO: 0
SHEET NO: 7

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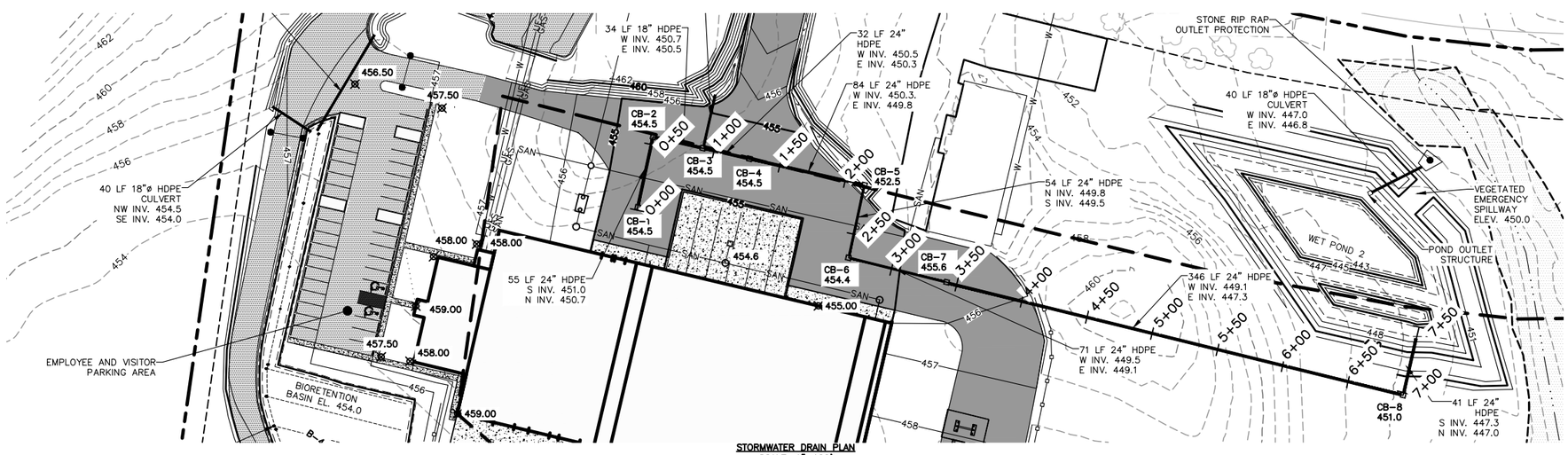
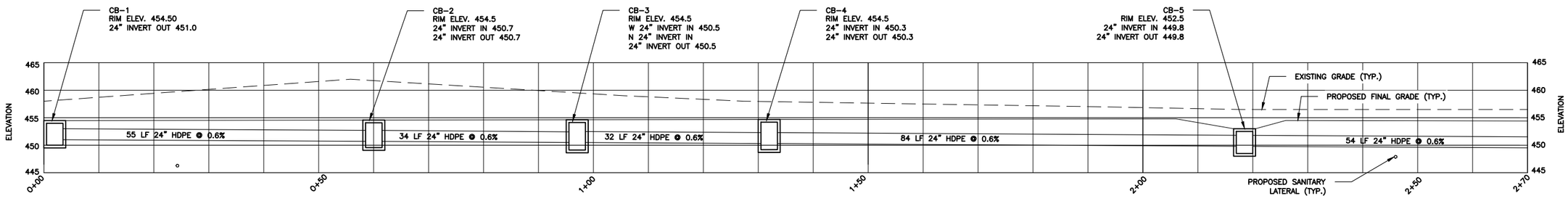
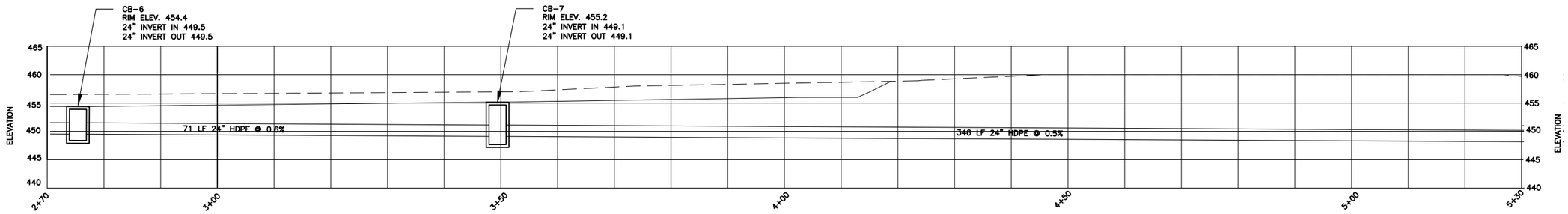


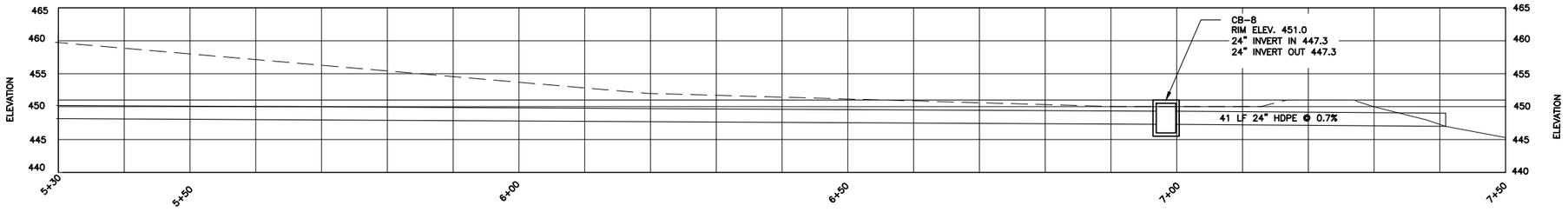
STORMWATER DRAIN PLAN
SCALE: 1"=100'



STORMWATER DRAIN PROFILE
STA. 0+00 TO 2+80
SCALE: 1"=20'



STORMWATER DRAIN PROFILE
STA. 2+80 TO 5+30
SCALE: 1"=20'



STORMWATER DRAIN PROFILE
STA. 5+30 TO 7+50
SCALE: 1"=20'

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EnSol
661 Main St.
Niagara Falls, NY 14301
716.285.3920

DAVID A. LENOX, P.E.
NYSPE LICENSE NO. 093384

CLIENT:
DOM KAM LLC

SITE:
DOM-MAR TRANSFER AND RECYCLING FACILITY
TOWN OF WAWAYANDA
COUNTY OF ORANGE
STATE OF NEW YORK

PROJECT:
NYSDEC SOLID WASTE MANAGEMENT FACILITY PERMIT APPLICATION

TITLE:
STORM WATER DRAIN PROFILE

ISSUE:
REVIEW

DES:	DRN:	CHK:
DL	SJD	DL

PROJECT NO: 029-A0001
DATE: MARCH 2022
GRAPHIC SCALE: NOTED
FILE: Sheet 2 And 8 - Site Plan REV2.dwg

REV NO: 0
SHEET NO: 8

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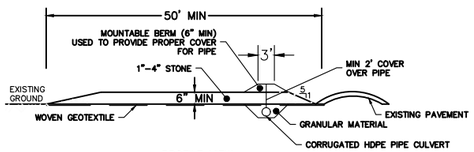
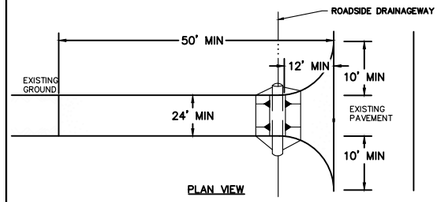


PROFILE VIEW



PLAN VIEW

DETAIL NOTES:

1. GRAVEL DRIVE 1–4" CLEAN STONE OR RECLAIMED CONCRETE EQUIVALENT.
2. WOVEN GEOTEXTILE TO BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING STONE.
3. ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE.
4. STABILIZED CONSTRUCTION ENTRANCE SHALL BE MAINTAINED IN GOOD WORKING ORDER THROUGHOUT CONSTRUCTION TO PREVENT TRACKING OF SOILS & SEDIMENT ONTO PUBLIC RIGHT–OF–WAY. REMOVE ALL SOILS & SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHT–OF–WAY IMMEDIATELY.
5. INSPECT ENTRANCE AFTER EACH RAIN EVENT AND REPAIR AS NECESSARY.
6. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAP.

STABILIZED CONSTRUCTION ENTRANCE
NOT TO SCALE

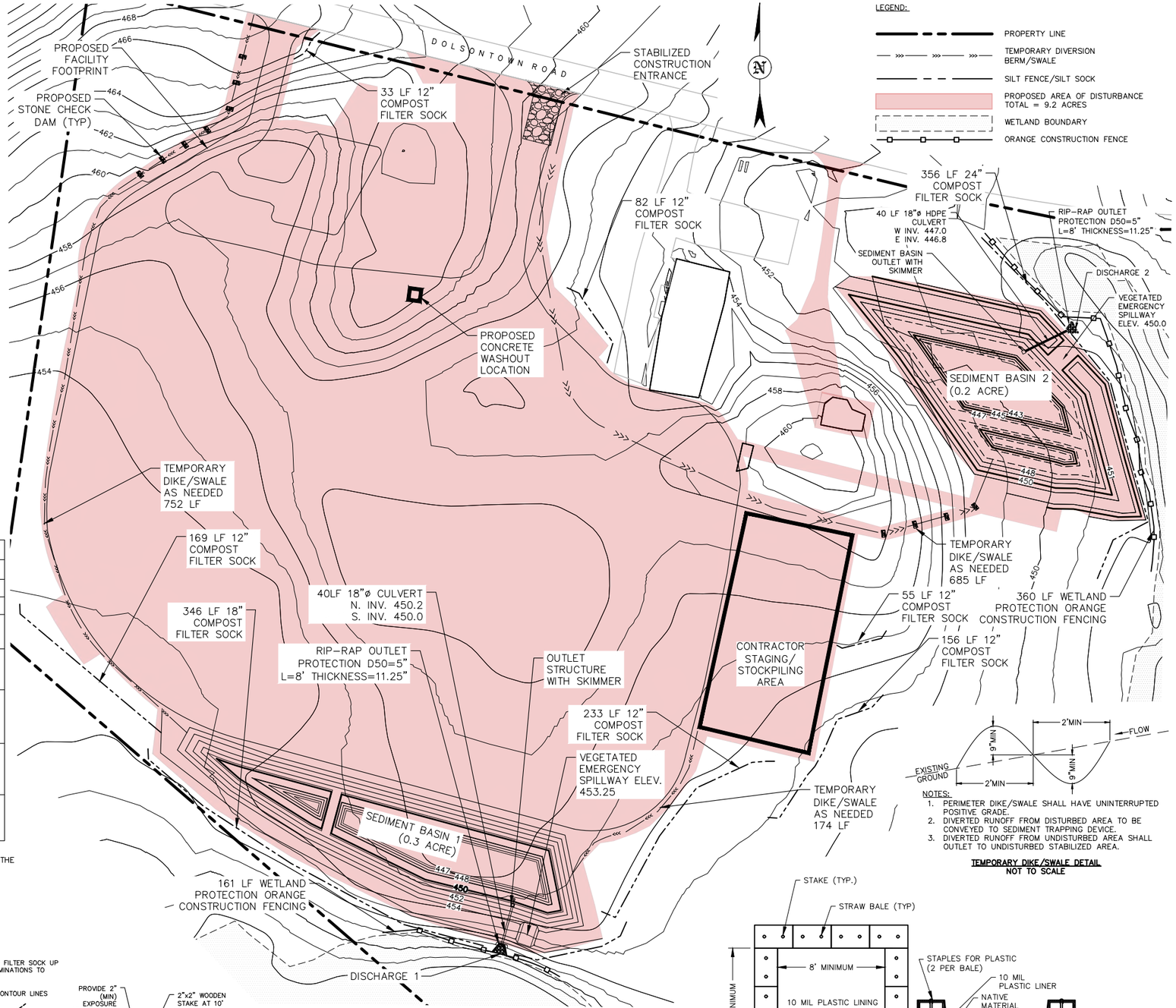
SOIL RESTORATION REQUIREMENT		
TYPE OF SOIL DISTURBANCE	**SOIL RESTORATION REQUIREMENT**	**COMMENTS/EXAMPLES**
NO SOIL DISTURBANCE	RESTORATION NOT PERMITTED	PRESERVATION OF NATURAL FEATURES
MINIMAL SOIL DISTURBANCE	RESTORATION NOT REQUIRED	CLEARING AND GRUBBING
AREAS WHERE TOPSOIL IS STRIPPED ONLY – NO CHANGE IN GRADE	HYDROLOGIC SOIL GROUP C&D AERATE[1] AND APPLY 6 INCHES OF TOPSOIL	PROTECT AREA FROM ANY ONGOING CONSTRUCTION ACTIVITIES
AREAS OF CUT OR FILL	HYDROLOGIC SOIL GROUP C&D APPLY FULL SOIL RESTORATION[2]	
HEAVY TRAFFIC AREAS ON SITE (ESPECIALLY IN A ZONE 5–25 FEET AROUND BUILDINGS BUT NOT WITHIN A 5 FOOT PERIMETER AROUND FOUNDATION WALLS	APPLY FULL SOIL RESTORATION (DECOMPACTION AND COMPOST ENHANCEMENT)	
AREAS WHERE RUNOFF REDUCTION AND/OR INFILTRATION FRACTICES ARE APPLIED	RESTORATION NOT REQUIRED, BUT MAY BE APPLIED TO ENHANCE THE REDUCTION SPECIFIED FOR APPROPRIATE PRACTICES	KEEP CONSTRUCTION EQUIPMENT FROM CROSSING THESE AREAS. TO PROTECT NEWLY INSTALLED PRACTICE FROM ANY ONGOING CONSTRUCTION ACTIVITIES CONSTRUCT A SINGLE PHASE OPERATION FENCE AREA
REDEVELOPMENT PROJECTS	SOIL RESTORATION IS REQUIRED ON REDEVELOPMENT PROJECTS IN AREAS WHERE EXISTING IMPERVIOUS AREA WILL BE CONVERTED TO PERVIOUS AREA	

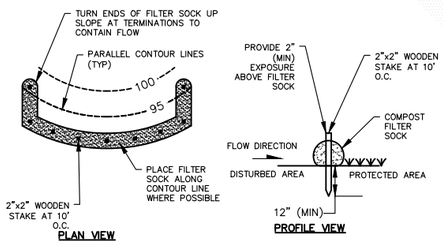
NOTES:
1. AERATION INCLUDE THE USE OF MACHINES SUCH AS TRACTOR–DRAWIN IMPLEMENTS WITH COULTERS MAKING A NARROW SLIT IN THE SOIL, A ROLLER WITH MANY SPIKES MAKING INDENTATIONS IN THE SOIL, OR PRONGS WHICH FUNCTION LIKE A MINI–SUBSOILER.
2. PER "DEEP RIPPING AND DE–COMPACTION, DEC 2008".

TABLE 5.3 FROM NEW YORK STATE STORMWATER DESIGN MANUAL 2015

GENERAL NOTES:

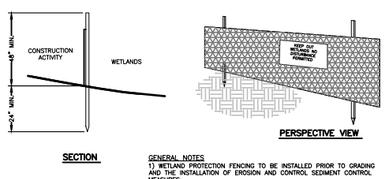
1. CONTRACTOR TO VERIFY ALL FIELD CONDITIONS AND UTILITY LOCATIONS PRIOR TO START OF CONSTRUCTION.
2. INSTALL STABILIZED CONSTRUCTION ENTRANCE AND PERIMETER EROSION AND SEDIMENT CONTROL FEATURES PRIOR TO COMMENCING SITE WORK.
3. ADDITIONAL COMPOST FILTER SOCK MAY BE REQUIRED TO PREVENT SILT LADEN RUNOFF FROM FLOWING ONTO PAVED AREAS AND/OR ADJACENT PROPERTIES.
4. MAINTAIN EROSION AND SEDIMENT CONTROL FEATURES THROUGHOUT CONSTRUCTION. REMOVE ACCUMULATED SILT AND SEDIMENT AS NEEDED. REPAIR OR REPLACE ALL DAMAGED COMPOST FILTER SOCK IMMEDIATELY.
5. SEDIMENT BASIN PERMANENT POOL DEWATERING TO BE DONE VIA PUMP TO STABILIZED DISCHARGE AREA UTILIZING SILT BAG OR APPROVED EQUAL AS NEEDED.
6. IMMEDIATELY SEED ALL DESIGNATED GRASS AREAS THAT HAVE BEEN COMPLETED THROUGH FINAL GRADE.
7. CONTRACTOR STAGING AREA, STOCKPILE AREAS, AND CONCRETE WASHOUT TO BE LOCATED PER OWNER APPROVAL. PROVIDE SILT CONTROL FEATURES AROUND ALL TEMPORARY STOCKPILES. SEED AND MULCH ALL STOCKPILES THAT WILL REMAIN INACTIVE FOR LONGER THAN 7 DAYS. CONCRETE WASHOUT TO BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH NYSDEC STANDARD AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL.
8. MAINTAIN EROSION CONTROL FEATURES UNTIL ADEQUATE FINAL VEGETATION HAS BEEN ESTABLISHED (80% COVERAGE AT 2–INCH STAND OF GRASS). SEDIMENT BASIN OUTLET STRUCTURES TO BE CONVERTED TO FINAL WETPOND OUTLET CONFIGURATION UPON FINAL STABILIZATION.





PLAN VIEW — PROFILE VIEW

COMPOST FILTER SOCK INSTALLATION DETAILS
NOT TO SCALE



SECTION

PERSPECTIVE VIEW

GENERAL NOTES
1) WETLAND PROTECTION FENCING TO BE INSTALLED PRIOR TO GRADING AND THE INSTALLATION OF EROSION AND CONTROL SEDIMENT CONTROL MEASURES.

2) ALL PROTECTION FENCING IS TO REMAIN IN PLACE UNTIL CONSTRUCTION ACTIVITIES ARE COMPLETE AND SITE STABILIZATION IS ACHIEVED

WETLAND PROTECTION FENCE DETAIL
NOT TO SCALE

NOTES:
1. PERIMETER DIKE/SWALE SHALL HAVE UNINTERRUPTED POSITIVE GRADE.
2. DIVERTED RUNOFF FROM DISTURBED AREA TO BE CONVEYED TO SEDIMENT TRAPPING DEVICE.
3. DIVERTED RUNOFF FROM UNDISTURBED AREA SHALL OUTLET TO UNDISTURBED STABILIZED AREA.

TEMPORARY DIKE/SWALE DETAIL
NOT TO SCALE

NOTES:
1. WASHOUT FACILITY TO BE SIZED BY CONTRACTOR TO CONTAIN SOLIDS, WASH WATER, AND RAINFALL AND SIZED TO ALLOW THE EVAPORATION OF THE WASH WATER AND RAINFALL.
2. WASH WATER SHALL BE ESTIMATED AT 7 GALLONS PER CHUTE AND 50 GALLONS PER HOPPER OF CONCRETE PUMP TRUCK AND/OR DISCHARGING DRUM.
3. MINIMUM SIZE 8'Wx8'Lx2'H.
4. LOCATE MINIMUM 100' FROM SWALES, STORM INLETS, AND WETLAND.

CONCRETE WASHOUT DETAIL
NOT TO SCALE

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NO.	BY	DATE	REVISION

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661 Main St.
Niagara Falls, NY 14301
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DAVID A. LENOX, P.E.
NYSPE LICENSE NO. 093384

CLIENT: DOM KAM LLC.

SITE: DOM-MAR TRANSFER AND RECYCLING FACILITY
CITY OF WAWAYANDA
COUNTY OF ORANGE
STATE OF NEW YORK

PROJECT: NYSDEC SOLID WASTE MANAGEMENT FACILITY PERMIT APPLICATION

TITLE: EROSION AND SEDIMENT CONTROL PLAN

ISSUE: REVIEW

DES:	DRN:	CHK:
BPB	BPB	DAL

PROJECT NO: 20-0062
DATE: MARCH 2022
GRAPHIC SCALE: 0' 60' 120'
FILE: Sheet 9 - ESC Plan.dwg
REV NO: 0
SHEET NO: 9

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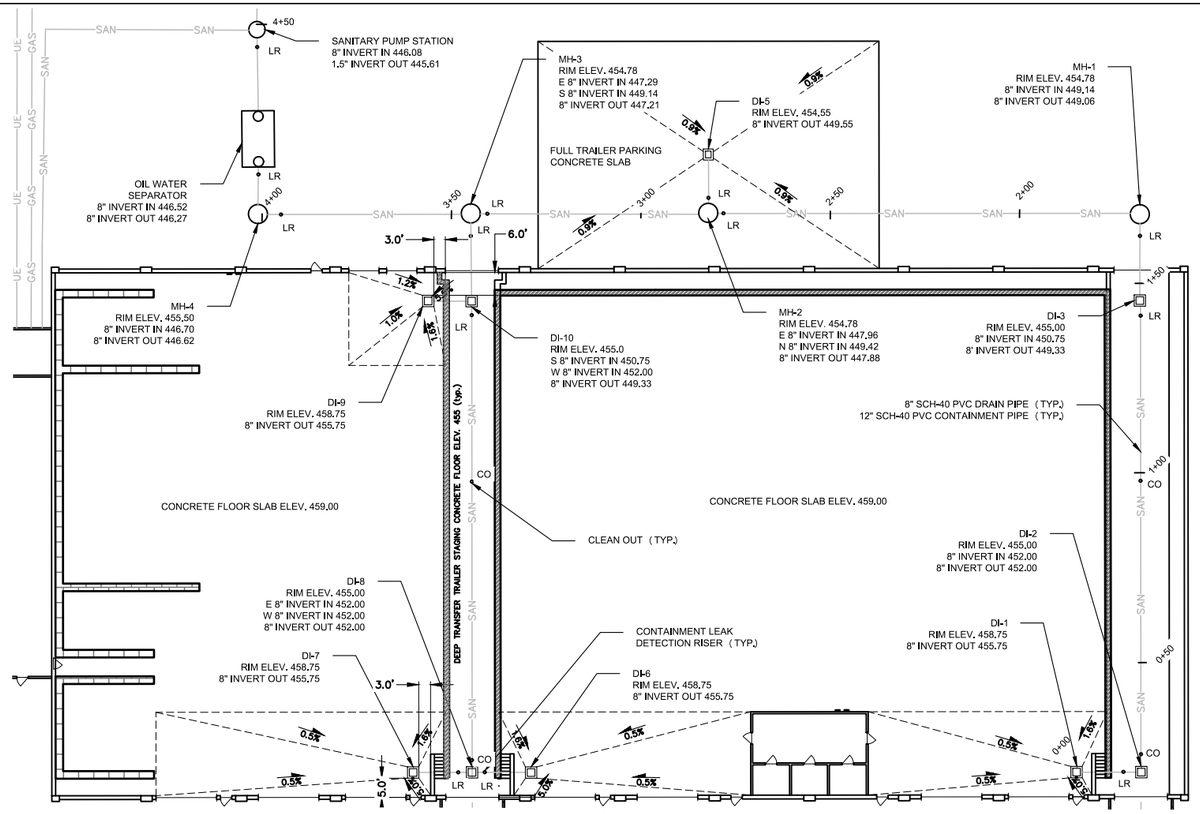
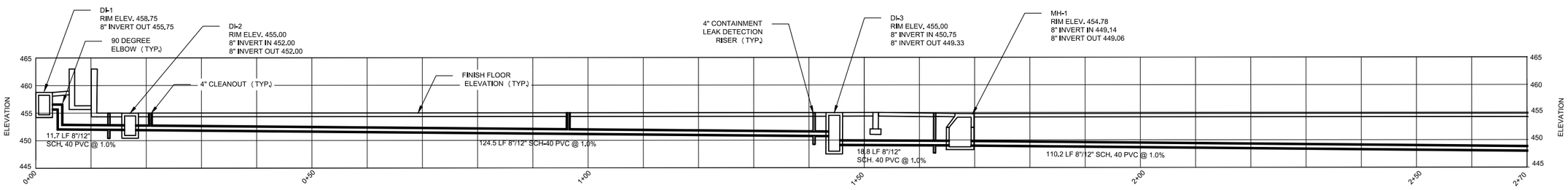
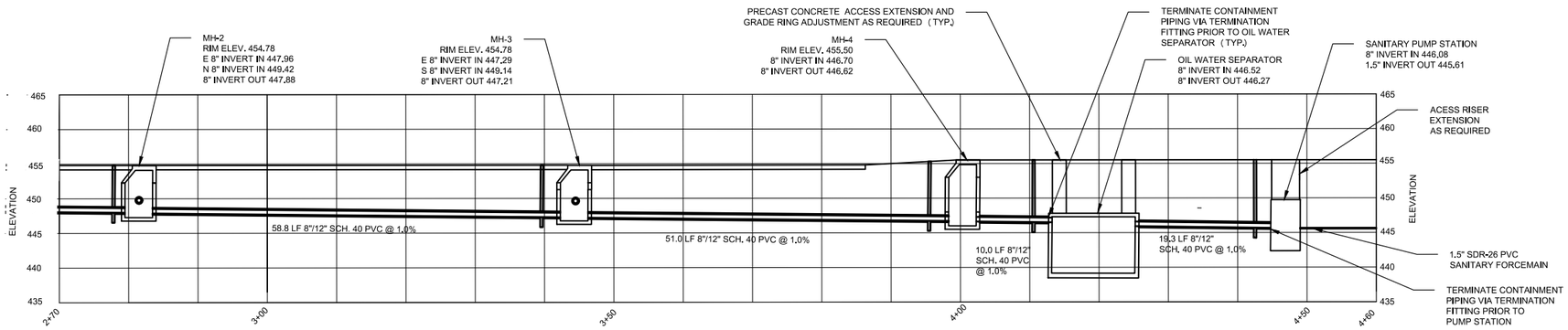


FLOOR DRAIN PLAN
SCALE: 1"=30'



FLOOR DRAIN PROFILE
STA. 0+00 TO 2+70
SCALE: 1"=20'



FLOOR DRAIN PROFILE
STA. 2+70 TO 4+60
SCALE: 1"=20'

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TITLE:
FLOOR DRAIN PROFILE

ISSUE:
REVIEW

DES:	DRN:	CHK:
DAL	SJD	DAL

PROJECT NO: 029-A0001
DATE: MARCH 2022
GRAPHIC SCALE: NOTED
FILE: Sheet 3 And 10 - Floor Plan Rev4.dwg
REV NO: 0
SHEET NO: 10

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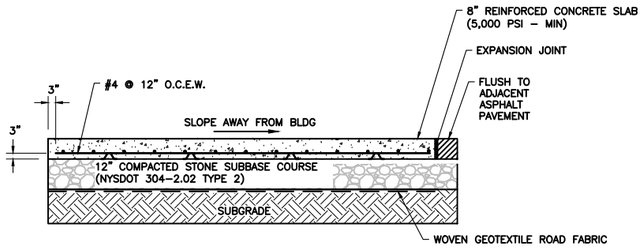
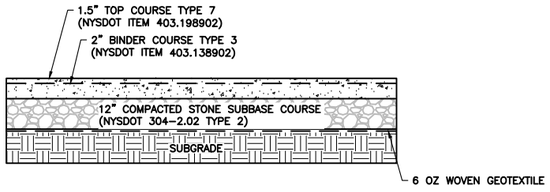
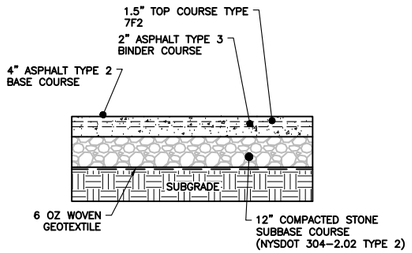


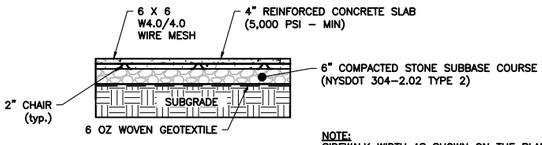
CONCRETE APRON/PAD DETAIL
SCALE: NOT TO SCALE



STANDARD DUTY ASPHLAT DETAIL
SCALE: NOT TO SCALE

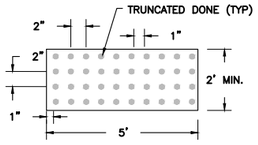


HEAVY DUTY ASPHALT DETAIL
SCALE: NOT TO SCALE



NOTE:
SIDEWALK WIDTH AS SHOWN ON THE PLANS.

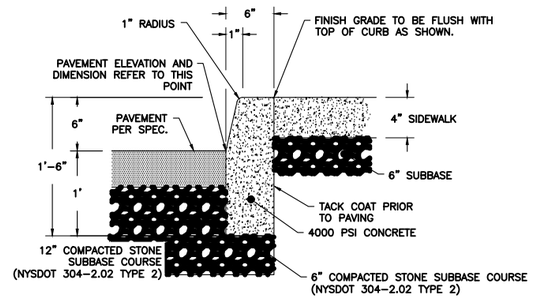
CONCRETE SIDEWALK DETAIL
SCALE: NOT TO SCALE



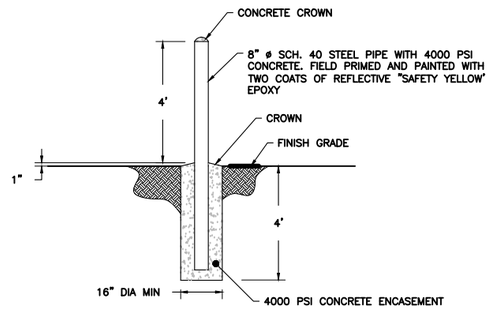
DETECTABLE WARNING SURFACE DETAIL
SCALE: NOT TO SCALE

NOTES:

1. CURB RAMPS MUST CONTAIN A DETECTABLE WARNING SURFACE THAT CONSISTS OF RAISED TRUNCATED DOMES COMPLYING WITH 2010 ADA STANDARDS SECTION 705 (OR MOST CURRENT).
2. FURNISH AND INSTALL AN APPROVED DARK BROWN OR DARK RED DETECTABLE WARNING SURFACE MATERIAL ADJACENT TO UNCOLORED CONCRETE, UNLESS SPECIFIED ELSEWHERE IN THE PLANS.
3. DETECTABLE WARNING SURFACES MUST BE SLIP RESISTANT AND NOT ALLOW WATER TO ACCUMULATE.
4. DETECTABLE WARNING SURFACES SHALL BE A MINIMUM OF 24" IN DEPTH IN THE DIRECTION OF PEDESTRIAN TRAVEL, AND EXTEND THE FULL WIDTH OF THE CURB RAMP OR LANDING WHERE THE PEDESTRIAN ACCESS ROUTE ENTERS THE STREET.
5. DETECTABLE WARNING SURFACES SHALL BE LOCATED SO THAT THE EDGE NEAREST THE CURB LINE IS AT THE BACK OF THE CURB. ALIGN THE ROWS OF DOMES TO BE PERPENDICULAR TO THE GRADE BREAK BETWEEN THE RAMP RUN AND THE STREET. DETECTABLE WARNING SURFACES MAY BE CURVED ALONG THE CORNER RADIUS.
6. LAY FULL–SIZE UNITS FIRST FOLLOWED BY CLOSURE UNITS CONSISTING OF AT LEAST 25 PERCENT OF A FULL UNIT. CUT DETECTABLE WARNING PAVER UNITS USING A POWER SAW.



CONCRETE CURB DETAIL
SCALE: NOT TO SCALE



BOLLARD DETAIL
SCALE: NOT TO SCALE

DOM-MAR TRANSFER AND
RECYCLING STATION

HOURS OF OPERATION
MON - FRI 4:00 AM TO 7:00 PM
SAT 5:00 AM TO 4:00 PM

ACCEPTABLE WASTE
MUNICIPAL SOLID WASTE (MSW)
CONSTRUCTION AND DEMOLITION DEBRIS (C&D)
INDUSTRIAL WASTE (IW)
OLD CORRUGATED CARDBOARD (OCC)

UNACCEPTABLE WASTE
MEDICAL OR HAZARDOUS WASTES, FRIABLE ASBESTOS, LIQUIDS OR SEPTAGE, OR OTHER PART 360 UNAUTHORIZED MATERIALS.

ALL LOADS MUST BE TARPED

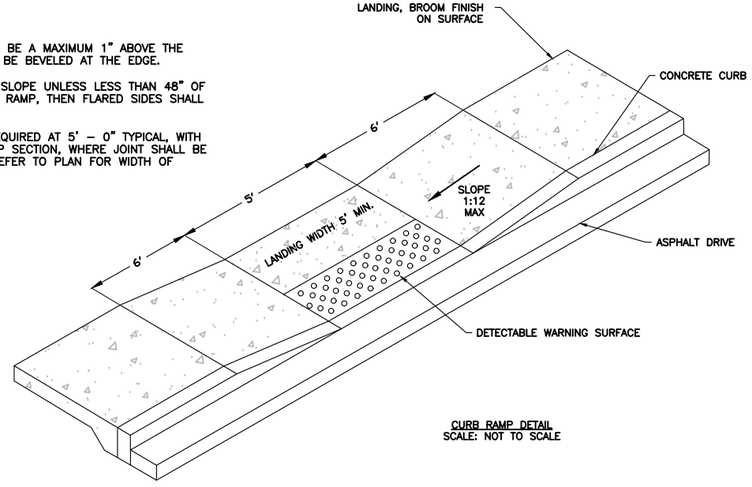
NYSDEC PERMIT No. XXXXXX

COMPLAINT NUMBER: 555-555-5555

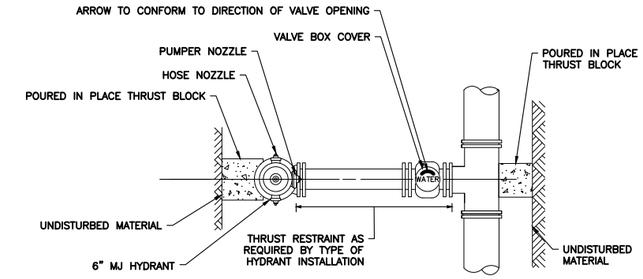
ENTRANCE SIGN DETAIL
SCALE: NOT TO SCALE

SIDEWALK & CURB NOTES:

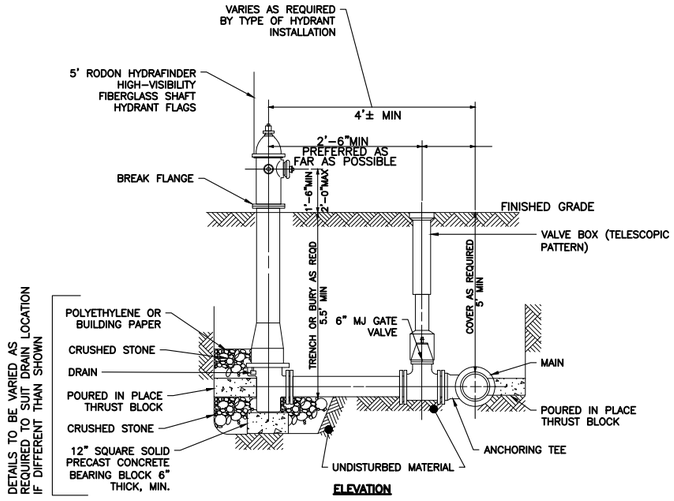
1. BOTTOM OF CURB RAMP SHALL BE A MAXIMUM 1" ABOVE THE PAVEMENT. TRANSITION SHALL BE BEVELED AT THE EDGE.
2. FLARED SIDES SHALL BE 1:10 SLOPE UNLESS LESS THAN 48" OF SIDEWALK IS PROVIDED BEHIND RAMP, THEN FLARED SIDES SHALL BE 1:12 SLOPE.
3. TROWELED CONTROL JOINTS REQUIRED AT 5' – 0" TYPICAL, WITH THE EXPECTION OF CURB RAMP SECTION, WHERE JOINT SHALL BE AT LIMIT OF SLOPED AREA. REFER TO PLAN FOR WIDTH OF SIDEWALK.



CURB RAMP DETAIL
SCALE: NOT TO SCALE



PLAN

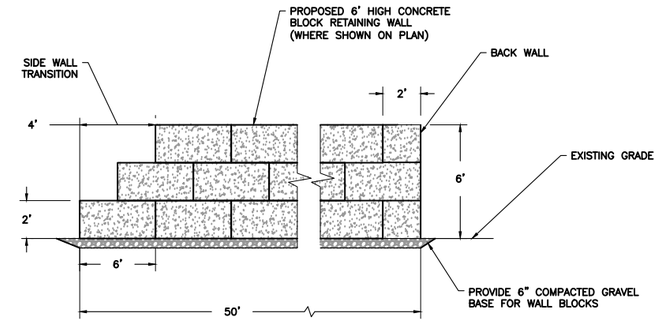


ELEVATION

NOTE:

HYDRANT WEEP HOLE MUST BE TAGGED AND PLUGGED IF GROUNDWATER IS LESS THAN OR EQUAL TO 7 FEET BELOW THE GROUND SURFACE. HYDRANTS WITH PLUGGED WEEP HOLE DRAINS SHALL BE TAGGED WITH A BRASS TAG INDICATING "WEEP HOLES ARE PLUGGED".

HYDRANT DETAIL
SCALE: NOT TO SCALE



CONCRETE, ASPHALT, ROCK, BRICK AND SOIL
MATERIAL OUTDOOR STORAGE BUNKER DETAIL
SCALE: NOT TO SCALE

IT IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW, ARTICLE 145 SECTION 7209, FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER OR LAND SURVEYOR TO ALTER AN ITEM IN ANY WAY.

NO.	REVISION	BY	DATE

EnSol
661 Main St.
Niagara Falls, NY 14301
716.285.3920

DAVID A. LENOX, P.E.
NYSPE LICENSE NO. 093384

CLIENT:
DOM KAM LLC

SITE:
DOM-MAR TRANSFER AND RECYCLING FACILITY
CITY OF WAWAYANDA
COUNTY OF ORANGE
STATE OF NEW YORK

PROJECT:
NYSDEC SOLID WASTE MANAGEMENT FACILITY PERMIT APPLICATION

TITLE:
MISCELLANEOUS DETAILS

ISSUE:
REVIEW

DES:	DRN:	CHK:
DAL	SJD	DAL

PROJECT NO: 029-A0001
DATE: MARCH 2022
GRAPHIC SCALE: NOTED

FILE:
Sheet 5 And 11 - Leachate Collection And Misc. Details.dwg

REV NO: 0
SHEET NO: 11

Attachment 1

EnSol, Inc.

ENGINEERING + ENVIRONMENTAL

Architectural Drawings Set
(full size hard copies attached separately)

DOM-MAR TRANSFER & RECYCLING FACILITY

DOLSONTOWN RD.
TOWN OF WAWAYANDA, NY

INDEX TO DRAWINGS

NOTICE

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NOT FOR CONSTRUCTION

DOM MAR TRANSFER
DOLSONTOWN ROAD
TOWN OF WAWAYANDA, NEW YORK

COVER SHEET

MUSSACHIO ARCHITECTS
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www.MussachioArchitects.com
(716) 631-9949 TEL
(716) 631-0521 FAX

SHEET G-001

CHECKED BY

DRAWN BY RM

JOB . 221022

DATE 03-14-22

REVISED

REVISION DESCRIPTION

ARCHITECTURAL:
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MECHANICAL:
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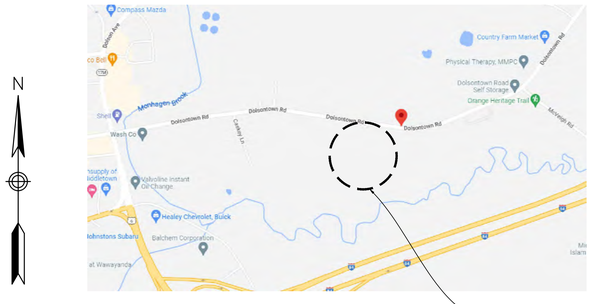
CLARENCE, NY 14031



LOCATION MAP
SCALE : N.T.S.

PROJECT DESCRIPTION

PROJECT CONSISTS OF A NEW 42,000 S.F. TRANSFER & RECYCLING FACILITY (F-1 OCCUPANCY) WITH A 2 STORY 6,650 S.F. ADMINISTRATIVE OFFICE BUILDING (B OCCUPANCY). BUILDINGS TO BE PRE-ENGINEERED METAL BUILDING WITH METAL PANEL EXTERIOR ON THE TRANSFER BUILDING AND E.I.F.S ON THE OFFICE BUILDING. BOTH BUILDINGS TO BE SPRINKLERED.

PROGRAM AREA SUMMARY

TRANSFER & RECYCLING FACILITY	=	42,000
1ST FLOOR OFFICE	=	3,446
2ND FLOOR OFFICE	=	3,204
TOTAL AREA		48,650 S.F.

GRAPHIC SYMBOLS

- SPECIAL INFORMATION (flat 1000)
- WORK POINT (ELEV. FIN. FLOOR, ROOF, ETC.) (FIRST FLR. (100'-0"))
- COLUMN NO. (A)
- CENTER LINE
- MATCH LINE
- WINDOW TYPE/ LOUVER TYPE (XE)
- DOOR NUMBER (1)
- COLUMN REFER. GRID (1, A)
- WALL TYPE
- REVISION (1)
- CEILING HEIGHT
- ROOM NAME (ROOM NAME)
- ROOM NO. (222)
- NORTH ARROW (N)
- ELEV. NUMBER / SHEET ELEV. LOCATED ON / INTERIOR ELEVATIONS / INDICATES NO VIEW SHOWN (1, A-01, 3)
- NO. OF SECTION / BUILDING CROSS SECTIONS / WALL SECTIONS, DETAIL SECTIONS / SHEET LOCATED ON (1, A-01)
- NO. OF SECTION / PLAN DETAILS / SHEET LOCATED ON (1, A-01)
- REVISIONS PLACE W/ DATE IN REVISED PORTION OF SHEET (#1-07)
- NEW DOOR
- EXISTING DOOR
- DOOR REMOVED
- SEMI RECESSED FIRE EXTINGUISHER & CABINET (CABINET REQUIRED AT ALL GUEST ACCESSIBLE AREAS REGARDLESS OF SYMBOL)
- FIRE EXTINGUISHER

MATERIALS SYMBOLS

- EARTH/COMPACT FILL
- ROCK
- BRICK(Plan/Section)
- METAL(S/Section)
- PLYWOOD
- BATT/LOOSE INSULATION
- GLASS(Elevation)
- ACOUSTIC CLG. TILE (Section)
- POROUS FILL/GRAVEL
- CONCRETE (Plans/Sections)
- BRICK(Elevation)
- WOOD OR METAL (Plan)
- WOOD, FINISHED
- GLASS BLOCK
- CERAMIC TILE(ELEVATION)
- SPRAY FIREPROOF (around member)
- SAND/MORTAR PLASTER(Section)
- CONCRETE BLOCK
- MASONRY STONE
- WOOD BLOCKING (Sections)
- RIGID INSULATION
- GLASS(Section)
- CARPET
- PLASTER/PLAS. BD. EIFS(Elevation)

ABBREVIATIONS

APF	ABOVE FINISHED FLOOR
AD	ACCESS DOOR
ACT	ACOUSTICAL TILE
ADD	ADDENDUM
ADJ	ADJACENT
A/C	AIR CONDITION
ALT	ALTERNATE
ALUM	ALUMINUM
AB	ANCHOR BOLT
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL
ATTN	ATTENUATION
AUTO	AUTOMATIC
BM	BEAM
BRG	BEARING
BIT	BITUMINOUS
BLK	BLOCK
BLKG	BLOCKING
BD	BOARD
BOT	BOTTOM
BRK	BRICK
BC	BRICK COURSE
BLDG	BUILDING
BUR	BUILT-UP ROOFING
BEJ	BRICK EXPANSION JOINT
CAB	CABINET
CH	CABINET HEATER
CPT	CARPETING
CLG	CEILING
CTR	CENTER
℄	CENTERLINE
CT	CERAMIC TILE
CMU	CONCRETE MASONRY UNIT
CLR	CLEAR
COL	COLUMN
CH	COLD WATER
CMT	CERAMIC MOSAIC TILE
CONC	CONCRETE
CONSTR	CONSTRUCTION
CONT	CONTINUOUS
CLL	CONTRACT LIMIT LINE
CNTCR	CONTRACTOR
CJ	CONTROL JOINT
CG	CORNER GUARD
CS	COUNTER
CKTR	COUNTER SINK
CRS	COARSE
DEMO	DEMOLISH/DEMOLISION
DET	DETAIL
DIAG	DIAGONAL
DIA/Ø	DIAMETER
DIM	DIMENSION
DO	DITTO
DR	DOOR
DBL	DOUBLE
DN	DOWN
DWG	DRAWING
EA	EACH
ELEC	ELECTRIC (AL)
EWC	ELECTRIC WATER COOLER
EL	ELEVATION
ELEV	ELEVATOR
EMERG	EMERGENCY
ENCL	ENCLOSURE
EQ	EQUAL
EQUIP	EQUIPMENT
EO	EQUIPMENT BY OWNER
EXF	EXHAUST FAN
EXIST	EXISTING
EXP	EXPANSION
EXP.J	EXPANSION JOINT
EXPED	EXPOSED
EXTN	EXTENSION
EXT	EXTERIOR
FCU	FAN COIL UNIT
FIN	FINISH (ED)
FA	FIRE ALARM
FE	FIRE EXTINGUISHER
FP	FIRE PROOFING
FR	FIRE RESISTANT
FLR	FLOOR
FD	FLOOR DRAIN
FL	FLUSH
FT	FOOT
FTG	FOOTING
FOTNTND	FOUNDATION
FO	FRAME OPENING
FBO/OWNR	FURNISHED BY OWNER
FUR	FURNISHED BY CONTRACTOR, INSTALLED BY CONTRACTOR, FURRING
GALV	GALVANIZED
GA	GAGE
GC	GENERAL CONTRACTOR
GL	GLASS
GB	GRAB BAR
GWB	GYPSUM WALL BOARD
HDCP	HANDICAP
HDW	HARDWARE
HDWD	HARDWOOD
HTR.	HEATER
HTG	HEATING
HVAC	HEATING, VENTILATION AND AIR CONDITIONING
HGT	HEIGHT
HM	HOLLOW METAL
HORIZ	HORIZONTAL
HB	HOSE BIB
HC	HOSE CABINET
HW	HOT WATER
HR	HOUR
ID	INSIDE DIAMETER
IBC	INSTALLED BY CONTRACTOR
INSUL	INSULATED/ZONE
INSUL	INSULATED GLASS
INT	INTERIOR
INV	INVERT
JAN	JANITOR
JT	JOINT
LAM	LAMINATED
LAV	LAVATORY
LH	LEFT HAND
LGTH	LENTH
LGT	LIGHT
LTHT	LIGHT HEIGHT
LF	LINEAR FEET
LL	LIVE LOAD
LOC	LOCATION
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LP	LOW POINT
MH	MANHOLE
MFR	MANUFACTURER
MAS	MASONRY
MO	MASONRY OPENING
MATL	MATERIAL
MAX	MAXIMUM
MECH	MECHANICAL
MTLS	METAL/METALS
MTP	METAL TOILET PARTITION
MIN	MINIMUM
MISC	MISCELLANEOUS
MOD	MODULAR
MHP	MOP HOPPER
NAT	NATURAL
NRC	NOISE REDUCTION COEIF
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
NOM	NOMINAL
NO#	NUMBER
O.C.	ON CENTER
OPNG	OPENING
OPP	OPPOSITE
OPH	OPPOSITE HAND
OD	OUTSIDE DIAMETER
OA	OVERALL
OH	OVERHEAD
PNT	PAINT(ED)
PNL	PANEL
PBD	PARTICLE BOARD
PLAS	PLASTER
PLAM	PLASTIC LAMINATE
PL	PLATE
PLGL	PLATE GLASS
PLMB/PLUM	PLUMBING
PLYWD	PLYWOOD
PTS	POINT/POINTS
POL	POLISHED
P.P.GL	POLISHED PLATE GLASS
PV.C/PVC	POLYVINYL CHLORIDE
PCF	POUNDS PER CUFT.
PSI	POUNDS PER SQ.INCH
PLF	POUNDS PER LINEAR FT.
PSF	POUNDS PER SQFT.
PCP	PRECAST CONCRETE PANEL
PREFAB	PREFABRICATED
PREF	PREFINISHED
PROJ	PROJECTION
PL	PROPERTY LINE
QTY	QUANTITY
RAD	RADIUS
RWL	RAIN WATER LEADER
REC/PT	RECEPTICAL/ELECTRIC
REF	REFERENCE
REINF	REINFORCED(EVING)
REQ'D, REQ	REQUIRED
RESIL	RESILIENT
RCP	REINF.CONC.PIPE
RET	RETURN
RA	RETURN AIR
REV	REVISION, REVISED
RH	RIGHT HAND
ROW	RIGHT OF WAY
R	RISER
RD	ROOF DRAIN
RM	ROOM
RO	ROUGH OPENING
SS	STORM SEWER
SAN	SANITARY SEWER
SECT	SECTION
SS	SERVICE SINK
SHT	SHEET
SIM	SIMILAR
SPKR	SPEAKER
SPEC	SPECIFICATIONS
SQ	SQUARE
S.ST	STAINLESS STEEL
SP	STAND PIPE
STD	STANDARD
STL	STEEL
SD	STORM DRAIN
SQT	STRUCTURALIZED TILE
STRUCTL	STRUCTURAL
SUSP	SUSPENDED
SW	SWITCH
SHEATH	SWITCHBOARD
SYM	SYMMETRICAL
TB	TACKBOARD
TEL	TELEPHONE
TV	TELEVISION
TEMP	TEMPERATURE, TEMPORARY
TEMP.GL	TEMPERED GLASS
TEX	TEXTURE
THK	THICK(NESS)
TOIL	TOILET
T&G	TONGUE AND GROOVE
TOS	TOP OF STEEL
TYP	TYPICAL
T.O.W	TOP OF WALL
UC	UNDERCUT
U/G	UNDERGROUND
UH	UNIT HEATER
UV	UNIT VENTILATOR, ULTRA VIOLET
UR	URINAL
VTR	VENT THRU ROOF
VENT	VENTILATOR
VERT	VERTICAL
VEST	VESTIBULE
VIF	VERIFY IN FIELD
VCT	VINYL COMPOSITION TILE
VWC	VINYL WALL COVERING
WDCT	WAINSCOT
WR	WATER CLOSET
WC	WATER REPELLANT
WS	WEATHER STRIP
WGT	WEIGHT
WHF	WELDED WIRE FABRIC
WGL	WIRE GLASS
W/	WITH
W/O	WITHOUT
WD	WOOD
YD	YARD

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GENERAL NOTES:

1. THE GENERAL CONTRACTOR AND/OR SUBCONTRACTORS SHALL VISIT THE PROJECT SITE OF THE PROPOSED WORK PRIOR TO THE CONTRACT SIGNING TO EXAMINE THE CONDITIONS OF THE SITE AND ANY EXISTING STRUCTURES. IT IS ALSO RECOMMENDED THAT ALL CONTRACTORS AND/OR SUBCONTRACTORS VISIT THE SITE TO FAMILIARIZE THEMSELVES WITH THE SCOPE OF THE PROJECT BEFORE SUBMITTING THEIR BID. HE SHALL STUDY ALL EXISTING CONDITIONS COMPARING THEIR CONDITION TO THE INTENT OF THE CONTRACT DOCUMENTS AND SHALL NOTIFY THE ARCHITECT AND OWNER IN WRITING WITHIN SEVEN (7) CALENDAR DAYS IN ADVANCE OF THE CONTRACT SIGNING OF ALL DISCREPANCIES, CONFLICTS, OR QUALIFICATIONS WHICH MAY ARISE.

2. ANY ITEMS NOT SPECIFICALLY MENTIONED OR SHOWN ON THE DRAWINGS BUT WHICH OBVIOUSLY ARE NECESSARY FOR A COMPLETE WORKING INSTALLATION SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT PRIOR TO CONTRACT SIGNING OR WILL BE UNDERSTOOD TO BE INCLUDED IN THE BASE SCOPE OF WORK.

3. THE GENERAL CONTRACTOR SHALL OBTAIN ANY AND ALL PERMITS REQUIRED FOR THE PERFORMANCE OF THIS WORK AND PAY ALL FEES IN CONNECTION THEREWITH.

4. THE GENERAL CONTRACTOR SHALL PROTECT AND PRESERVE ALL EXISTING ITEMS TO REMAIN AND SHALL REPAIR AND/OR REPLACE ANY NEW OR EXISTING ITEMS DAMAGED DURING THE COURSE OF WORK TO THE SATISFACTION AND APPROVAL OF THE ARCHITECT AND OWNER, WITHOUT ANY ADDITIONAL COST TO THE OWNER. CONTRACTOR'S RESPONSIBILITY FOR THIS PROJECT SHALL EXTEND UP TO FULL PROJECT SUBSTANTIAL COMPLETION, OR OWNER OCCUPANCY, WHICHEVER OCCURS FIRST.

5. THE GENERAL CONTRACTOR SHALL COMPLY IN ALL RESPECTS TO THE INDUSTRIAL CODE PART (RULE NO) 53 RELATING TO CONSTRUCTION, EXCAVATION, AND DEMOLITION OPERATION AT OR NEAR UNDERGROUND FACILITIES, AS ISSUED BY THE STATE OF NEW YORK DEPARTMENT OF LABOR, BOARD OF STANDARD AND APPEALS.

6. THE GENERAL CONTRACTOR SHALL PERFORM ALL WORK IN STRICT ACCORDANCE WITH THE RULES AND REGULATIONS OF ANY AND ALL FEDERAL, STATE, OR LOCAL AGENCIES OR DEPARTMENTS HAVING JURISDICTION OVER ANY PORTION OR SPECIFIC PHASE OF THE WORK.

7. THE GENERAL CONTRACTOR SHALL REMOVE ALL DEBRIS FROM THE PREMISES AT THE END OF EACH WORKING DAY AS DESCRIBED IN THE SPECIFICATIONS.

8. THE GENERAL CONTRACTOR SHALL SEE SPECIFICATIONS FOR POSSIBLE PHASING OF WORK. WHERE WORK OCCURS IN EXISTING FACILITIES, 50% OF CORRIDOR WIDTHS SHALL REMAIN OPEN AND CLEAR DURING THE CONSTRUCTION PERIOD OR PROVIDE ALTERNATE ROUTES FOR SAFE INGRESS AND EGRESS.

9. THE GENERAL CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS, CONDITIONS, GRADES, AND CONDITIONS AT THE SITE BEFORE ANY CONSTRUCTION WORK IS STARTED. ALL DISCREPANCIES SHALL BE REPORTED TO THE ARCHITECT. FAILURE TO DO SO WILL RESULT IN CONTRACTOR'S FULL LIABILITY FOR SUCH DISCREPANCIES AND ANY COSTS ASSOCIATED IN MITIGATING THE SAME.

10. THE DRAWINGS ARE NOT TO BE SCALED. DIMENSIONS SHALL BE USED AS INDICATED ON THE DRAWINGS OR PROVIDED BY THE ARCHITECT.

11. THE GENERAL CONTRACTOR SHALL VERIFY EXISTING DIMENSIONS, CONDITIONS, AND CLEARANCES PRIOR TO SUBMISSION OF SHOP DRAWINGS.

12. THE GENERAL CONTRACTOR SHALL NOTIFY THE ARCHITECT ONCE INTERIOR WALL LOCATIONS ARE SET AND PRIOR TO INSTALLATION OF VERTICAL STUDS AND/OR BRICK/BLOCK WORK TO VERIFY ROOM DIMENSIONS AND TO MAKE ANY MODIFICATIONS WHICH MAY BE REQUIRED DUE TO EXISTING CONDITIONS.

13. THE GENERAL CONTRACTOR SHALL PROPERLY SHORE, UNDERPIN, AND MAKE SAFE ALL FLOORS AND WALLS OF ADJACENT EXISTING STRUCTURES AS JOB CONDITIONS REQUIRE. SHORING DESIGNS MUST BE PREPARED BY LICENSED PROFESSIONALS LICENSED TO PRACTICE AT THE PROJECT SITE LOCATION.

14. IF A FIRE EXTINGUISHER IS REQUIRED DURING THE CONSTRUCTION, ALL PERSONNEL SHOULD BE MADE AWARE OF ITS LOCATION AND OPERATION.

15. THE GENERAL CONTRACTOR SHALL NOTIFY ARCHITECT OF ALL CASES WHERE PIPING, DUCTWORK, STRUCTURAL, ETC. BREAKS BELOW FINISHED OR EXPOSED CEILING LINES INDICATED PRIOR TO INSTALLATION OF SOFFITS AND CEILINGS.

16. THE GENERAL CONTRACTOR SHALL CLOSE OFF AND SEAL AROUND ALL OPENINGS (NEW OR EXISTING) , DUCTS, CONDUITS, ETC. PASS THROUGH WALLS, FLOORS, CEILINGS, OR FLOOR SLABS. FIRE RATED MATERIALS MUST BE USED IN ANY AND ALL RATED PARTITIONS.

17. THE GENERAL CONTRACTOR SHALL ENCLOSE ALL EXPOSED MECHANICAL, PLUMBING, ELECTRICAL LINES, AND ALL DUCTS OCCURRING WITHIN OCCUPIED SPACES IN GYPSUM WALLBOARD SOFFITS, CHASES, OR SHAFTS UNLESS OTHERWISE NOTED.

18. WHERE HEATING AND PLUMBING PIPES ARE CONCEALED IN HUNG OR FURRED CEILINGS, THESE CEILINGS SHALL NOT BE BUILT UNTIL THE HEATING AND PLUMBING LINES HAVE BEEN TESTED AND APPROVED BY AUTHORITIES HAVING JURISDICTION.

19. ALL UTILITIES ARE TO BE NOTIFIED AT LEAST 48 HOURS IN ADVANCE OF THE START OF CONSTRUCTION.

20. THE GENERAL CONTRACTOR SHALL EXPOSE EXISTING UTILITIES AHEAD OF THE PIPE LAYING OPERATION, SO THAT, IF MINOR ADJUSTMENTS MUST BE MADE IN ELEVATION AND/OR ALIGNMENT DUE TO INTERFERENCE FROM THESE UTILITIES, SAID CHANGES CAN BE MADE IN ADVANCE OF THE WORK.

21. SEWERS CROSSING WATER MAINS SHALL BE LAID TO PROVIDE MINIMUM VERTICAL DISTANCE OF 18" (46 CM) BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF THE SEWER. THIS SHALL BE THE CASE WHERE THE WATER MAIN IS EITHER ABOVE OR BELOW THE SEWER. THE CROSSING SHALL BE ARRANGED SO THAT THE SEWER JOINTS WILL BE EQUIDISTANT AND AS FAR AS POSSIBLE FROM THE WATER MAIN JOINTS. WHERE A WATER MAIN CROSSES UNDER A SEWER, ADEQUATE STRUCTURAL SUPPORT SHALL BE PROVIDED FOR THE SEWER TO PREVENT DAMAGE TO THE WATER MAIN (NO EXCLUSIONS).

22. ALL MATERIAL, COLORS, AND FINISHES SHALL BE AS SELECTED BY THE OWNER. THE CONTRACTOR SHALL CONFIRM ANY COLOR OR FINISH NOT SPECIFICALLY NOTED IN THE CONTRACT DOCUMENTS WITH THE ARCHITECT PRIOR TO PROCEEDING WITH WORK.

23. THE GENERAL CONTRACTOR SHALL BEAR THE RESPONSIBILITY FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, AND CRAFTSMANSHIP. ALL WORK SHALL BE PERFORMED IN A FIRST CLASS, WORKMANLIKE MANNER ACCORDING TO BEST TRADE PRACTICES. MATERIALS AND EQUIPMENT SHALL BE NEW, AND ALL CONSTRUCTION SHALL BE GOOD AND USABLE CONDITION AT THE DATE OF COMPLETION AND/OR OPENING OF THE PREMISES FOR BUSINESS.

24. THE GENERAL CONTRACTOR SHALL VERIFY ALL EXISTING UTILITY LINE, AIR DUCTS, MECHANICAL EQUIPMENT, ETC. AND THEIR PROPOSED CONNECTIONS AND THEIR LOCATIONS. ANY DISCREPANCIES SHOULD BE REPORTED TO ARCHITECT AND THE OWNER IMMEDIATELY.

25. THE GENERAL CONTRACTOR, BEFORE STARTING TO BUILD, SHALL COMPLETE THE LAYOUT OF THE WALL/SPACE AND VERIFY THAT ALL PROPOSED CONSTRUCTION DIMENSIONS CAN BE PERFORMED IN THE ASSIGNED SPACE.

26. THE GENERAL CONTRACTOR SHALL PROPERLY PROTECT THE WORK FOR PUBLIC SAFETY AND AGAINST ACCIDENTS, WEATHER OR ANY OTHER HAZARD.

27. THE GENERAL CONTRACTOR TO INFORM OWNER OF ANY AND ALL CHANGES AND/OR SUBSTITUTIONS, REGARDLESS OF THE REASON.

28. THE GENERAL CONTRACTOR SHALL PROPERLY PROTECT THE FINISHED FLOORS - ESPECIALLY PRIOR TO THE ARRIVAL OF FURNISHINGS, FIXTURES AND EQUIPMENT.

29. THE GENERAL CONTRACTOR TO UNLOAD, STORE, AND PROTECT OWNER-SUPPLIED MATERIALS AS MAY BE APPLICABLE.

30. THE GENERAL CONTRACTOR SHALL CONSULT AND COORDINATE WITH THE LANDLORD IN ALL MATTERS OF WORKMEN PARKING, DELIVERY AND STORAGE OF MATERIALS, SAFETY PROTECTION, TRASH REMOVAL, USE OF TEMPORARY FACILITIES AND OTHER SUCH OPERATIONS IN ADVANCE.

31. WOOD IN CONTACT WITH MASONRY, CONCRETE OR EARTH, OR WITHIN 1'-0" OF GRADE OR EXPOSED TO THE EXTERIOR SHALL BE PRESSURE PRESERVATIVE TREATED.

32. GUARANTEES AND CERTIFICATES: UPON COMPLETION OF THE WORK, THE CONTRACTOR SHALL FURNISH TO THE OWNER WRITTEN GUARANTEE AGAINST DEFECTIVE MATERIALS AND WORKMANSHIP ON ALL ITEMS UNDER THIS CONTRACT FOR A PERIOD OF ONE (1) YEAR. ADDITIONALLY, FURNISH THE OWNER WITH WRITTEN GUARANTEE FOR THOSE ITEMS WHERE GUARANTEE IS OF LONGER DURATION AS STATED IN VARIOUS SECTIONS OF THIS SPECIFICATION. THE CONTRACTOR SHALL FURNISH TO THE OWNER ALL CERTIFICATES AS REQUIRED, INCLUDING A CERTIFICATE OF OCCUPANCY.

THE OVERALL PROJECT INDICATED IS A COMPLEX UNDERTAKING. IT IS NOT THE INTENT OF THESE DRAWINGS TO SPECIFY OR DEPICT ALL ASPECTS OF THE WORK. THE OWNER AND CONTRACTOR MUST UNDERSTAND THAT THE PROJECT MAY CHANGE SUBSTANTIALLY THROUGH THE COURSE OF CONSTRUCTION.

33. ALL OPENING DIMENSIONS ARE "UNIT" DIMENSIONS.

33. ANY AND ALL EXISTING FIRE RATED PARTITIONS, DOORS, HORIZONTAL AND VERTICAL SEPARATIONS, AND ANY OTHER SUCH ASSEMBLIES ARE TO REMAIN UNALTERED, UNLESS SPECIFICALLY NOTED OTHERWISE IN THESE PLANS.

34. AT A MINIMUM, THE FOLLOWING ITEMS MUST BE COMPLETE BEFORE THE HOTEL IS TURNED OVER
- -ALL DEBRIS SHALL BE REMOVED FROM THE PREMISES.
- -ALL GLASS IS TO BE CLEANED.
- -ALL FLOOR AND WALL FINISHES TO BE CLEANED.

35. ROOM IDENTIFICATION AND INTERIOR SIGNAGE BY OWNER. SIGNAGE SHALL COMPLY WITH ADA REQUIREMENTS.

MISC. SYSTEMS NOTES:

1. ITEMS INCLUDING, BUT NOT LIMITED TO SECURITY & FIRE ALARM, SOUND SYSTEM, ETC. MAY REQUIRE SEPARATE PERMITS, DEPENDING ON PROJECT LOCATION AND JURISDICTIONAL REQUIREMENTS. IN THE EVENT ADDITIONAL ENGINEERING AND/OR COMMUNICATION WITH LOCAL AUTHORITIES BECOMES NECESSARY, IT IS UNDERSTOOD THAT IT WILL BE THE RESPONSIBILITY OF THE G.C. AND SUB CONTRACTORS TO PROVIDE ALL MATERIALS AND SERVICES NECESSARY TO OBTAIN REQUIRED PERMITS AND INSTALL A COMPLETE SYSTEM.

2. MISC. SYSTEMS INCLUDING, BUT NOT LIMITED TO SECURITY, MUSIC, TELEPHONE/DATA, ETC. MAY BE PROVIDED IN PART, OR ENTIRELY BY THE OWNER'S VENDOR UNDER SEPARATE CONTRACT. IT IS THE G.C.'S RESPONSIBILITY TO CONFIRM AND COORDINATE WITH OWNER-PROVIDED WORK IN ORDER THAT THE BID PRICE IS AN ACCURATE REFLECTION OF ALL LABOR AND MATERIALS REQUIRED TO COMPLETE THE WORK, INCLUDING ANY ITEMS THAT THE G.C. MAY BE REQUIRED TO PROVIDE AND/OR INSTALL TO ACCOMMODATE THE VENDOR'S WORK, SUCH AS POWER, CONDUIT, SPEAKERS, ETC. SPECIAL ATTENTION SHALL BE GIVEN TO THE COORDINATION OF ANY "IN-WALL" WORK THAT MAY BE REQUIRED SO THAT THIS PORTION OF WORK CAN BE PERFORMED BEFORE FRAMING IS COVERED UP.

MILLWORK NOTES:

1. MILLWORK INSTALLATION SHALL MEET OR EXCEED THE PUBLISHED INSTALLATION STANDARDS OF THE ARCHITECTURAL MILLWORK INSTITUTE FOR CUSTOM GRADE.

3. THESE ITEMS WILL BE REFERRED TO THROUGHOUT THE DRAWINGS AND ARE UNDERSTOOD TO BE PROVIDED, FABRICATED, FINISHED BY THE M.V. AND INSTALLED BY THE G.C.

4. MILLWORK SHOP DRAWINGS WILL BE PROVIDED BY THE M.V. TO THE G.C.

5. UTILITIES (ELECTRICAL AND PLUMBING) AS REQUIRED, INCLUDING FINAL CONNECTIONS ARE TO BE PROVIDED BY THE G.C.

8. IT WILL BE THE G.C.'S RESPONSIBILITY TO COORDINATE THE TIMING OF THESE EVENTS AS IT RELATES TO THE "CRITICAL PATH SCHEDULE OF THE PROJECT".

9. IT WILL BE THE G.C.'S RESPONSIBILITY TO CONFIRM FIELD MEASUREMENTS AS REQUESTED BY THE M.V.

11. AT ALL BASE AND TRIM LOCATIONS, G.C. IS TO PROVIDE IN-WALL BLOCKING AS REQUIRED TO PERMIT INSTALLATION OF PIECES WITH FINISH NAILS. NO TRIM SHALL BE INSTALLED STANDING OR RUNNING WITH EXPOSED SCREWS. "TRIM-HEAD" TYPE SHALL NOT BE USED.

WHERE CONTRACTOR PROVIDES WOOD ITEMS THAT ARE SPECIFIED TO BE STAINED IT IS THE CONTRACTOR'S RESPONSIBILITY TO STAIN AND PROVIDE THE FINAL FINISH. IF WOOD SPECIES SPECIFICALLY ADDRESSED IN THE DRAWINGS, CONTRACTOR TO PROVIDE READILY AVAILABLE, STAIN GRADE, CLEAR, MINIMAL GRAIN PATTERN, AND SUITABLE FOR THE PARTICULAR APPLICATION AND STAIN COLOR DESIRED. IF STAIN COLOR NOT SPECIFIED, G.C. IS TO COORDINATE AND MATCH FINISH BEING PROVIDED BY OWNERS MILLWORK VENDOR.

RESPONSIBILITY NOTES:

1. THE CONTRACTOR IS TO PROVIDE A COMPLETE PROJECT AS INDICATED IN THESE DRAWINGS INCLUDING VARIOUS COMPONENTS AND ACCESSORIES THAT MAY NOT BE SHOWN, BUT ARE REQUIRED. ITEMS THAT ARE "EXISTING" OR THAT ARE TO BE PROVIDED "BY OTHERS" WILL BE INDICATED AS SUCH. IN ADDITION, VARIOUS ITEMS MAY BE PROVIDED BY OTHERS FOR THE G.C. TO INSTALL. THESE ITEMS WILL ALSO BE IDENTIFIED. IT IS UNDERSTOOD THAT WORK NOT IDENTIFIED AS "BY OTHERS" IS TO BE BOTH PROVIDED AND INSTALLED BY THE G.C. FOR ITEMS PROVIDED BY OTHERS, WHETHER INSTALLED BY G.C. OR NOT, IT IS THE G.C.'S RESPONSIBILITY TO COORDINATE AND ADVISE OWNER ON MATTERS THAT AFFECT CONSTRUCTION PROGRESS AND SCHEDULE, INCLUDING CRITICAL DATES FOR PURCHASE, DELIVERY, INSTALLATION, ETC. OF ITEMS NOT BEING PROVIDED BY THE G.C.

2. "THE OWNER" IS UNDERSTOOD TO MEAN THE END-USER OF THE SPACE. IT IS UNDERSTOOD THAT THE OWNER WILL HAVE CONTRACT LINE WITH THE CONTRACTOR.

3. "GENERAL CONTRACTOR"(G.C.) IS UNDERSTOOD TO MEAN THE GENERAL CONTRACTOR OR BUILDER THAT ENTERS INTO CONTRACT WITH THE OWNER. SUB-CONTRACTS ARE UNDERSTOOD TO BE PART OF THE GENERAL CONTRACT AND ANY REFERENCE TO "THE CONTRACTOR" INCLUDES SUB-TRADES AS APPLICABLE.

4. "MILLWORK VENDOR"(M.V.) IS UNDERSTOOD TO MEAN THE VENDOR OR SUB-CONTRACTOR RESPONSIBLE FOR THE MILLWORK PACKAGE AS DEFINED.

5. "OTHERS" IS UNDERSTOOD TO MEAN ANY ENTITY / PARTY OTHER THAN THE CONTRACTOR.

CODE REVIEW

NEW YORK STATE BUILDING CODE (2020) CHECKLIST

JURISDICTION:	TOWN OF WAWAYANDA, NEW YORK
FLOOD PLAIN:	N/A
OCCUPANCY:	F-1 / B
USE:	TRANSFER FACILITY / OFFICE BUILDING
TYPE OF CONSTRUCTION:	IIB
NO. OF OCCUPANTS:	F-1 = 70 , B = 136

	REQUIRED/ALLOWED	ACTUAL
SPRINKLER SYSTEM:	REQUIRED - USE NFPA 13 THROUGHOUT	PROVIDED - USE NFPA 13 THROUGHOUT
DISTANCE SEPARATION: EXTERIOR WALL OPENINGS:	>30 FT. SPRINKLERED THROUGHOUT AND >30 = NO LIMIT	>30 FT. NO LIMIT.
DISTANCE SEPARATION: EXTERIOR WALL OPENINGS:	1 HR. RATING ON ALL WALLS 30' FROM LINE PROTECTION NOT REQUIRED	NR > 30' FROM PROPERTY LINE NOT PROVIDED

FIRE RATED CONSTRUCTION:

INCIDENTAL USE:	NOT REQUIRED	N/A
ACCESSORY OCCUPANCY:	1 HR - AREAS LESS THAN 750 SF. ARE NOT CONSIDERED ACCESSORY	1 HR
MIXED OCCUPANCY	N/A	N/A
FIRE WALLS:	N/A	N/A
FIRE BARRIER:	N/A ONLY 2 STORIES	2 HR PROVIDED @ ELEVATOR
SHAFT ENCLOSURE:	SHAFTS - 1 HR. IF < 4 STORIES	2 HR. @ ELEVATOR
FIRE PARTITION:	NA	0 HR.
SMOKE BARRIERS:	NA	NA
OPENING PROTECTIVES:	2 HR SHAFT INCLOSURE: 90 MIN.	PROVIDED
FIRE BLOCKING:	NOT REQUIRED	NOT PROVIDED
DRAFTSTOPPING:	NOT REQUIRED - SPRINKLERED	NOT PROVIDED
STRUCTURAL ELEMENTS:	0 HR RATED	0 HR
EXT. BEARING WALL:	0 HR REQUIRED	0 HR
INT. BEARING WALL:	0 HR REQUIRED	0 HR
FLOOR CONSTRUCTION	0 HR REQUIRED	0 HR
ROOF CONSTRUCTION	0 HR REQUIRED	0 HR

NOTE:

THE ABOVE REFERENCED CODE REVIEW IS AN ABBREVIATED VERSION OF THE CODE REVIEW FOR THE SAID PROJECT. FOR A FULL CODE REVIEW INCLUDING STRUCTURAL, MECHANICAL , ELECTRICAL AND PLUMBING, REFER TO THE COMPLETED 2020 NEW YORK STATE BUILDING CODE CHECKLIST

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GENERAL NOTES

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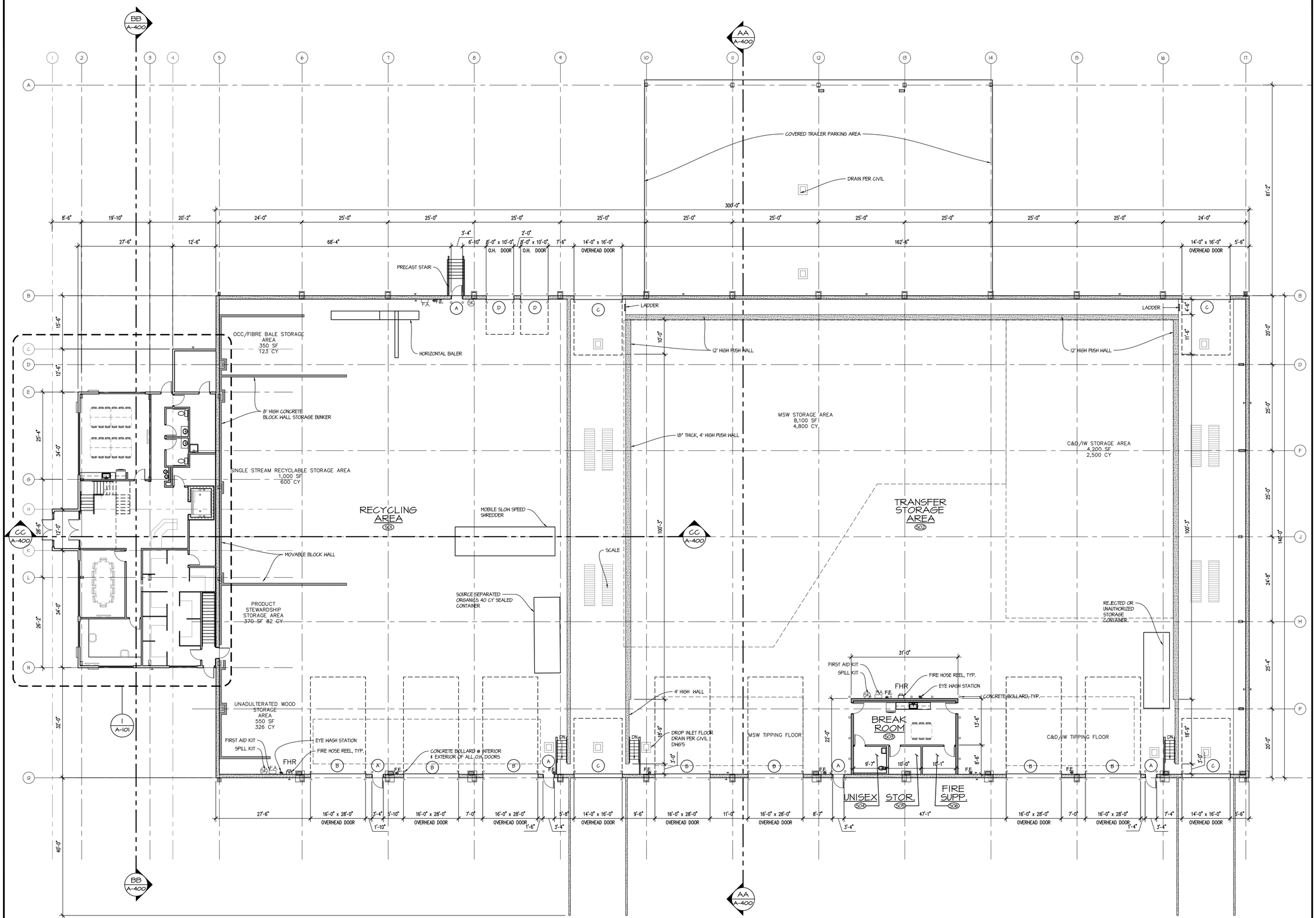

OVERALL FIRST FLOOR PLAN

SCALE: 3/32" = 1'-0"

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OVERALL FIRST FLOOR PLAN

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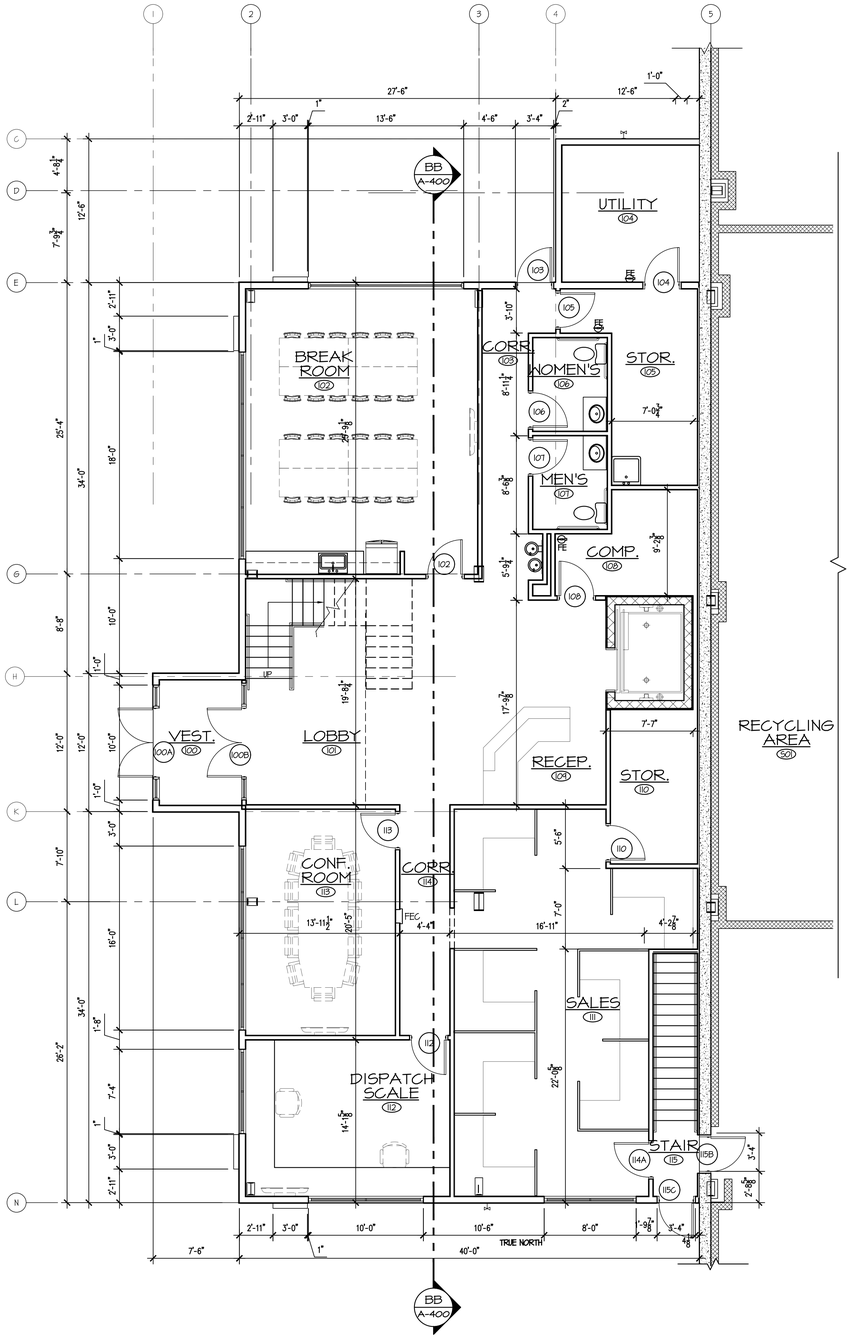
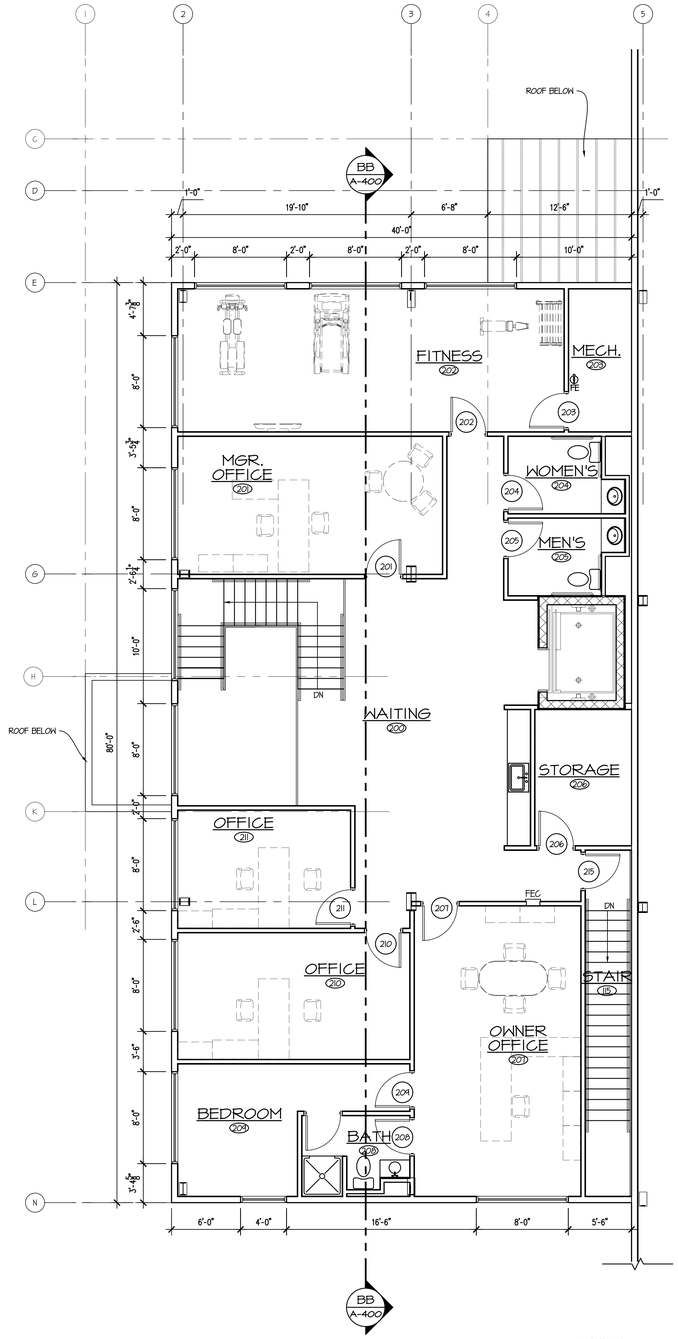


1 OFFICE BUILDING 1ST FLOOR PLAN
SCALE: 1/4" = 1'-0"



2 OFFICE BUILDING 2ND FLOOR PLAN
SCALE: 1/4" = 1'-0"

KEY PLAN
SCALE: N.T.S.

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OFFICE BUILDING FLOOR PLANS

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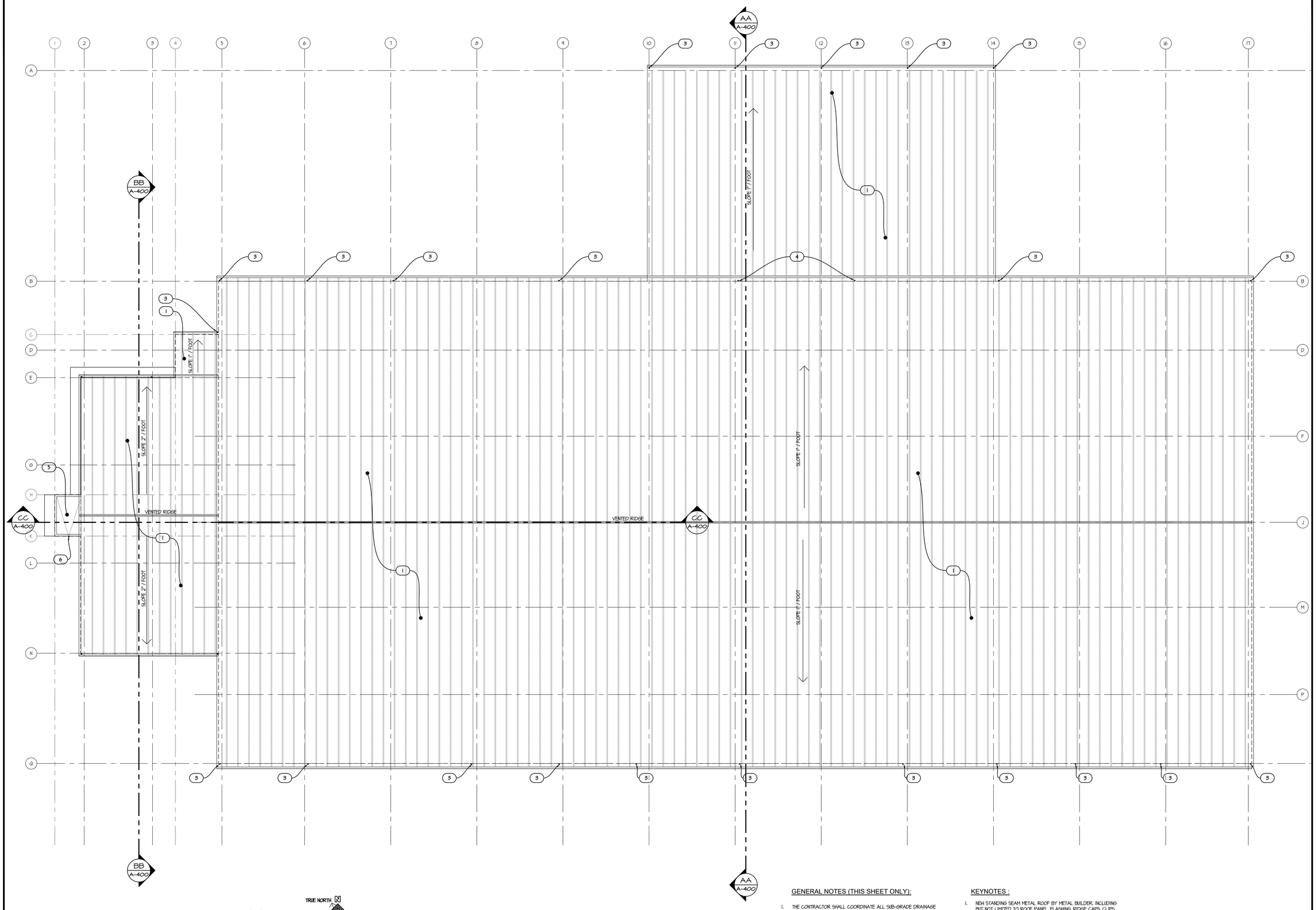

ROOF PLAN

SCALE: 3/32" = 1'-0"

TRUE NORTH

GENERAL NOTES (THIS SHEET ONLY):

1. THE CONTRACTOR SHALL COORDINATE ALL SUB-GRADE DRAINAGE WITH CIVIL ENGINEER PRIOR TO BEGINNING WORK.
2. THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF ALL METAL BUILDER PROVIDED ROOFING AND FLASHING, AND WALL PANELS WITH THE RELATED ADJACENT WORK TO BE INSTALLED BY THE GC SUCH THAT ALL INSTALLATIONS ARE WATER-TIGHT AND WARRANTABLE FOR THE A PERIOD OF NO LESS THAN 5 YEARS.
3. THE CONTRACTOR SHALL USE CORROSIVE RESISTANT FASTENERS AND FLASHING IN ALL AREAS, WITHOUT EXCEPTION. PROVIDE BUTEL TAPE WHERE DIFFERING METAL MATERIALS ADJOIN/LAP TO PREVENT CORROSION.
4. THE CONTRACTOR SHALL COORDINATE WITH THE INSTALLATION OF ALL PLUMBING AND MECHANICAL EQUIPMENT, VENTS, AND ROOF PENETRATIONS WITH THE PLUMBING & MECHANICAL ENGINEER.
5. COORDINATE WITH WALL SECTIONS AND MISC. DETAILS FOR ADDITIONAL RELATED NOTED AND DETAILS NOT SHOWN HERE FOR CLARITY.

KEYNOTES :

1. NEW STANDING SEAM METAL ROOF BY METAL BUILDER. INCLUDING BUT NOT LIMITED TO ROOF PANEL, FLASHING, RIDGE CAPS, CLIPS, ANCHORS, FASTENERS, AND INTERAL GUTTERS & DOWNSPOUTS. COLOR AS SELECTED BY OWNER FROM MANUFACTURER STANDARD COLOR RANGE. PROVIDE MIN INSULATION R-VALUE OF 24. TYPICAL
2. 6" BOX GUTTER
3. DOWNSPOUTS TO BELOW GRADE. TIED INTO STORM.
4. DOWNSPOUTS TO TERMINATE AT ROOF BELOW.
5. TPO ROOF MEMBRANE OVER TAPERED INSULATION.
6. OVERFLOW SCUPPER TO DOWNSPOUT
7.

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ROOF PLAN

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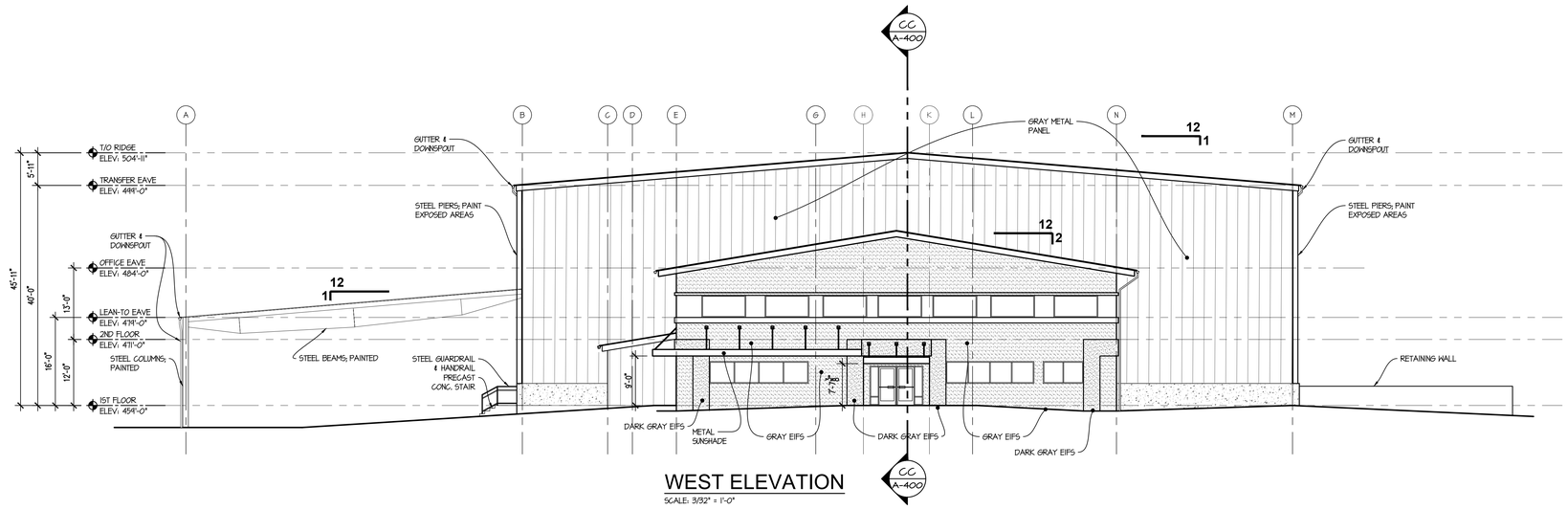
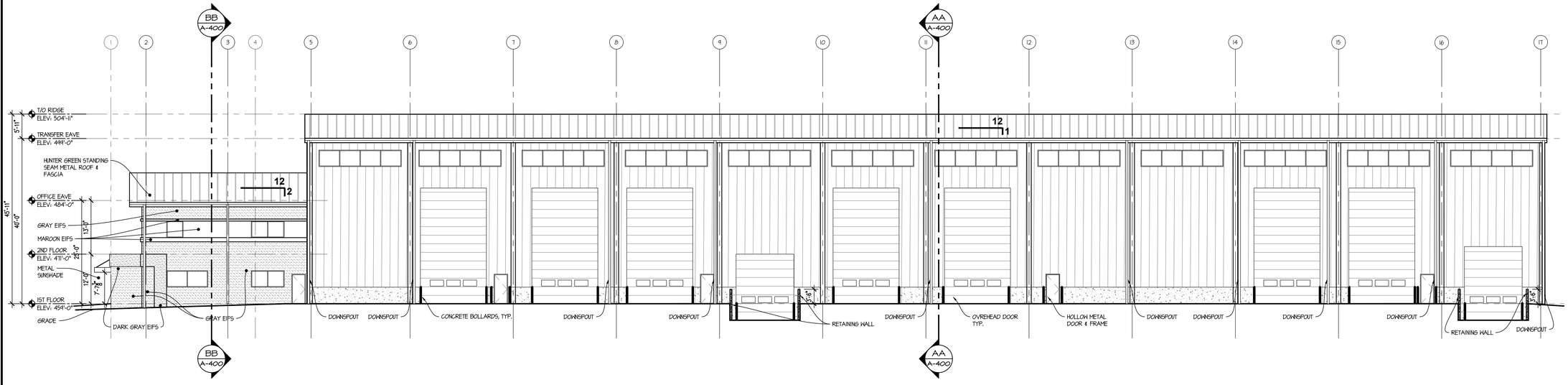


WEST ELEVATION

SCALE: 3/32" = 1'-0"



SOUTH ELEVATION

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ELEVATIONS - EXTERIOR

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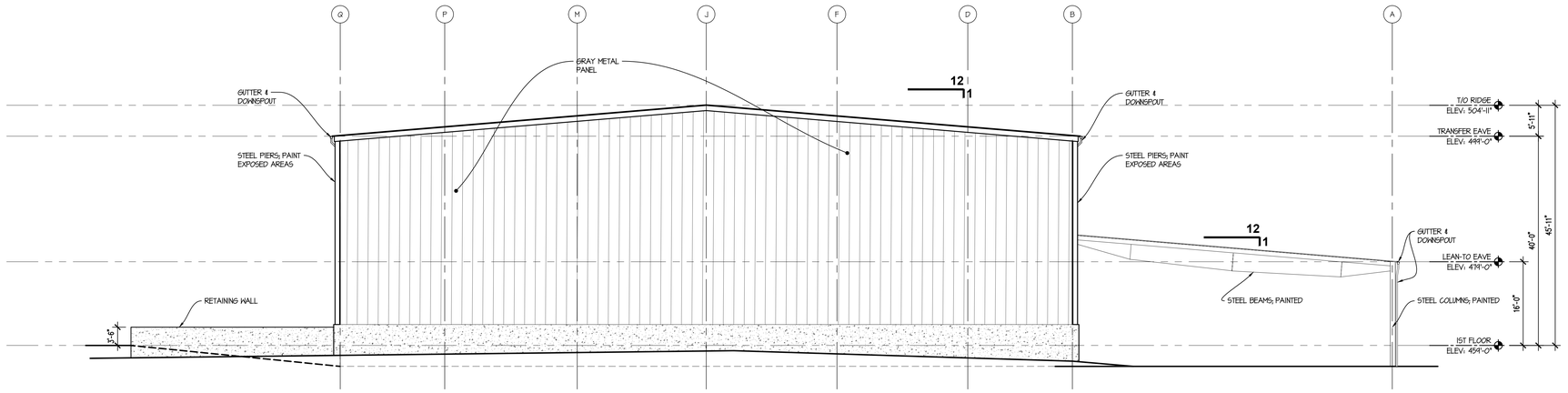
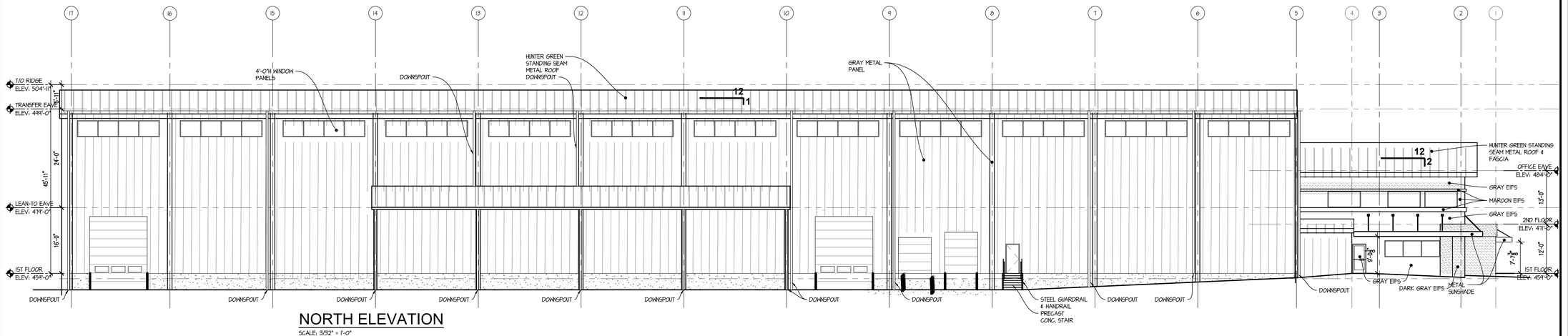


EAST ELEVATION

SCALE: 3/32" = 1'-0"



NORTH ELEVATION

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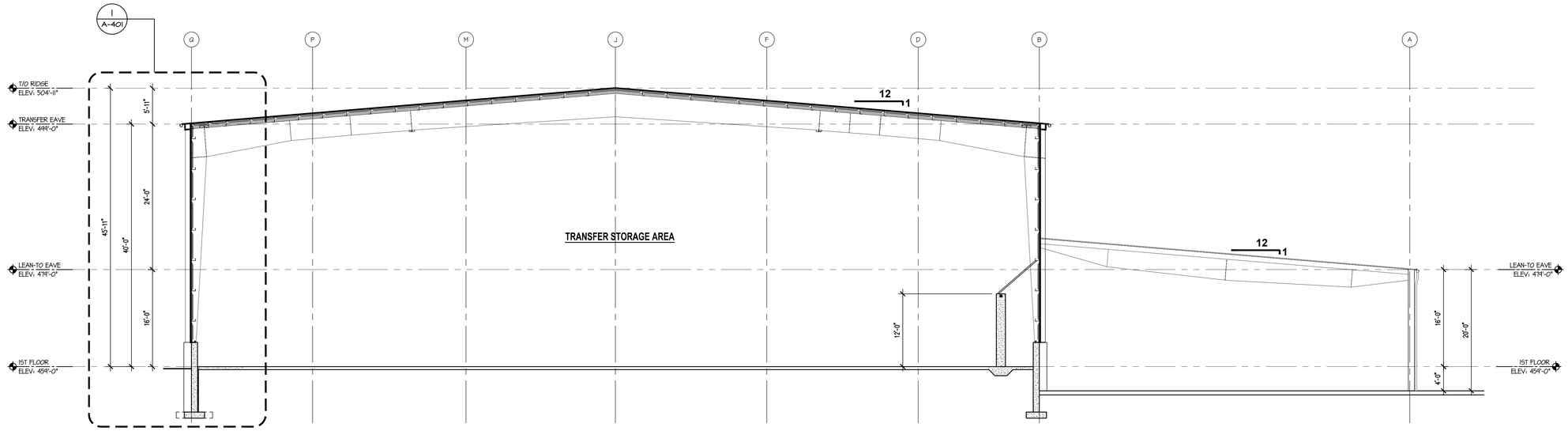

BUILDING SECTION - AA

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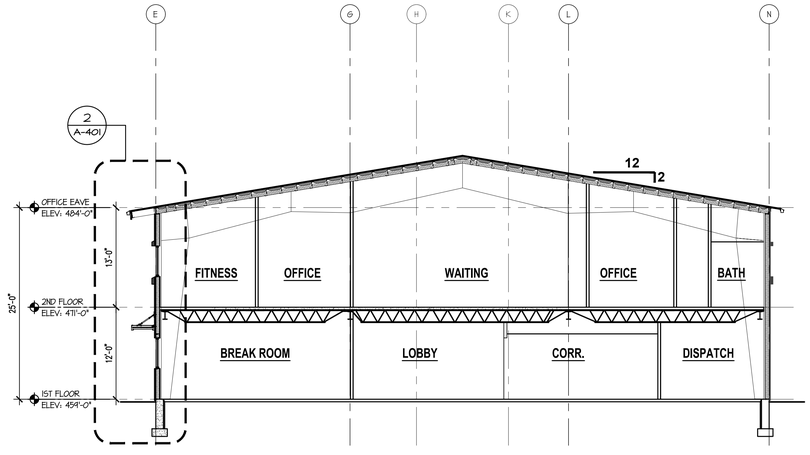
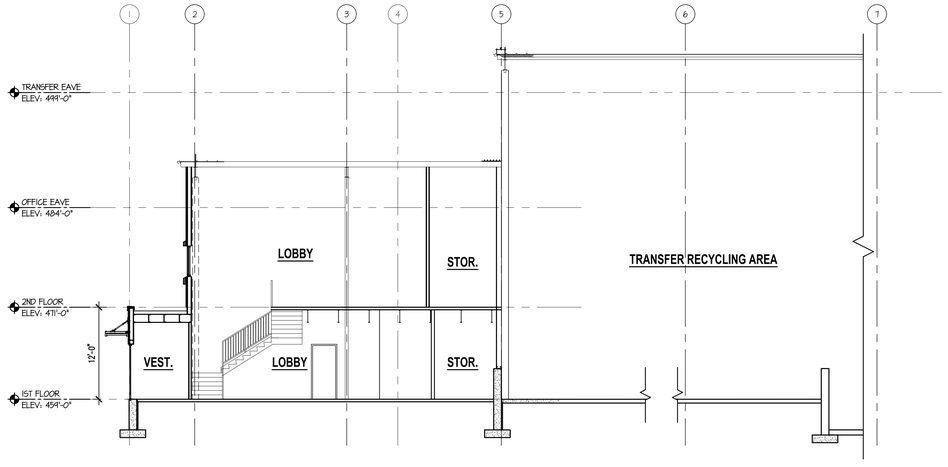


BUILDING SECTION - BB

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



BUILDING SECTION - CC

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

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BUILDING SECTIONS

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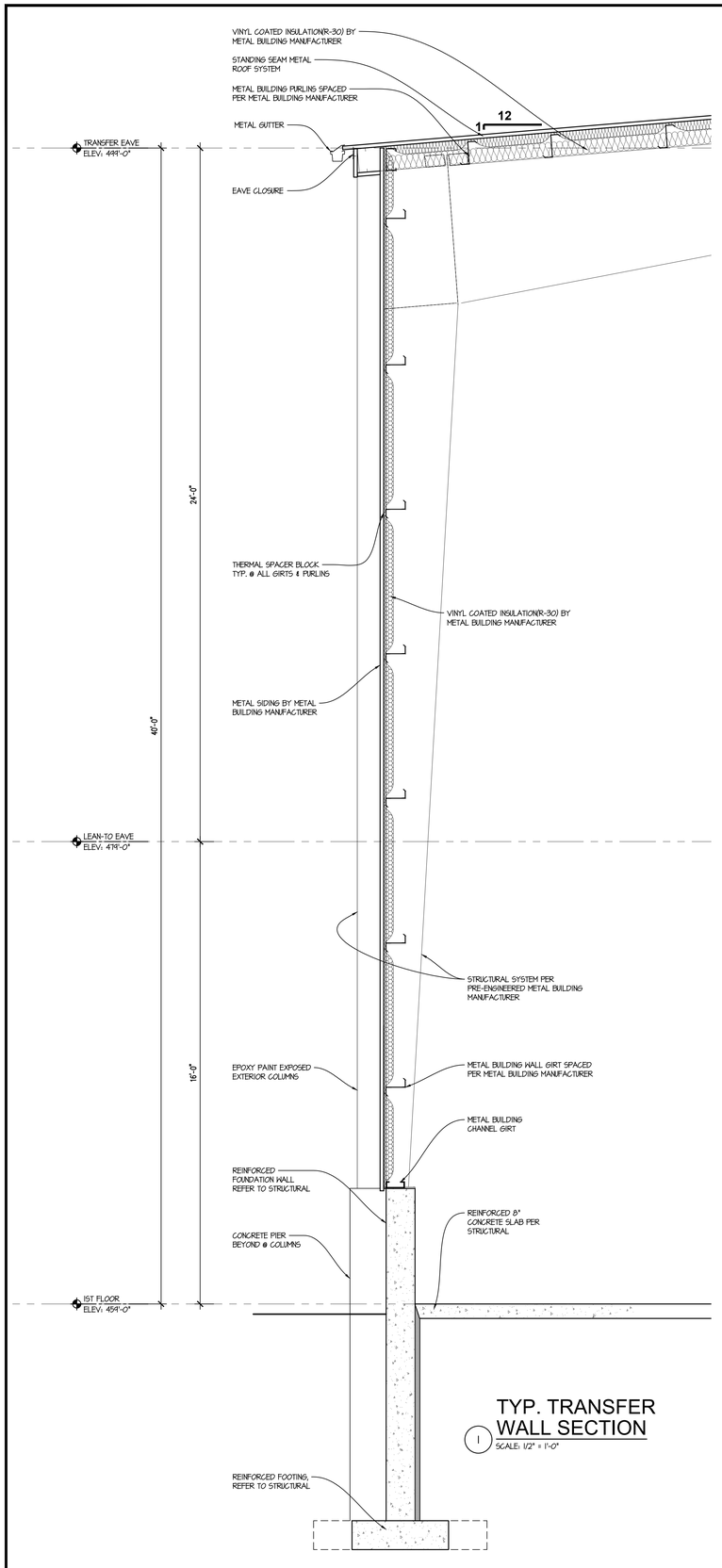
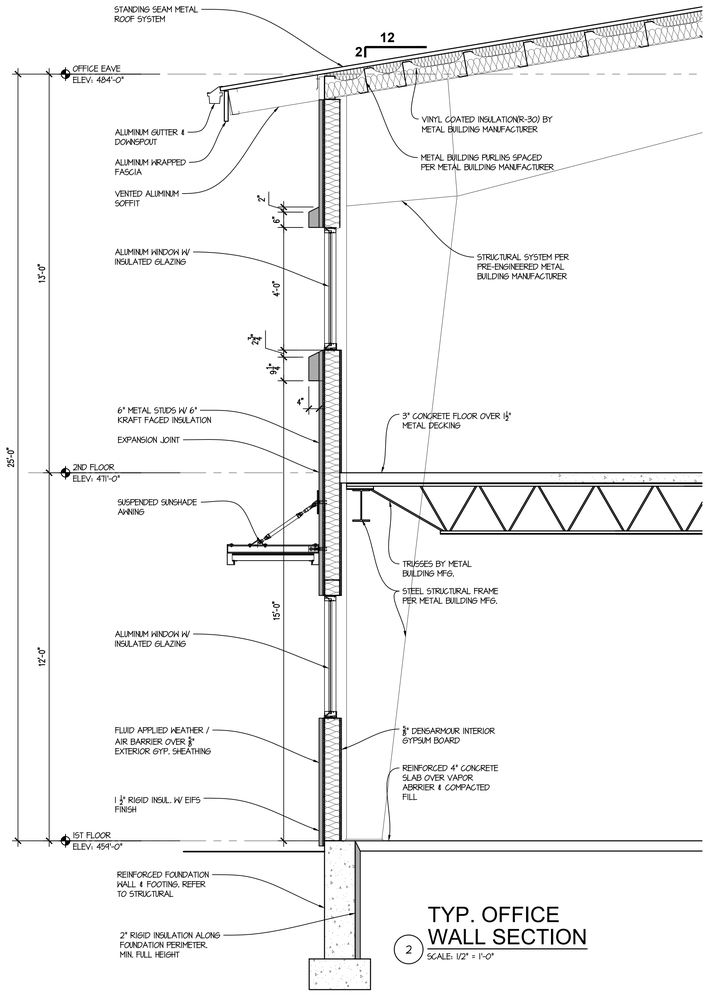


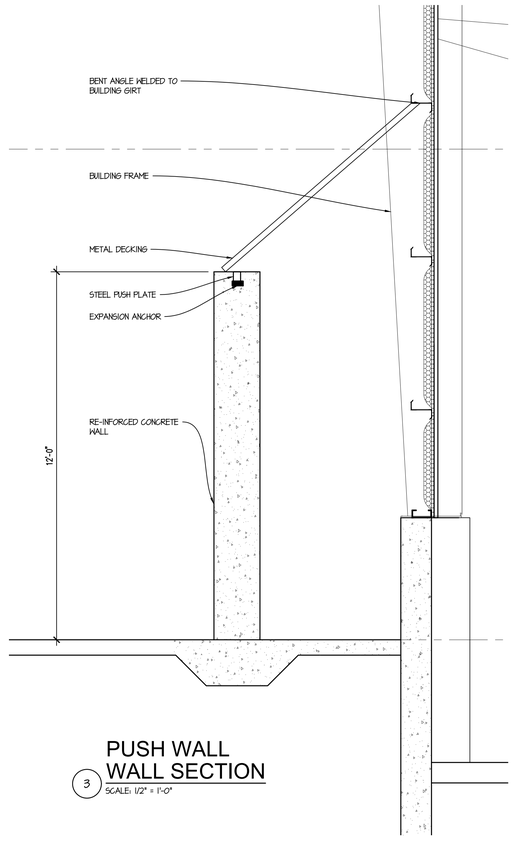
TYP. TRANSFER WALL SECTION

1 SCALE: 1/2" = 1'-0"



TYP. OFFICE WALL SECTION

2 SCALE: 1/2" = 1'-0"



PUSH WALL WALL SECTION

3 SCALE: 1/2" = 1'-0"

REVISION DESCRIPTION

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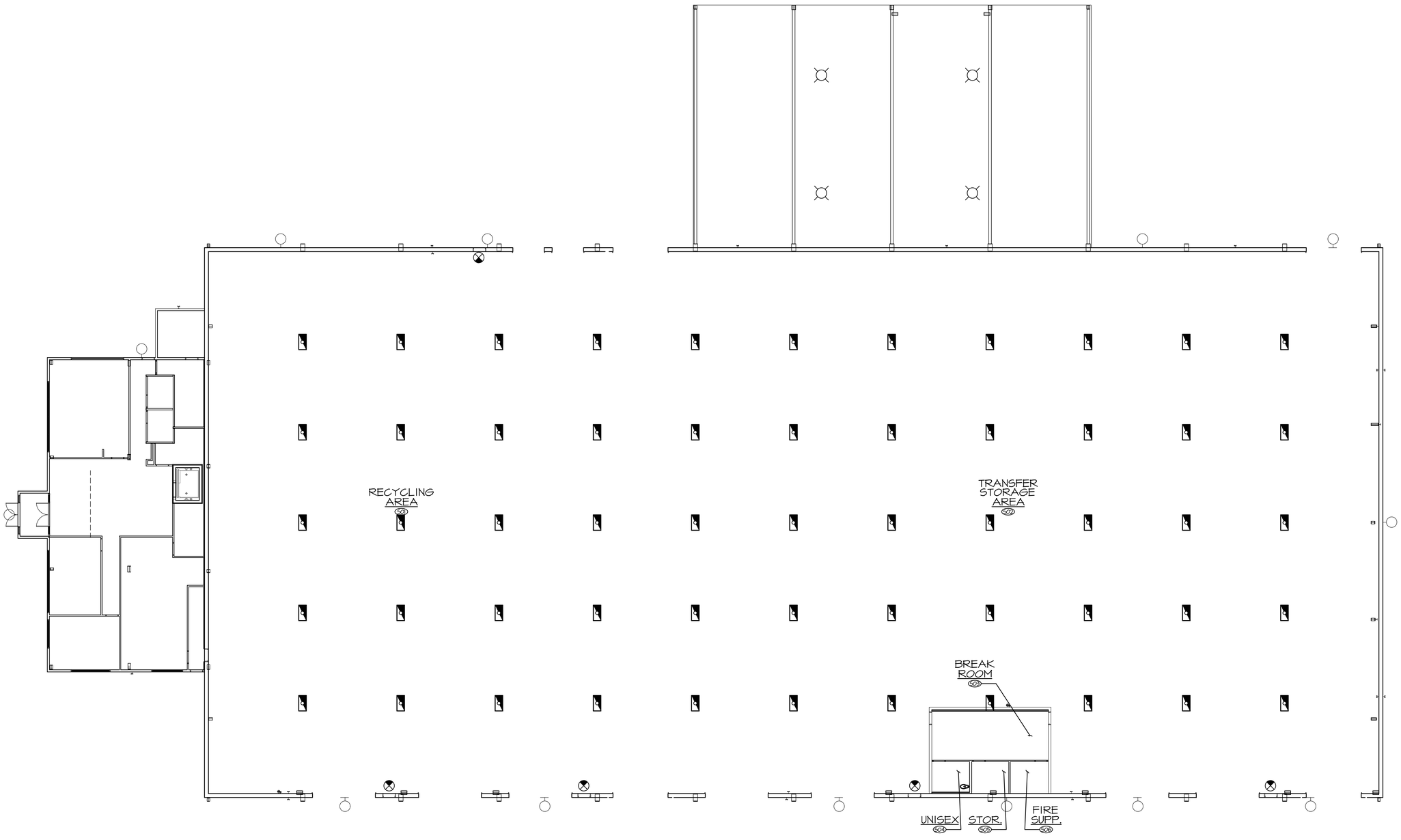
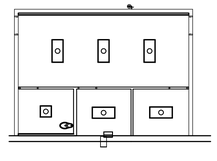


TRANSFER BUILDING REFLECTED CEILING PLAN

SCALE: 3/32" = 1'-0"

TRUE NORTH



BREAKROOM CEILING PLAN

SCALE: 3/32" = 1'-0"

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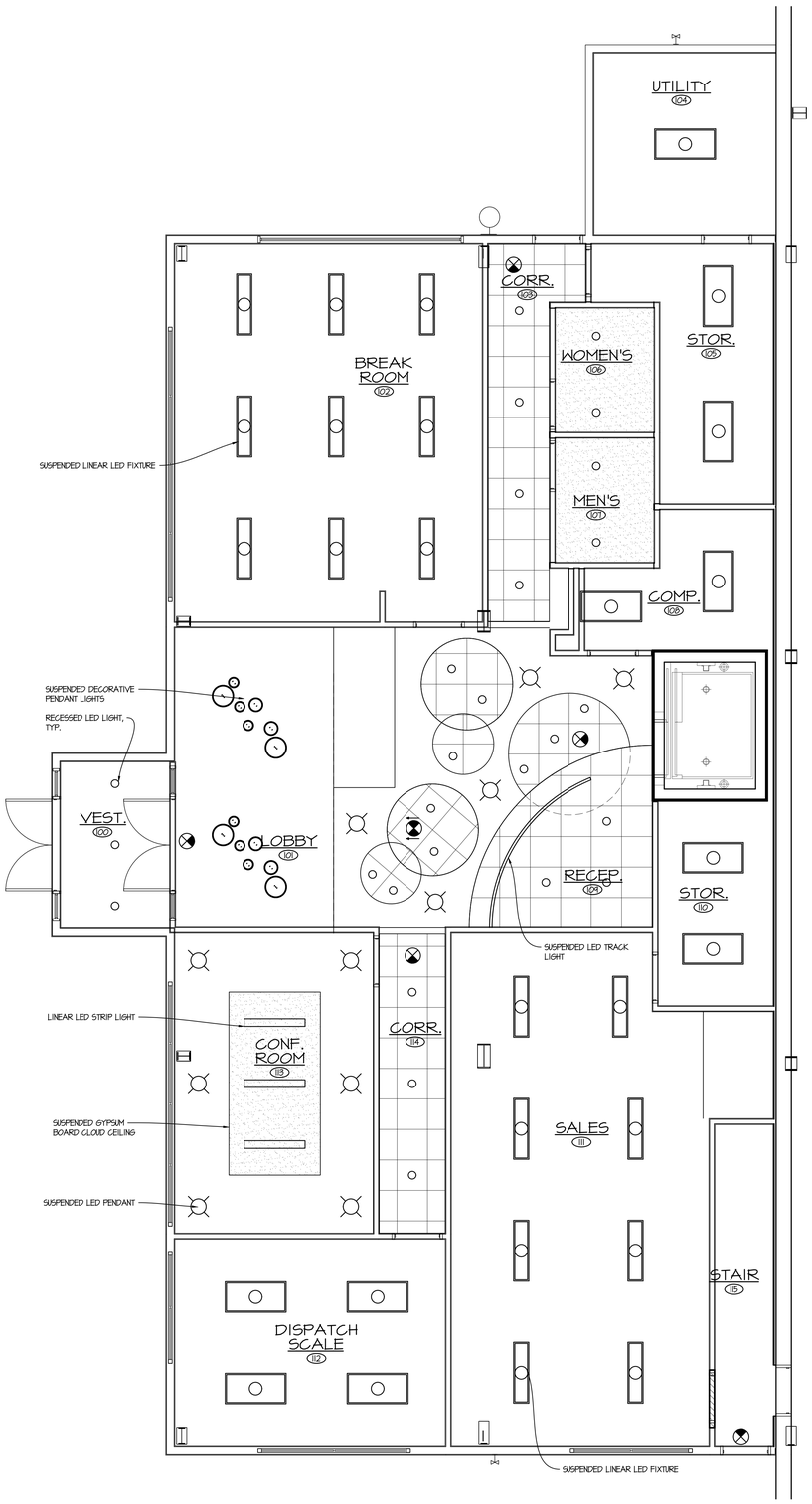
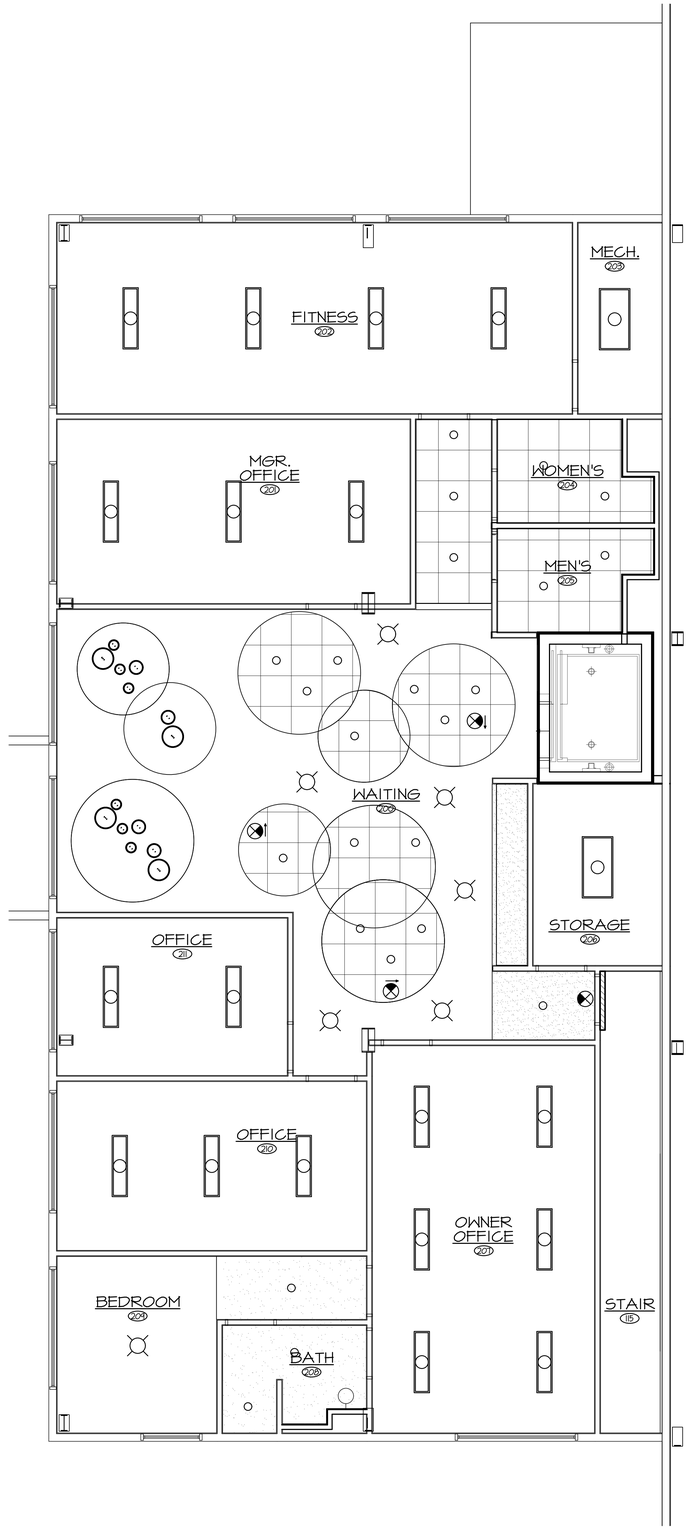


1 OFFICE BUILDING 1ST FLOOR PLAN
SCALE: 1/4" = 1'-0"



2 OFFICE BUILDING 2ND FLOOR PLAN
SCALE: 1/4" = 1'-0"

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GENERAL NOTES:

1. THE STRUCTURAL DESIGN IS IN ACCORDANCE WITH THE 2020 BUILDING CODE OF NEW YORK STATE.
2. THE GENERAL CONTRACTOR SHALL INSURE THAT ALL WORK IS COMPLETED IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL BUILDING CODES AND ORDINANCES.
3. REPRODUCTION OF ANY PORTION OF THE STRUCTURAL DRAWINGS IS A VIOLATION OF COPYRIGHT LAWS. ALL PLANS, NOTES, DETAILS, AND SECTIONS MUST BE REDRAWN AND COORDINATED WITH THE ARCHITECTURAL DRAWINGS AND THE BUILDING MANUFACTURER'S DRAWINGS. REPRODUCED CONTRACT DOCUMENTS THAT ARE SUBMITTED WILL NOT BE REVIEWED.
4. THE GENERAL CONTRACTOR SHALL VERIFY ALL INFORMATION SHOWN ON THE PLANS PRIOR TO INITIATING CONSTRUCTION, AND SHALL NOTIFY THE ENGINEER IMMEDIATELY OF ANY DISCREPANCIES BETWEEN EXISTING CONDITIONS AND THOSE SHOWN ON THE PLANS FOR POSSIBLE MODIFICATION OF THE DESIGN OR DETAILS.
5. THE CONTRACTOR SHALL REFER TO ARCHITECTURAL DRAWINGS AND THE BUILDING MANUFACTURER'S DRAWINGS FOR INFORMATION NOT NOTED ON THE STRUCTURAL DRAWINGS. THE CONTRACTOR SHALL COMPARE THE STRUCTURAL DRAWINGS WITH THE ARCHITECTURAL DRAWINGS AND THE BUILDING MANUFACTURER'S DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ENGINEER PRIOR TO COMPLETION OF SHOP DRAWINGS.
6. ANY DEVIATION FROM, ADDITION TO, SUBSTITUTION FOR, OR MODIFICATIONS TO THE STRUCTURE SHOWN ON THESE DRAWINGS SHALL BE SUBMITTED IN WRITING TO THE ENGINEER FOR REVIEW. SHOP DRAWINGS THAT ARE SUBMITTED FOR REVIEW DO NOT CONSTITUTE "IN WRITING" UNLESS IT IS CLEARLY NOTED THAT SPECIFIC CHANGES ARE BEING SUGGESTED.
7. THE STRUCTURAL DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE METHODS OF CONSTRUCTION UNLESS SO STATED OR NOTED. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY TO PROTECT WORKERS AND OTHER PERSONS DURING CONSTRUCTION.
8. THE STRUCTURAL DRAWINGS ARE NOT TO BE SCALED FOR DETERMINATION OF QUANTITIES, LENGTHS OR FIT OF MATERIALS.
9. THE GENERAL CONTRACTOR SHALL BE SOLELY AND EXCLUSIVELY RESPONSIBLE FOR THE ADEQUACY OF ALL SHORING AND BRACING. THE CONTRACTOR SHALL PROVIDE TEMPORARY ERECTION SHORING AND BRACING OF ALL STRUCTURAL WORK AS REQUIRED FOR THE STABILITY OF THE STRUCTURE DURING ALL PHASES OF CONSTRUCTION. THE CONTRACTOR SHALL IMMEDIATELY INFORM THE ENGINEER OF ANY CONDITION WHICH, IN HIS OPINION, MIGHT ENDANGER THE STABILITY OF THE STRUCTURE OR CAUSE DISTRESS IN THE STRUCTURE.
10. THE GENERAL CONTRACTOR SHALL VERIFY ALL DIMENSIONS IN THE FIELD PRIOR TO INITIATING FABRICATION.
11. DESIGN LOADS:

    LIVE LOADS: PER PRE-ENGINEERED BUILDING MANUFACTURER
    DEAD LOADS: PER PRE-ENGINEERED BUILDING MANUFACTURER

    OTHER DEAD LOADS HAVE BEEN CALCULATED TO INCLUDE THE ACTUAL WEIGHT OF ALL WORK SHOWN ON THE STRUCTURAL DRAWINGS. NO EQUIPMENT SHALL BE PLACED ON OR HUNG FROM THE ROOF SYSTEM WITHOUT WRITTEN APPROVAL FROM THE BUILDING MANUFACTURER.
12. COMPLETE SHOP DRAWINGS FOR THE STRUCTURAL WORK SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW PRIOR TO COMMENCEMENT OF CONSTRUCTION. REVIEW OF SHOP DRAWINGS BY THE ENGINEER DOES NOT RELIEVE THE CONTRACTOR OF FULL RESPONSIBILITY FOR CORRECT FABRICATION AND CONSTRUCTION OF THE WORK.
13. PRINCIPAL OPENINGS ARE SHOWN ON THE STRUCTURAL DRAWINGS. THE CONTRACTOR SHALL REFER TO ARCHITECTURAL DRAWINGS AND THE BUILDING MANUFACTURER'S DRAWINGS FOR SLEEVES, CURBS, INSERTS, AND SIMILAR DETAILS NOT SHOWN. SIZE AND LOCATION OF ALL OPENINGS SHALL BE VERIFIED BY THE CONTRACTOR. ANY DEVIATION FROM OPENINGS SHOWN ON THE ARCHITECTURAL DRAWINGS AND THE BUILDING MANUFACTURER'S DRAWINGS SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION FOR APPROVAL PRIOR TO CONSTRUCTION.
14. CONSTRUCTION MATERIALS SHALL NOT BE STORED ON ROOFS IN EXCESS OF THE DESIGN LIVE LOADS UNLESS SPECIFICALLY APPROVED IN WRITING BY THE BUILDING MANUFACTURER. IMPACT SHALL BE AVOIDED WHEN PLACING MATERIALS ON ROOFS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENFORCE THESE REQUIREMENTS.
15. STRUCTURAL DRAWINGS HAVE BEEN PREPARED FOR THE PRE-MANUFACTURED BUILDING FOUNDATIONS ONLY. ALL OTHER BUILDING COMPONENTS ARE THE RESPONSIBILITY OF THE BUILDING MANUFACTURER.

FOUNDATION AND CONCRETE NOTES:

1. FOOTINGS SHALL BEAR ON UNDISTURBED SOIL HAVING AN ALLOWABLE BEARING CAPACITY OF 4,000 POUNDS PER SQ. FT.
2. IF BEARING MATERIALS WITH A LOWER BEARING CAPACITY THAN 4,000 POUNDS PER SQ. FT. ARE ENCOUNTERED, THE UNDERLYING UNSUITABLE MATERIAL SHALL BE REMOVED AND REPLACED WITH SUITABLE MATERIAL APPROVED BY THE GEOTECHNICAL ENGINEER.
3. THE ARCHITECT AND ENGINEER ASSUME NO RESPONSIBILITY FOR THE ADEQUACY OF THE SUBSURFACE CONDITIONS.
4. ANY OBSTRUCTIONS ENCOUNTERED DURING EXCAVATION WHICH MAY INTERFERE WITH THE CONSTRUCTION OF ANY OF THE FOUNDATIONS OR WALLS MUST BE REMOVED AND REPLACED IN COMPLIANCE WITH THE GEOTECHNICAL ENGINEER'S RECOMMENDATIONS.
5. GENERAL CONTRACTOR SHALL INSURE COMPLIANCE WITH ALL APPLICABLE STATE, COUNTY, AND LOCAL BUILDING ORDINANCES.
6. NO CONCRETE SHALL BE PLACED IN WATER OR ON FROZEN GROUND.
7. ALL CONCRETE AND FOUNDATIONS SHALL BE PROTECTED AGAINST FROST UNTIL THE PROJECT IS COMPLETED.
8. BACKFILL UNDER ANY PORTION OF THE BUILDING OR FOUNDATION SHALL BE COMPACTED IN 6" LIFTS OF 95% COMPACTED FILL AS APPROVED BY THE GEOTECHNICAL ENGINEER.
9. ALL CONCRETE WORK SHALL CONFORM TO "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" (ACI 318-LATEST EDITION) AND "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS" (ACI 301, LATEST EDITION).
10. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3,000 P.S.I. AT 28 DAYS.
11. CONCRETE SHALL HAVE A SLUMP OF NO MORE THAN 5" AND AIR ENTRAINMENT OF 4-6%. THE USE OF CALCIUM CHLORIDE IS NOT PERMITTED. PROVIDE PROPER CONCRETE PROTECTION IN COLD WEATHER AND MAINTAIN PROPER CURING PROCEDURES IN ACCORDANCE WITH ALL A.C.I. REQUIREMENTS.
12. CONCRETE FOR FLOOR SLABS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI @ 28 DAYS, 3" SLUMP AND 3% MAXIMUM AIR ENTRAINMENT.
13. STEEL REINFORCEMENT SHALL CONFORM TO A.S.T.M. A-615, GRADE 60.
14. ALL REINFORCING BARS SHALL BE COLD BENT IN ACCORDANCE WITH THE PROPER RADII ESTABLISHED BY THE A.C.I. UNDER NO CIRCUMSTANCES SHALL HEAT BE APPLIED TO THE BARS TO OBTAIN BENDS.
15. ALL CONCRETE SLABS PLACED ON GROUND SHALL BE REINFORCED AS NOTED ON PLAN.
16. WHERE CONTINUOUS BARS ARE CALLED FOR, THEY SHALL BE RUN CONTINUOUSLY AROUND CORNERS AND LAPPED AT NECESSARY SPLICES OR HOOKED AT DISCONTINUOUS ENDS. LAPS SHALL BE 40 BAR DIAMETERS, UNLESS OTHERWISE SHOWN.
17. ALL FOUNDATION WALLS SHALL BE BRACED DURING BACKFILLING AND TAMPING OPERATIONS.
18. THE USE OF CONTROL JOINTS IN THE SLAB IS RECOMMENDED TO CONTROL CRACKING. SAW CUT TO A DEPTH OF 1/5 OF THE DEPTH OF THE SLAB.
19. BACKFILL NO EXTERIOR WALLS UNTIL PERMANENT STRUCTURAL SUPPORTS (FRAMED FLOORS AND SLABS) ARE IN PLACE.
20. CONCRETE SHALL REACH 75% OF SPECIFIED STRENGTH BEFORE CONSTRUCTION LOADS ARE APPLIED, UNLESS SPECIFICALLY APPROVED BY THE STRUCTURAL ENGINEER-OF-RECORD. CONCRETE STRENGTH SHALL BE VERIFIED WITH 7-DAY CYLINDER BREAKS.
21. CONCRETE PROTECTION FROM REINFORCING BARS:
    FOUNDATION & BASEMENT WALLS; 2" CLEAR
    BOTTOM OF FOOTINGS & GRADE BEAMS: 3" CLEAR
    BEAMS, COLUMNS & STRUCTURAL SLABS: 1½" CLEAR.

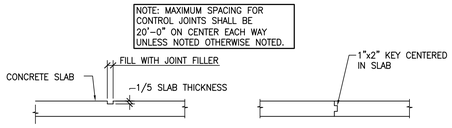
CONCRETE OR BRICK MASONRY (C.M.U.) NOTES:

1. CONCRETE MASONRY UNITS SHALL BE MANUFACTURED IN ACCORDANCE WITH THE AMERICAN CONCRETE INSTITUTE SPECIFICATIONS 530.1-88 OR LATEST EDITION AND SHALL HAVE A MINIMUM f'm = 1,500 P.S.I.
2. MORTAR FOR USE WITH CONCRETE MASONRY UNITS SHALL BE IN CONFORMANCE WITH A.S.T.M. C270 AND SHALL BE TYPE S WITH AN AVERAGE COMPRESSIVE STRENGTH OF 1,800 P.S.I. AT 28 DAYS.
3. CONCRETE MASONRY UNITS SHALL NOT BE WETTED PRIOR TO PLACEMENT.
4. ALL C.M.U. WALLS SHALL BE REINFORCED IN ACCORDANCE WITH THE MINIMUM REINFORCING PROVISIONS OF THE AMERICAN CONCRETE ASSOCIATION (A.C.I.) PUBLICATION 530-88 OR LATEST EDITION. THE MINIMUM VERTICAL REINFORCEMENT SHALL BE:
   8" BLOCK: #6 BARS, MAX. SPACING = 48" OC

   PROVIDE HORIZONTAL REINFORCING EVERY SECOND (2ND) COURSE. HORIZONTAL REINFORCEMENT SHALL BE #8 WIRE STANDARD DUROWALL, CONTINUOUS TRUSS TYPE REINFORCED WITH DEFORMED SIDE WIRES.
5. CELLS TO RECEIVE VERTICAL REINFORCEMENT SHALL HAVE CONCRETE PLACED TO THE FULL HEIGHT. CONCRETE STRENGTH TO BE 2,500 P.S.I. AT 28 DAYS.
6. DOWELS SHALL BE PROVIDED IN THE FOUNDATION WALLS AND SHALL BE INSTALLED TO MATCH THE VERTICAL MASONRY WALL REINFORCEMENT SIZE AND LOCATION, EXCEPT AS OTHERWISE NOTED.
7. SEE STRUCTURAL AND ARCHITECTURAL DRAWINGS FOR C.M.U. WALL LOCATIONS AND DIMENSIONS.
8. ALL OPENINGS IN C.M.U. WALLS SHALL HAVE 1 - #6 ADDITIONAL BAR ON EACH SIDE OF THE OPENING EXTENDING 24" BEYOND CORNERS OF THE OPENING. THESE CELLS SHALL BE GROUTED SOLID ON EACH SIDE OF THE OPENING.
9. PROVIDE A MINIMUM OF 1-#6 VERTICAL REINFORCING BAR FULLY GROUTED AT END CELL OF ALL DISCONTINUOUS WALLS AND UNDER ALL LINTEL ANGLES AND COLUMN BEARING LOCATIONS UNLESS NOTED OR SHOWN OTHERWISE.
10. SEE ARCHITECTURAL DRAWINGS FOR LOCATION OF CONTROL JOINTS.
11. UNLESS OTHERWISE NOTED OR SHOWN ON PLANS AND SECTIONS, PROVIDE LINTEL ANGLES, ONE FOR EACH FOUR INCHES OF MASONRY WIDTH AS FOLLOWS:

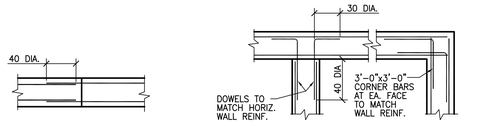
FOR OPENINGS UP TO 5'-0"	L4x3-1/2x5/16
FOR OPENINGS FROM 5'-0" TO 7'-0"	L5x3-1/2x5/16
FOR OPENINGS FROM 7'-0" TO 9'-0"	L6x3-1/2x5/16
FOR OPENINGS FROM 9'-0" TO 12'-0"	W8x24
FOR 22'-0 WIDE OPENING	W16x36

12. LINTEL ANGLES IN PAIRS SHALL BE PLUG WELDED AT 18" ON CENTER EXCEPT AS OTHERWISE NOTED.
13. STEEL LINTEL ANGLES, WHERE EXPOSED TO WEATHER, SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A 153.
14. ALL LINTELS SHALL BE A MINIMUM OF 6" LONGER THAN MASONRY OPENING DIMENSIONS AT EACH END IN ORDER TO PROVIDE PROPER BEARING.
15. ALL JOINT REINFORCEMENT (TIES, ANCHORS, AND JOINT REINFORCING) SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A 153 WITH A MINIMUM COATING OF 1.50 OUNCES PER SQUARE FOOT.



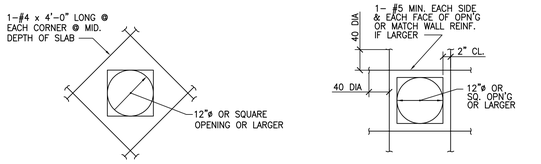
TYP, CONC. SLAB CONTROL JOINT
SCALE: 3/4" = 1'-0"

TYP, CONC. SLAB CONSTRUCTION JOINT
SCALE: 3/4" = 1'-0"



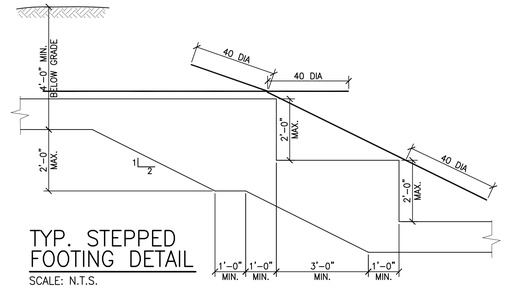
TYP. WALL CONSTR. JOINT
SCALE: 3/4" = 1'-0"

HORIZ. WALL REINF. DETAIL
SCALE: N.T.S.

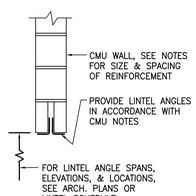


ADD'L REINF. REQ'D. @ OPENINGS IN SLAB
SCALE: 3/4" = 1'-0"

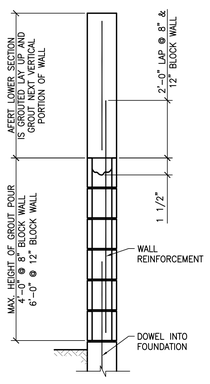
ADD'L. REINF. REQ'D. @ OPENINGS IN WALL
SCALE: 3/4" = 1'-0"



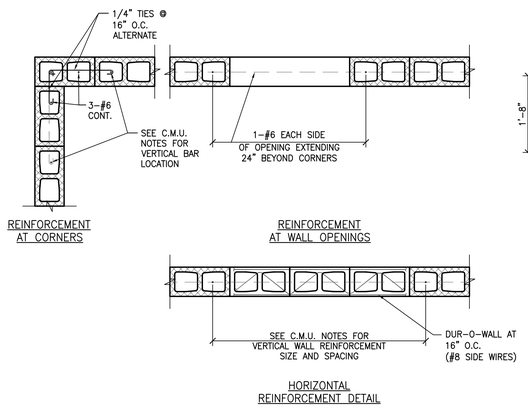
TYP. STEPPED FOOTING DETAIL
SCALE: N.T.S.



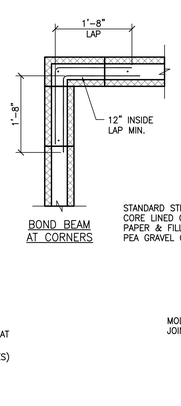
TYPICAL LINTEL ANGLE DETAIL
SCALE: N.T.S.

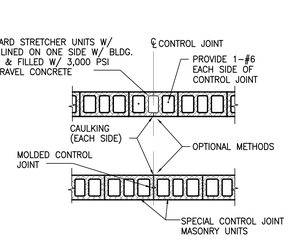


TYP, MASONRY GROUTING SEQUENCE
SCALE: N.T.S.

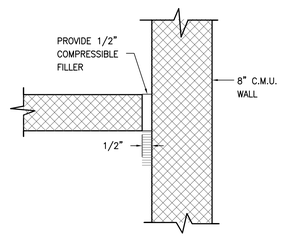


TYP, MASONRY WALL REINFORCING DETAILS
SCALE: N.T.S.





MASONRY CONTROL JOINT @ CMU WALL
SCALE: N.T.S.



TYP. CMU EXPANSION JOINT DETAIL
SCALE: N.T.S.

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STRUCTUAL NOTES & TYPICAL DETAILS

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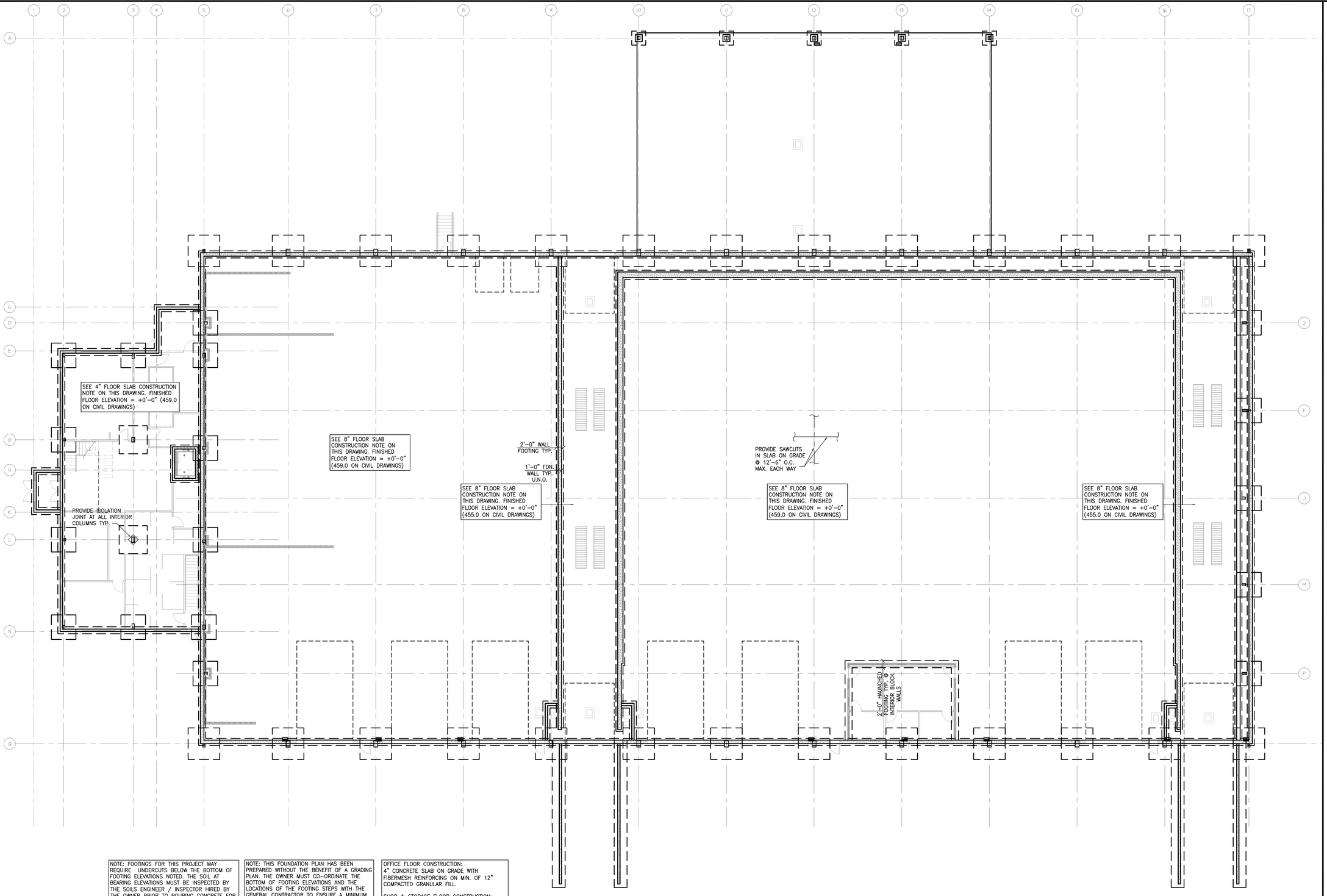

NOTE: FOOTINGS FOR THIS PROJECT MAY REQUIRE UNDERCUTS BELOW THE BOTTOM OF FOOTING ELEVATIONS NOTED. THE SOIL AT BEARING ELEVATIONS MUST BE INSPECTED BY THE SOILS ENGINEER / INSPECTOR HIRED BY THE OWNER PRIOR TO POURING CONCRETE FOR FOUNDATIONS. THE SOILS ENGINEER / INSPECTOR WILL DETERMINE ADEQUATE BEARING ELEVATIONS AND THE AMOUNT OF COMPACTED GRANULAR FILL MATERIAL REQUIRED ON SITE PRIOR TO EACH CONCRETE POUR.

TOP OF SLAB ELEV. 0'-0"= REFERENCE ELEV.

NOTE: VERIFY LOCATIONS & SIZES OF ALL EXTERIOR DOORS WITH ARCH. DWGS. VERIFY DIMENSIONS WITH ARCH. DWGS.

NOTE: THIS FOUNDATION PLAN HAS BEEN PREPARED WITHOUT THE BENEFIT OF A GRADING PLAN. THE OWNER MUST CO-ORDINATE THE BOTTOM OF FOOTING ELEVATIONS AND THE LOCATIONS OF THE FOOTING STEPS WITH THE GENERAL CONTRACTOR TO ENSURE A MINIMUM OF 4'-0" FROST COVER OVER ALL EXTERIOR FOOTINGS. BOTTOM OF FOOTING ELEVATIONS WILL BE NOTED ON THIS DRAWING AFTER A GRADING PLAN HAS BEEN PROVIDED

NOTE: VERIFY ALL COLUMN LOCATIONS WITH BLDG. MANUFACTURER'S DRAWINGS

OFFICE FLOOR CONSTRUCTION:
4" CONCRETE SLAB ON GRADE WITH FIBERMESH REINFORCING ON MIN. OF 12" COMPACTED GRANULAR FILL.

SHOP & STORAGE FLOOR CONSTRUCTION:
8" CONCRETE SLAB WITH FIBERMESH REINFORCING & (1) #5 @ 12" O.C. BOTTOM EACH WAY ON MIN. OF 12" COMPACTED GRANULAR FILL (NYSDOT 304-2.02 Type 2).

NOTE: ALL FOUNDATION & BACKFILL WORK SHALL BE DONE IN ACCORDANCE WITH THE GEOTECHNICAL REPORT PREPARED
BY: ENSOL
PROJECT NO.:
DATED: OCTOBER 2021

THIS PLAN HAS BEEN PREPARED IN CONJUNCTION WITH THE SITE GRADING PLAN PREPARED
BY: EN SOL
PROJECT NO.:
DRAWING NO.: 2
REVISION NO.:
DATED: MARCH 2022

FOUNDATION PLAN

SCALE: 3/32" = 1'-0"

LEGEND

xxxx — BOT. OF FOOTING ELEVATION

FOOTING TYPE — F / P / C — PIER TYPE

COLUMN TYPE

FOOTING SCHEDULE

TYPE	SIZE	REINFORCING
F1		
F2		
F3		
F4		
F5		

NOTE: FOOTING SIZES WILL BE PROVIDED AFTER FINIAL PRE-ENGINEERED DRAWINGS HAVE BEEN SUBMITTED.

PIER SCHEDULE

TYPE	SIZE	REINF.
P1-P5	SEE DETAILS ON S201	SEE DETAIL

COLUMN SCHEDULE

TYPE	SIZE
C1	STEEL COLUMN BY OTHERS

REVISION DESCRIPTION

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DRAWN BY MLK

SHEET S-100

JOB # 221022

DATE 03-14-22

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FURNACE/CONDESING UNIT SCHEDULE

FURNACE UNIT NO.	TRANE MODEL NO.	AREA SERVED	INDOOR FAN			S.P. (IN WC)	NG HEATING DATA			COOLING		POWER				CONDENSER UNIT NO.	TRANE MODEL NO.	CAPACITY TONS	OUTDOOR FAN			ELECTRICAL			REFRIGERANT PIPING		WEIGHT LBS	NOTES
			TOTAL CFM	OA CFM	HP		MBH INPUT	MBH OUTPUT	AFUE %	TOTAL MBH	SEER	VOLTS	PH	MCA	MOCP				# OF FANS	RPM	HP	VOLTS	MCA	MOP	LIQU.	GAS		
F-1	S9X1C100U5PSBA	1ST FLR	1600	200	1	0.50	100	97	95.0	48.0	13.0	115	1	13.3	15	ACCU-1	4TTB3048D	4.0	1	835	1/5	208/1	27	45	3/8"	7/8"	250	
F-2	S9X1C100U5PSBA	1ST FLR	1600	200	1	0.50	100	97	95.0	48.0	13.0	115	1	13.3	15	ACCU-2	4TTB3048D	4.0	1	835	1/5	208/1	27	45	3/8"	7/8"	250	
F-3	S9X1C100U5PSBA	2ND FLR	1600	200	1	0.50	100	97	95.0	48.0	13.0	115	1	13.3	15	ACCU-3	4TTB3048D	4.0	1	835	1/5	208/1	27	45	3/8"	7/8"	250	
F-4	S9X1C100U5PSBA	2ND FLR	1600	200	1	0.50	100	97	95.0	48.0	13.0	115	1	13.3	15	ACCU-4	4TTB3048D	4.0	1	835	1/5	208/1	27	45	3/8"	7/8"	250	
F-5	S9X1B040U3PSBA	BREAKROOM	600	0	1/2	0.50	40	38.8	96.0	18.0	13.0	115	1	8.8	15	ACCU-5	4TTB3018	1.5	1	825	1/8	208/1	9.0	15	3/8"	5/8"	165	

FURNACE ACCESSORIES:

1. DISCONNECT SWITCH.
2. PROGRAMMABLE THERMOSTAT.
3. HOUSEKEEPING PAD
4. LIQUID/SUCTION LINE KIT TO COND UNIT
5. PROVIDE HANGING KIT

CONDENSING UNIT ACCESSORIES:

1. PROVIDE CONCRETE PAD.
2. PROVIDE FACTORY INSTALLED HIGH AND LOW PRESSURE SWITCHES AND THERMAL EXPANSION VALVE.
3. PROVIDE LIQUID LINE SOLENOID VALVE.
4. PROVIDE DISCONNECT SWITCH
5. PROVIDE LOW AMBIENT CONTROL WITH WINTER START-UP KIT.

EXHAUST FAN SCHEDULE

UNIT NO.	AREA SERVED	GREENHECK MODEL NO.	TYPE	CFM	S.P. (IN WC.)	FAN RPM	LIGHT	OPERATING POWER	MOTOR INFORMATION			SONES	NOTES
									VOLTAGE	ENCL.	RPM		
EF-1	RESTROOM	SP-B80	CEILING	75	0.125	900	NO	18 W	115/60/1ø	ODP	900	0.6	1,2,3,4
EF-2	RESTROOM	SP-B80	CEILING	75	0.125	900	NO	18 W	115/60/1ø	ODP	900	0.6	1,2,3,4
EF-3	RESTROOM	SP-B80	CEILING	75	0.125	900	NO	18 W	115/60/1ø	ODP	900	0.6	1,2,3,4
EF-4	RESTROOM	SP-B80	CEILING	75	0.125	900	NO	18 W	115/60/1ø	ODP	900	0.6	1,2,3,4
EF-5	RESTROOM	SP-B80	CEILING	75	0.125	900	NO	18 W	115/60/1ø	ODP	900	0.6	1,2,3,4

NOTES:

1. CONTROLLED BY SWITCH.
2. PROVIDE MANUFACTURER'S ROOF CURB AND CAP.
3. BACKDRAFT DAMPER
4. HANGING KIT WITH VIBRATION ISOLATORS.

AIR DEVICE SCHEDULE

MARK	TYPE	STYLE	FACE	BASIS OF DESIGN
A	SUPPLY	LAY-IN	24"x24"	TITUS TMS
A1	SUPPLY	LAY-IN	12"x12"	TITUS TMS
B	RETURN	LOUVERED, LAY-IN	24"x24"	TITUS 350RL
C	RETURN	LOUVERED, LAY-IN	24"x12"	TITUS 350RL

MARK — A — 8"ø NECK / 150 CFM

NOTES:

1. FINISH TO MATCH ARCHITECTURAL.
2. OPTIONAL VOLUME DAMPER ON ALL DIFFUSERS MOUNTED IN GYPSUM CEILINGS OR SOFFITS.
3. PROVIDE ALL REQUIRED MOUNTING FRAMES AND HARDWARE.

ELECTRIC HEATER SCHEDULE

MARK	SERVICE	TYPE	CFM	POWER	MOTOR AMPS	HEAT K.W.	STEPS	MODEL	ACC
EWH-1	VESTIBULE	WALL	100	208/1	7.2	1.5	1	QMARK AWH4404F	1,2,3,4

ACCESSORIES

1. INTEGRAL TAMPER PROOF THERMOSTAT.
2. SECURITY COVER.
3. MOUNTING FRAME KIT.
4. FACTORY MOUNTED DISCONNECT SWITCH.

MECHANICAL LEGEND

- SUPPLY AIR DIFFUSER
- RETURN AIR GRILLE
- EXHAUST FAN
- UD — UNDERCUT DOOR (3/4")
- EXHAUST AIR DUCTWORK
- RETURN AIR DUCTWORK
- SUPPLY AIR DUCTWORK
- BALANCE/VOLUME DAMPER
- T — PROGRAMMABLE THERMOSTAT (+48"AFF)
- 1 / M-100 — DETAIL NUMBER / DRAWING SHEET NUMBER

AFF	ABOVE FINISHED FLOOR
RTU	ROOF TOP UNIT
VD	VOLUME DAMPER
CFM	CUBIC FEET PER MINUTE
FD	FIRE DAMPER
O.A.	OUTSIDE AIR
EAG	EXHAUST AIR GRILLE
SAR	SUPPLY AIR REGISTER
RAG	RETURN AIR GRILLE
NK	NECK
UD	UNDERCUT DOOR (BY ARCHITECT)
GC	GENERAL CONTRACTOR
OBVD	OPPOSED BLADE VOLUME DAMPER
OED	OPEN END DUCT
HVAC	HEATING VENTILATING AND AIR CONDITIONING
MC	MECHANICAL CONTRACTOR

GENERAL HVAC NOTES

A. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATION OF SUPPLY DIFFUSERS, RETURN GRILLES AND EXHAUST GRILLES.

B. CONTRACTOR SHALL MAINTAIN A MIN. OF 10 FEET CLEARANCE BETWEEN OUTSIDE AIR INTAKES AND EXHAUSTS, PLUMBING VENTS, ETC.

C. CONTRACTOR SHALL MAINTAIN RECOMMENDED CLEARANCES FOR MAINTENANCE, OPERATION, ETC. ON ALL MECHANICAL EQUIPMENT.

D. INSULATED FLEXIBLE SUPPLY AIR DUCT MAY BE USED UP TO 5'-0" FROM SUPPLY DIFFUSERS.

E. CONTRACTOR SHALL COORDINATE ALL HVAC WORK WITH OTHER TRADES, ELECTRICAL, PLUMBING, STRUCTURAL, ETC.

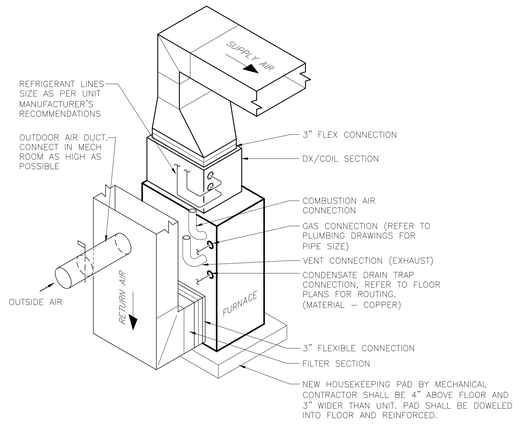
F. ALL WORK SHALL BE IN FULL COMPLIANCE WITH ALL STATE AND LOCAL CODES AND REGULATIONS.

G. HVAC EQUIPMENT SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

H. COORDINATE EXACT LOCATION OF HVAC UNITS WITH ARCHITECTURAL DRAWINGS AND STRUCTURAL STEEL.

I. CONTRACTOR SHALL COORDINATE FINAL LOCATION OF THERMOSTATS WITH OWNER.

J. PROVIDE FIRE DAMPERS AS REQUIRED ON DUCTS PENETRATING FIRE RATED WALL RATED 2-HR OR MORE. COORDINATE WITH ARCHITECTURAL DRAWINGS.



1 / M-100 FURNACE DETAIL
SCALE: NONE

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DRAWN BY KMD

JOB . 221022

DATE 03-14-22

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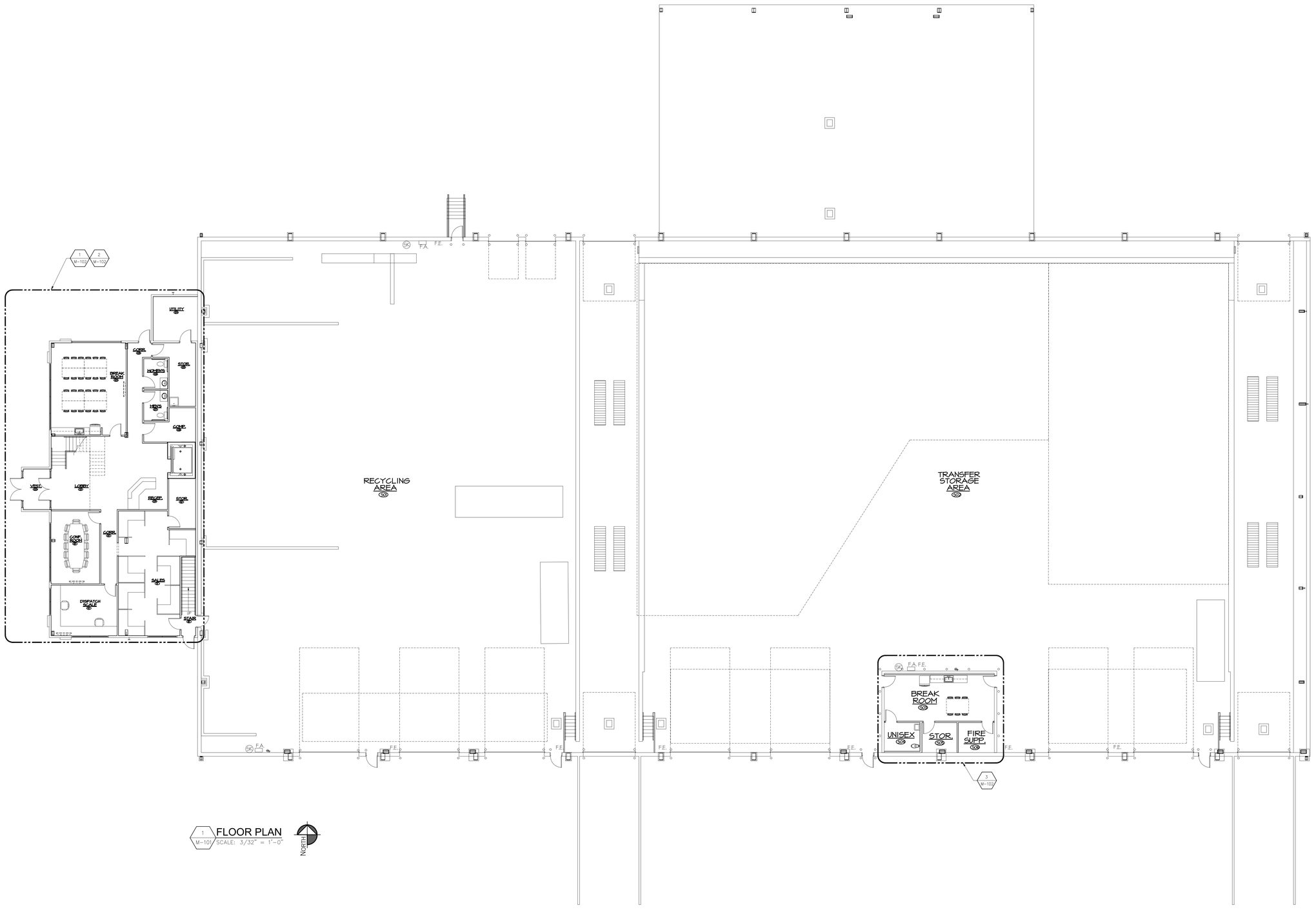

1 M-101 FLOOR PLAN
SCALE: 3/32" = 1'-0"

NORTH

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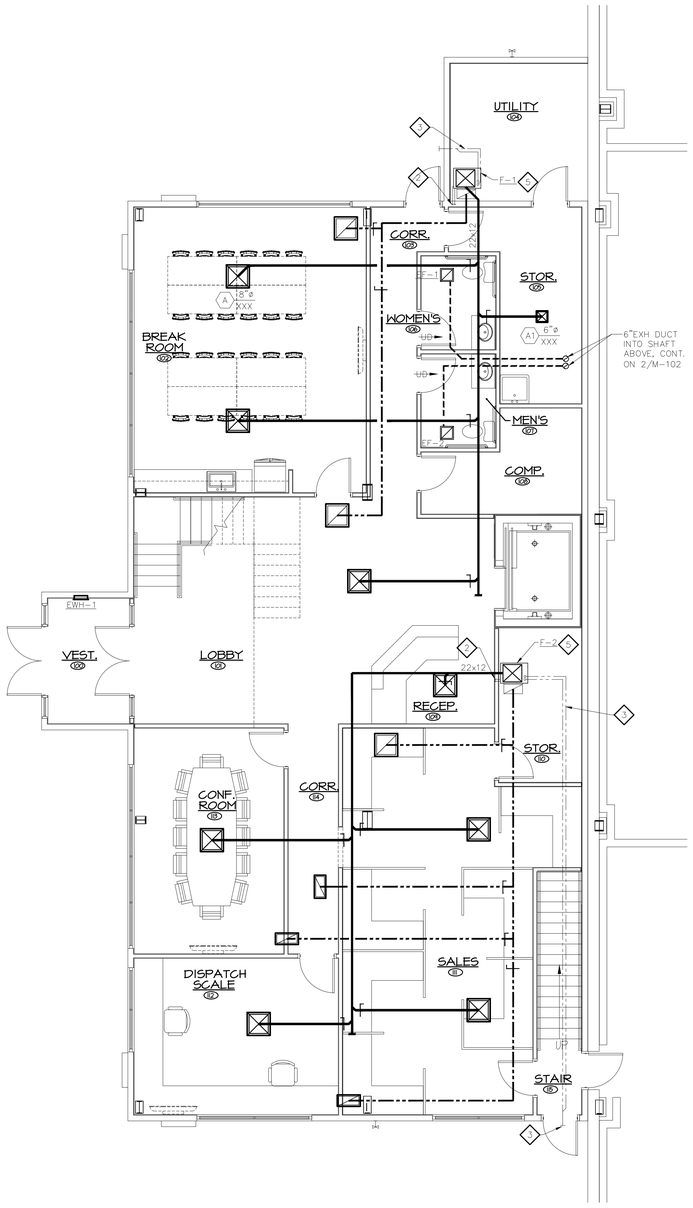
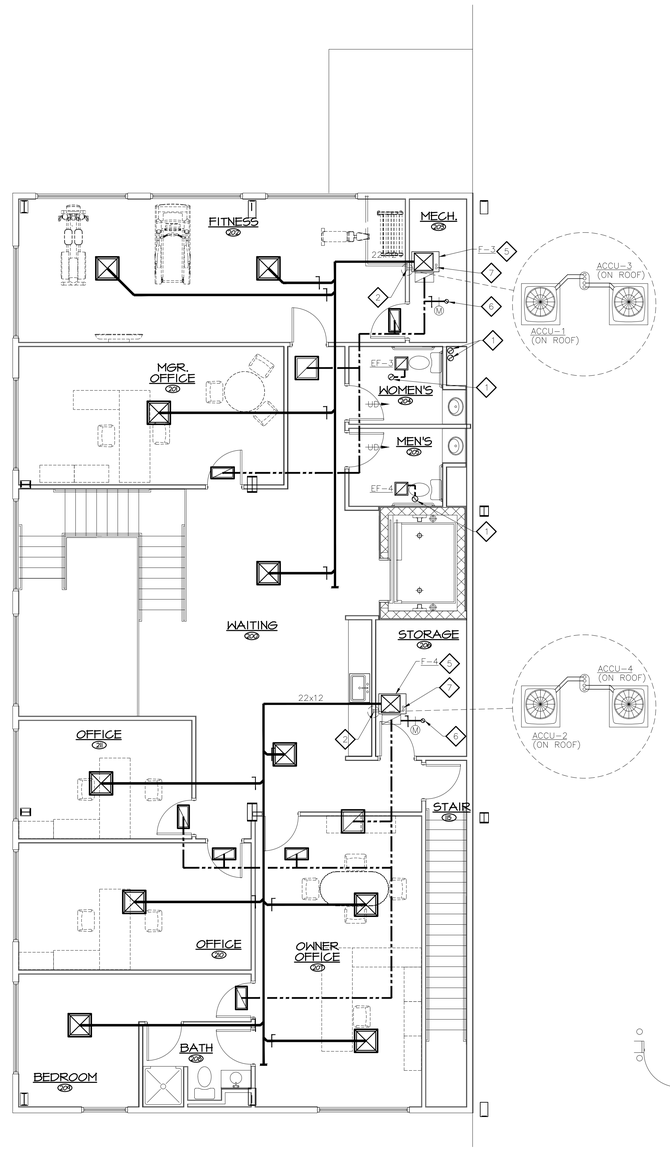
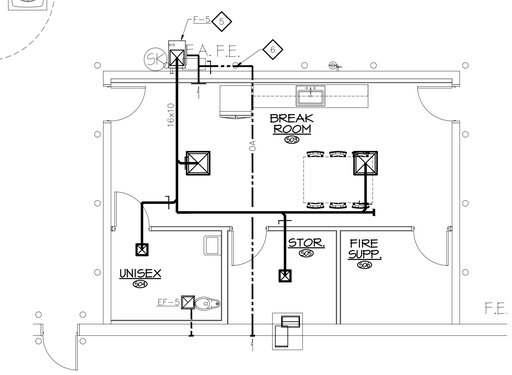


1 M-102 ENLARGED PARTIAL FIRST FLOOR PLAN
SCALE: 3/16" = 1'-0"



2 M-102 ENLARGED PARTIAL SECOND FLOOR PLAN
SCALE: 3/16" = 1'-0"



3 M-102 ENLARGED PARTIAL FIRST FLOOR PLAN
SCALE: 3/16" = 1'-0"

NOTES:

1. 6"ø EXHAUST DUCT UP THRU ROOF TO MANUFACTURER'S ROOF CURB AND CAP.
2. RUN REFRIGERANT PIPING UP IN WALL TO ROOFTOP CONDENSING UNIT, COORDINATE ROUTING IN FIELD.
3. RUN 3" PVC INTAKE AND EXHAUST VENTS OUT EXTERIRO WALL TO CONCENTRIC VENT.
4. NEW THERMOSTAT WITH LOCKABLE COVER.
5. RUN CONDENSATE DOWN TO NEAREST FLOOR DRAIN,
6. 8"ø OUTSIDE AIR DUCT, CONNECT TO RETURN AIR DUCT AND RUN TO ROOF WITH GOOSENECK. BALANCE TO CFM LISTED IN FURNACE SCHEDULE. PROVIDE MOTORIZED DAMPER TO OPEN WHEN FURNACE IS ENERGIZED.
7. RUN 3" PVC INTAKE AND EXHAUST VENTS UP THRU ROOF TO CONCENTRIC VENT.

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HVAC SPECIFICATIONS

NOTE: MANUFACTURERS' NAMES ON WHICH THIS SPECIFICATION IS BASED INDICATE THE MINIMUM QUALITY OF PRODUCT REQUIRED. SUBSTITUTION MAY BE MADE TO THOSE SPECIFIED IF DEEMED EQUIVALENT BY THE OWNER'S REPRESENTATIVE. ALL WORK AND PRODUCTS SHALL MEET THE REQUIREMENTS OF GOVERNING CODES.

1. ALL WORK SHALL BE PERFORMED IN CONFORMANCE WITH ALL APPLICABLE CODES.
2. SEE ARCHITECTURAL GENERAL AND SPECIAL CONDITIONS. ALL CONDITION REQUIREMENTS SHALL APPLY UNLESS OTHERWISE NOTED.
3. ALL WORK SHALL BE PERFORMED AS INDICATED ON DRAWINGS UNLESS FIELD CONDITIONS REQUIRED MINOR CHANGES BE MADE. MINOR CHANGES SHALL BE MADE WITH NO ADDITIONAL COST.
4. ALL WORK SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR AFTER FINAL ACCEPTANCE OF THE WORK BY THE OWNER.
5. CONTRACTOR SHALL PREPARE AND SUBMIT AS-BUILT DRAWINGS TO THE OWNER AND THE LANDLORD. AS-BUILT DRAWINGS SHALL INDICATE THE ACTUAL MANUFACTURER OF THE EQUIPMENT THAT WAS INSTALLED, THE EXACT LOCATION OF THE EQUIPMENT AND PERTINENT CAPACITIES FOR HEATING, COOLING, ELECTRICAL, ETC.
6. DEFICIENCIES AND NON-CONFORMING ITEMS SHALL BE CORRECTED BY THE CONTRACTOR. FAILURE TO CORRECT SUCH ITEMS SHALL PERMIT THE OWNER TO CORRECT SAME AT A COST TO THE CONTRACTOR
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING ALL PERMITS AND PAYING FOR SAME. HE SHALL INCLUDE IN HIS BID CHARGES FOR ALL FEES ASSOCIATED WITH THE CONSTRUCTION OF THE SPACE INCLUDING BUT NOT LIMITED TO LOCAL, COUNTY, OR STATE SERVICE CHARGES AND PERMIT FEES.
8. THE SCOPE OF WORK OF THIS CONTRACT INCLUDES, BUT SHALL NOT BE LIMITED TO:
   - A. PROVIDE AND INSTALL ALL EQUIPMENT, APPLIANCES, CONTROL DEVICES, ACCESSORIES, MATERIAL AND LABOR.
   - B. PROVIDE AND INSTALL ALL DUCTWORK, INSULATION, AIR DEVICES DUCT ACCESSORIES, MATERIAL AND LABOR
   - C. PROVIDE AND INSTALL ALL PIPING, FITTINGS, VALVES, INSULATION, ACCESSORIES , MATERIAL AND LABOR
   - D. PROVIDE AND INSTALL TOILET EXHAUST SYSTEM INDICATED.
   - E. CLEAN, TEST AND PUT INTO SERVICE ALL SYSTEMS SPECIFIED.
   - F. PROVIDE A BALANCE REPORT PREPARED BY AN INDEPENDENT AABC OR NEBB CERTIFIED AIR BALANCE CONTRACTOR.
   - G. WARRANTY ALL WORK AND MATERIALS HEREIN SPECIFIED FOR A PERIOD OF NOT LESS THAN ONE YEAR.
9. MATERIALS

9.1. ALL MATERIALS SHALL BE NEW AND OF RECOGNIZED COMMERCIAL QUALITY. USED MATERIALS WILL NOT BE PERMITTED.

9.2. DUCTWORK

SHALL BE GALVANIZED SHEET METAL, FABRICATED AND INSTALLED IN STRICT ACCORDANCE WITH THE LATEST EDITION OF SMACNA – "HVAC DUCT CONSTRUCTION STANDARDS, METAL AND FLEXIBLE".

DUCTWORK 18" WIDTH AND LARGER SHALL BE CROSS-BROKEN OR RIBBED AND STIFFENED SO THAT IT WILL NOT "BREATHE", RATTLER, VIBRATE OR SAG.

9.3. FLEXIBLE DUCTWORK

FLEXIBLE DUCTS SHALL BE FLAT METAL SPIRAL WITH FLAME RESISTANCE PER NBFU AND NFPA STANDARDS. DUCTS SHALL HAVE INTEGRAL INSULATION 1" THICK, 3/4 LB. DENSITY GLASS FIBER ENCLOSED IN A VINYL VAPOR BARRIER.MINIMUM R VALUE = 5. SECURE INSULATED JACKET TO DUCT TAKEOFFS AND DIFFUSER COLLARS. MAXIMUM LENGTH OF FLEXIBLE DUCT IS 5'-0".

ALL FLEX DUCT SHALL BE FULLY STRETCHED OUT TO REDUCE AIR RESISTANCE.

CONNECTIONS TO FITTINGS OR AIR DEVICES SHALL BE MADE WITH TWO (2) STAINLESS STEEL BANDS. THE INNER LINER SHALL BE CLAMPED TIGHT WITH THE FIRST BAND, THEN THE INSULATION AND VAPOR-PROOF JACKET PULLED TO BE TIGHT AGAINST THE DUCT FITTING OR AIR DEVICE AND SECURED WITH THE SECOND BAND. INSTALLATION SHALL BE AS RECOMMENDED BY THE DUCT MANUFACTURER AND SMACNA

SUPPORT THE FLEXIBLE DUCT WITH ADEQUATE HANGERS TO RELIEVE STRAIN ON ANY FITTING. UNNECESSARY BENDS, SAGS, TWISTS., WILL NOT BE ALLOWED.

9.4. DUCT INSULATION

INSULATION SUPPLY AND RETURN AIR DUCTWORK WITH MINIMUM R=6 FOR NON-CONDITIONED SPACE AND MIN R=12 FOR OUTSIDE DUCTS IN ACCORDANCE WITH THE STATE ENERGY CONSERVATION CODE. PROVIDE VAPOR BARRIER.

LINED DUCT SHALL BE LINED WITH 1" THICK COATED FIBERGLASS BOARD EQUAL TO JOHNS MANVILLE "PERMACOTE" INSULATION. SHALL BE PER SMACNA STANDARDS AND MANUFACTURER'S INSTRUCTIONS. LINED DUCTWORK SHALL BE USED WHERE INDICATED ON DRAWING

ALL DUCT INSULATION SHALL BE UL LABELED FOR FIRE AND SMOKE RATINGS.

DUCT INSULATION SHALL BE EQUAL TO PRODUCTS MANUFACTURED BY CERTAINTEED AND SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

9.5. AIR DEVICES

CEILING DIFFUSERS SHALL HAVE A FRAME STYLE COMPATIBLE WITH THE TYPE OF CEILING USED. THE DIFFUSER FACE SIZE OR FACE PLATE SIZE SHALL BE OF THE SAME NORMAL SIZE AS THE CEILING MODULE. DIFFUSERS SHALL HAVE HIGH ANTI-SMUDGE CHARACTERISTICS. REFER TO AIR DEVICE SCHEDULE.

9.6. PIPING AND FITTINGS

CONDENSATE DRAIN PIPING SHALL BE TYPE L COPPER WITH SOLDERED JOINTS AND WROUGHT COPPER FITTINGS.

10. EQUIPMENT

HVAC EQUIPMENT SHALL BE AS SCHEDULED ON THE DRAWINGS AND/OR SPECIFIED HEREIN. EQUIVALENT EQUIPMENT AND/OR COMPONENTS THEREOF MAY BE SUBSTITUTED FOR SPECIFIED EQUIPMENT ONLY AS APPROVED BY THE OWNER AND/OR THE PROJECT ENGINEER.

11. EXECUTION

11.1. GENERAL

ACCESSIBILITY – ALL EQUIPMENT SHALL BE INSTALLED IN SUCH A MANNER THAT ALL COMPONENTS REQUIRING ACCESS ARE LOCATED AND INSTALLED THAT THEY MAY BE SERVICED, RESET, REPLACED, OR RECALIBRATED, ETC., BY SERVICE PEOPLE WITH NORMAL SERVICE TOOLS AND EQUIPMENT.

WORK BY OTHER TRADES – FOR THE WORK REQUIRED BY OTHER TRADES FOR CHANGES MADE BY THIS CONTRACTOR IN TYPE OR SIZE OF EQUIPMENT PURCHASED, ANY CUTTING, PATCHING, FURRING, PAINTING, ELECTRICAL OR PLUMBING WORK SHALL BE DONE BY THE AFFECTED TRADE AT THIS CONTRACTOR'S EXPENSE.

EARLY START-UP – THIS CONTRACTOR SHALL ENSURE THAT ALL MECHANICAL EQUIPMENT IS CONNECTED WITH ELECTRICAL POWER AS EARLY AS POSSIBLE SO THAT BALANCING AND TESTING CAN BEGIN AT THE EARLIEST DATE AVAILABLE.

CLEANING AND PAINTING – THOROUGHLY CLEAN ALL EQUIPMENT AND REMOVE ALL TRASH, CARTONS, ETC., FROM THE WORK AREA. MAKE ANY NECESSARY CORRECTIONS OR REPAIR/ REPLACE ANY DAMAGED MATERIALS OR EQUIPMENT. LEAVE THE ENTIRE SPACE IN A THOROUGHLY CLEAN AND ORDERLY MANNER. ANY FINISHED SURFACES THAT HAVE BEEN SCRATCHED OR DISCOLORED SHALL BE TOUCHED UP OR REPAINTED TO MATCH THE ORIGINAL COLOR. IF ANY PART HAS BEEN BENT, BROKEN OR OTHERWISE DAMAGED, IT SHALL BE REPLACED PRIOR TO PROJECT CLOSEOUT. ALL METAL ITEMS INSIDE THE BUILDING SUBJECT TO RUSTING, AND ALL FERROUS METAL EXPOSED TO THE WEATHER SHALL BE GIVEN ONE COAT OF RUST PREVENTIVE PRIMER AS SOON AS INSTALLED.

11.2. EQUIPMENT INSTALLATION

ALL EQUIPMENT AND RELATED PIPING, DUCTWORK, CONTROL WIRING AND ACCESSORIES SHALL BE INSTALLED PARALLEL OR PERPENDICULAR TO BUILDING LINES AND, IF INSTALLED WITHIN WITHIN THE BUILDING ENVELOPE SHALL BE INSTALLED AS HIGH AS POSSIBLE TO ALLOW THE MAXIMUM AMOUNT OF HEADROOM. EQUIPMENT THAT REQUIRES ROUTINE MAINTENANCE SUCH AS FILTER REPLACEMENT SHALL BE INSTALLED AND ARRANGED TO BE ACCESSIBLE. PROVIDE ACCESS PANEL(S) AS REQUIRED AND/OR AS RECOMMENDED BY THE EQUIPMENT MANUFACTURER. ALL EQUIPMENT SHALL BE INSTALLED WITH THE REQUIRED CLEARANCES AS RECOMMENDED BY THE EQUIPMENT MANUFACTURER OR AS REQUIRED BY GOVERNING CODES, WHICHEVER IS GREATER.

11.3. DUCTWORK

LOW PRESSURE DUCTWORK AND FITTING SHALL BE MADE TIGHT FOR MINIMUM AIR LEAKAGE. DUCT TAPE SHALL NOT BE USED TO SEAL JOINTS, TO MAKE TRANSITIONS OR FOR ANY OTHER REASON ON THE OUTSIDE OF THE WRAPPED INSULATION

INSTALL DUCTWORK AS HIGH AS POSSIBLE.

PROVIDE TURNING VANES AT ALL CHANGES IN DIRECTION.

PROVIDE VANED TEES AT BRANCH CONNECTIONS SERVING MORE THAN ONE DIFFUSER

PROVIDE VOLUME CONTROL DAMPERS AND BALANCING DEVICES AS REQUIRED TO DISTRIBUTE THE AIR AND AS INDICATED ON THE DRAWINGS.

NOTE: DUCT DIMENSIONS INDICATED ON THE DRAWINGS ARE INSIDE CLEAR, OR "FREE AREA" DIMENSIONS, CONTRACTOR SHALL MAKE ALLOWANCE FOR INTERNAL DUCT LINER (WHERE SPECIFIED) WHEN ORDERING PRE-FABRICATED DUCTWORK OR WHEN FABRICATING DUCTS IN THE FIELD.

11.4. AIR DEVICES

INSTALL ALL GRILLES AND DIFFUSERS TO BE FLUSH WITH THE PENETRATED SURFACE AND LEVEL OR STRAIGHT WITH SURROUNDING FEATURES. ALL CEILING MOUNTED AIR DEVICES SHALL BE LOCATED IN THE CEILING TILE INDICATED ON THE DRAWINGS. AT THE PROPER HEIGHT TO HOLD IT SNUG AGAINST THE CEILING.

12. INSTALL ROOF MOUNTED EQUIPMENT SUPPORT RAILS OR ROOF CURB AS REQUIRED FOR THE JOB CONDITIONS AND AS RECOMMENDED BY THE MANUFACTURER FOR THE INSTALLATION OF ROOF MOUNTED EQUIPMENT.

ALL ROOF PENETRATIONS FOR POWER AND CONTROL WIRING CONDUITS AND GAS, CONDENSATE, OR REFRIGERANT PIPING SHALL BE MADE WITH WATERPROOF PIPE SLEEVES OR CURB(S).

13. THIS CONTRACTOR SHALL ENGAGE THE SERVICES OF AN AABC OR NEBB CERTIFIED AIR BALANCE CONTRACTOR TO ADJUST AND COMPLETELY BALANCE THE INSTALLED SYSTEM(S) TO THE DESIGN AIR QUANTITIES. CONTRACTOR SHALL PROVIDE THE OWNER AND THE LANDLORD A COPY OF THE CERTIFIED AIR BALANCE REPORT SHOWING DESIGN AND MEASURED AIR QUANTITIES, STATIC PRESSURES, FAN MOTOR RPM AND MOTOR CURRENT, DEVIATION BETWEEN DESIGN AND MEASURED QUANTITIES SHALL NOT BE GREATER THAN 10%.

14. ALL MATERIALS, EQUIPMENT AND INSTALLATION SHALL BE GUARANTEED FOR A MINIMUM PERIOD OF ONE (1) YEAR FROM THE DATE OF ACCEPTANCE BY THE OWNER. DEFECTS WHICH APPEAR DURING THAT PERIOD SHALL BE CORRECTED AT THIS CONTRACTOR'S EXPENSE.

FOR THE SAME PERIOD, THIS CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE CAUSED TO THE PREMISES BY DEFECTS IN HIS WORKMANSHIP OR WORK AND/OR EQUIPMENT INSTALLED BY OTHERS UNDER HIS CONTRACT.

REVISION DESCRIPTION
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DOM MAR TRANSFER FACILITY

DOLSONTOWN ROAD
TOWN OF WAWAYANDA, NEW YORK

SPECIFICATIONS

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LIGHTING FIXTURE SCHEDULE

FIXTURE DES.	FIXTURE TYPE	DESCRIPTION	MANUFACTURER MODEL No.	MOUNTING	LAMPS	BALLAST	VOLTAGE
A							XXXX
B							XXXX
C							XXXX
D							
E							
F							
G							
H							
J							
K							
							XXXX
							XXXX
							XXXX

GENERAL LIGHTING FIXTURE SCHEDULE NOTES:

- E.C. SHALL PROVIDE AND INSTALL ALL NECESSARY FIXTURE LAMPS.
- E.C. SHALL VERIFY ALL FINAL FIXTURE TYPES, STYLES, COLORS & FINISHES ETC. WITH ARCHITECT/OWNER PRIOR TO PURCHASING FIXTURES.
- REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES, E.C. SHALL PROVIDE NECESSARY MOUNTING KITS ASSOCIATED WITH FIXTURES FOR PROPER INSTALLATION IN SPECIFIED CEILING.

MECHANICAL EQUIPMENT CONNECTION SCHEDULE

EQUIPMENT DESIGNATION RTU-1 (M)	LOCATION	HP	FLA	PHASE	VOLTS	SOURCE PROTECTION DEVICE: BREAKER	POLE	PANELBOARD SOURCE	CIRCUIT NO.	BRANCH CIRCUIT CONDUIT & WIRE: QUANTITIES AND SIZE	REFERENCE NOTES
F-1	FURNACE-1	1ST FLOOR	–	13.3	1	115	15	1	LP2	2	2#12 & 1#12 IN 1/2"C	2
F-2	FURNACE-2	1ST FLOOR	–	13.3	1	115	15	1	LP2	4	2#12 & 1#12 IN 1/2"C	2
F-3	FURNACE-3	2ND FLOOR	–	13.3	1	115	15	1	LP2	6	2#12 & 1#12 IN 1/2"C	2
F-4	FURNACE-4	2ND FLOOR	–	13.3	1	115	15	1	LP2	8	2#12 & 1#12 IN 1/2"C	2
F-5	FURNACE-5	BREAKROOM	–	8.8	1	115	15	1	LP2	10	2#12 & 1#12 IN 1/2"C	2
ACCU-1	CONDENSING UNIT - 1	ON ROOF	1/5	27.0	1	208	45	2	LP2	12,14	3#8 & 1#10 IN 3/4"C	2,3
ACCU-2	CONDENSING UNIT - 2	ON ROOF	1/5	27.0	1	208	45	2	LP2	16,18	3#8 & 1#10 IN 3/4"C	2,3
ACCU-3	CONDENSING UNIT - 3	ON ROOF	1/5	27.0	1	208	45	2	LP2	20,22	3#8 & 1#10 IN 3/4"C	2,3
ACCU-4	CONDENSING UNIT - 4	ON ROOF	1/5	27.0	1	208	45	2	LP2	24,26	3#8 & 1#10 IN 3/4"C	2,3
ACCU-5	CONDENSING UNIT - 5	ON ROOF	1/5	9.0	1	208	15	2	LP2	28,30	3#12 & 1#12 IN 1/2"C	2,3
EF-1	EXHAUST FAN - 1	RESTROOM	18 W	–	1	115	15	1	LP2	25	2#12 & 1#14 IN 1/2"C	5
EF-2	EXHAUST FAN - 2	RESTROOM	18 W	–	1	115	15	1	LP2	27	2#12 & 1#14 IN 1/2"C	5
EF-3	EXHAUST FAN - 3	RESTROOM	18 W	–	1	115	15	1	LP2	29	2#12 & 1#14 IN 1/2"C	5
EF-4	EXHAUST FAN - 4	RESTROOM	18 W	–	1	115	15	1	LP2	31	2#12 & 1#14 IN 1/2"C	5
EF-5	EXHAUST FAN - 5	RESTROOM	18 W	–	1	115	15	1	LP2	33	2#12 & 1#14 IN 1/2"C	5
EF-6	EXHAUST FAN - 6	RESTROOM	18 W	–	1	115	15	1	LP2	35	2#12 & 1#14 IN 1/2"C	5
EWH-1	ELECTRIC WATER HEATER - 1	VESTIBULE	–	7.2	1	208	20	2	LP2	37,29		
ORC-1	RECIRCULATING PUMP - 1	UTILITY	1/6	–	1	120	20	1	LP2	41		

WIRING SCHEDULE GENERAL NOTES

A. EC SHALL BE RESPONSIBLE TO VERIFY ALL CHARACTERISTICS (VOLTAGE, PHASE, HORSEPOWER, AMPERES, ETC.) OF MECHANICAL EQUIPMENT PRIOR TO CONNECTION AGAINST APPROVED SHOP DRAWINGS.

WIRING SCHEDULE REFERENCE NOTES

1. EC TO FURNISH AND INSTALL THERMAL SWITCH.
2. EC SHALL PROVIDE AND INSTALL HACR TYPE CIRCUIT BREAKER.
3. MOUNT DISCONNECT SWITCH ON ROOF. PROVIDE A LOCK AND PROVIDE KEY TO OWNER.
4. RECIRCULATION PUMP SUPPLIED WITH TIMER DISCONNECT SWITCH.
5. FAN SHALL BE CONTROLLED BY OCCUPANCY SWITCH.

ELECTRICAL LEGEND

SYMBOL	DESCRIPTION
	CIRCUIT HOMERUN, CIRCUIT CONCEALED IN CEILING, OR WALL. "|" INDICATES NEUTRAL & HOT LEG(S) "•" INDICATES GROUND WIRE.
	BRANCH CIRCUIT HOMERUN, CIRCUIT CONCEALED IN FLOOR/UNDERGROND
C	20A, 120V, FLUSH MOUNTED DUPLEX RECEPTACLE, COLOR TO BE WHITE. SUBSCRIPT 'C' – MOUNT RECEPTACLE +6" ABOVE COUNTER BACKSPLASH. SUBSCRIPT 'UC' – UNDER COUNTER
C	20A, 120V, FLUSH MOUNTED DUPLEX RECEPTACLE, COLOR TO BE WHITE. SUBSCRIPT 'C' – MOUNT RECEPTACLE +6" ABOVE COUNTER BACKSPLASH. DEDICATED OUTLET
GFCI	20A, 120V, FLUSH MOUNTED GROUND FAULT CIRCUIT INTERRUPTER DUPLEX RECEPTACLE, COLOR TO BE WHITE.
	20A, 120V, FLUSH MOUNTED DOUBLE DUPLEX RECEPTACLE, COLOR TO BE WHITE.
	20A, 120V, FLUSH MOUNTED DUPLEX RECEPTACLE, COLOR TO BE WHITE, C=CEILING MOUNTED, F=FLOOR MOUNTED
	SPECIAL PURPOSE DUPLEX RECEPTACLE, REFER TO PLANS FOR ELECTRICAL SPECIFICATIONS.
JB	JUNCTION BOX – SIZE PER NEC.
D WP	250 VAC HEAVY DUTY DISCONNECT SWITCH, W.P. INDICATES NEMA 3R ENCLOSURE.
	PANELBOARD, REFER TO PANEL SCHEDULES
	120V CONNECTION TO EQUIPMENT
	208V CONNECTION TO EQUIPMENT
	COMMUNICATION SYSTEM OUTLETS (DATA AND TELEPHONE), +18" A.F.F., UNLESS OTHERWISE NOTED. PROVIDE 3/4" CONDUIT W/ BUSHINGS AND PULLSTRING STUBBED UP INTO CEILING CAVITY. VERIFY QUANTITIES AND LOCATIONS WITH OWNER PRIOR TO PURCHASING EQUIPMENT.
$ IIa,b	TOGGLE SWITCH, 1 POLE, ROMAN NUMERALS INDICATE NO. OF GANGS & SMALL CASE LETTERS INDICATE SWITCH LEG CONTROL
$ 3	3–WAY WALL MOUNTED TOGGLE SWITCH
$ 4	4–WAY WALL MOUNTED TOGGLE SWITCH
$ DIM	LUTRON DIMMER SWITCH, MATCH FIXTURE VOLTAGE AND BRANCH CIRCUIT WATTAGE AS REQUIRED.
$ F	FAN SWITCH
	REMOTE TEST STATION – INSTALL IN OFFICE, COORDINATE EXACT LOCATION WITHIN OFFICE WITH OWNER.
*$	
OS	WALL MOUNT OCCUPANCY SWITCH
OS	WALL MOUNT OCCUPANCY SENSOR
TC	PROGRAMMABLE TIME CLOCK– COORDINATE EXACT LOCATION WITH OWNER
	CEILING OCCUPANCY SENSOR
DM	DAMPER MOTOR, 120V
	"MESSENGER" PLASTIC LED EXIT SIGN WITH INNOVATIVE DOWNLIGHT, SERIES PDLEX COMPLETE WITH SNC BATTERY FOR 1.5 HRS OF OPERATION, TEST SWITCH, UNIVERSAL SNAP IN CHEVRONS, UNIVERSAL MOUNT, DAMP UL LISTED, 120 VOLTS.
	EMERGENCY LUMINAIRE HIGH IMPACT THERMOPLASTIC, UNIVERSAL MOUNTING, 120/277 VOLT, WHITE FINISH, TEST SWITCH, DAMP UL LISTED, DUAL LITE CV–SERIES. (OR EQUAL)
	EMERGENCY LUMINAIRE HIGH IMPACT THERMOPLASTIC, UNIVERSAL MOUNTING, 120/277 VOLT, WHITE FINISH, TEST SWITCH, DAMP UL LISTED, WITH A MINIMUM OPERATION OF 90 MINUTES OPERATION. CV5–SERIES FOR EMERGENCY LUMINAIRE, OSMDB– TWIN REMOTE WEATHER PROOF HEAD. (OR EQUAL)

GENERAL NOTES (ALL DRAWINGS)

A. CIRCUIT NUMBERS INDICATED ON THE DRAWINGS ARE SHOWN FOR THE PURPOSE OF CLARIFYING THE GROUPING OF OUTLETS. THE ACTUAL NUMBER ASSIGNED TO THE CIRCUIT IN THE PANELBOARD SHALL SUIT THE BUSSING AND BRANCH CIRCUITING TO THE PANEL. PROVIDE COMPLETE AND ACCURATE TYPEWRITTEN PANEL DIRECTORIES FOR ALL NEW AND EXISTING BRANCH CIRCUIT PANELBOARDS.

B. LOCATIONS INDICATED FOR LIGHT FIXTURES ARE APPROXIMATE. LOCATE FIXTURES AS REQUIRED TO AVOID INTERFERENCE WITH EXISTING AND NEW BUILDING STEEL, PIPING, DUCTWORK, CONDUIT, DIFFUSERS, SMOKE DETECTORS, etc. FIELD COORDINATE THE LOCATIONS AS NEAR AS POSSIBLE TO THOSE INDICATED ON THE PLANS. ALSO REFER TO ARCHITECTURAL REFLECTED CEILING PLANS.

C. ALL CIRCUITING SHALL BE CONCEALED (EXCEPT IN ELECTRICAL AND MECHANICAL SPACES). ALL CONDUITS SHALL BE INSTALLED AS HIGH AS POSSIBLE ABOVE FINISHED CEILINGS AND CONCEALED IN WALLS UNLESS OTHERWISE INDICATED.

D. EXACT LOCATIONS OF CEILING MOUNTED SMOKE DETECTORS AND EXIT SIGNS SHALL BE COORDINATED WITH OTHER CEILING MOUNTED EQUIPMENT TO AVOID CONFLICT. LOCATE DEVICES AS NEAR AS POSSIBLE TO THE LOCATION INDICATED. FIRE ALARM SMOKE AND HEAT DETECTORS SHALL BE REQUIRED TO BE INSTALLED A MINIMUM OF THREE (3) FEET AWAY FROM SUPPLY OR RETURN AIR GRILLES OR PER SYSTEM MANUFACTURERS INSTALLATION REQUIREMENTS AND NFPA 72.

E. THE CONTRACTOR SHALL BE RESPONSIBLE TO REVIEW OTHER TRADES PROJECT CONTRACT DOCUMENTS TO DETERMINE MOUNTING HEIGHTS FOR ELECTRICAL DEVICES OR EQUIPMENT. THE LOCATIONS FOR MECHANICAL AND PLUMBING EQUIPMENT THAT REQUIRES ELECTRICAL CONNECTIONS ARE SHOWN ON THE MECHANICAL AND PLUMBING DRAWINGS. COORDINATE EXACT MOUNTING LOCATIONS AND HEIGHTS IN THE FIELD WITH OTHER TRADES PRIOR TO INSTALLATION.

F. E.C. SHALL WIRE EMERGENCY/EXIT LIGHTING INTO CIRCUIT SERVING AREA WHERE DEVICE IS LOCATED, CIRCUIT AHEAD OF LOCAL SWITCHING, OCCUPANCY SENSING AND TIME CLOCK CONTROL.

FIRE ALARM LEGEND

SYMBOL	DESCRIPTION
S	PHOTOELECTRIC SMOKE SENSOR
S R	DUCT DETECTOR. PROVIDE HOUSING COMPLETE WITH SAMPLING TUBES & IN A WEATHER PROOF ENCLOSURE IF INSTALLED OUTDOORS. S= SUPPLY DUCT, R=RETURN DUCT
F	MANUAL PULL STATION, UNLESS OTHERWISE NOTED, PROVIDE DUAL ACTION.
FR	FAN SHUTDOWN RELAY
F	FIRE ALARM NOTIFICATION AUDIO/VISUAL DEVICE. PROVIDE 15cd STROBE RATING UNLESS OTHERWISE NOTED
F	CEILING MOUNTED FIRE ALARM NOTIFICATION AUDIO/VISUAL DEVICE. PROVIDE 15cd STROBE RATING UNLESS OTHERWISE NOTED
F	FIRE ALARM NOTIFICATION VISUAL DEVICE. PROVIDE 15cd STROBE RATING UNLESS OTHERWISE NOTED
FACP	FIRE ALARM CONTROL PANEL
	REMOTE TEST STATION
FS	FIRE ALARM CONNECTION TO SPRINKLER FLOW SWITCH
TS	FIRE ALARM CONNECTION TO SPRINKLER TAMPER SWITCH

FIRE ALARM NOTES

GENERAL

A DEVICE TERMINAL CONFIGURATION DIFFER BETWEEN MULTIPLE MANUFACTURERS. QUANTITY & TYPE OF TERMINALS IS INDICATED FOR GENERAL CONCEPT ONLY. VERIFY TERMINAL QUANTITY & TYPE WITH THE ACTUAL MANUFACTURER SELECTED FOR THIS PROJECT.

B DEVICES INDICATED ON THIS DRAWING ARE USED FOR CIRCUITING INTENT ONLY, & ARE NOT TO BE CONSIDERED AS ABSOLUTE QUANTITIES OF EACH KIND DEVICES, TYPES OF DEVICES, & DEVICE LOCATIONS ETC.

C PROVIDE AN END–OF–LINE RELAY, WIRED TO AN INDIVIDUAL ADDRESSABLE MODULE FOR PURPOSE SUPERVISING & MONITORING FOR LOSS OF SYSTEM POWER (24VDC).

D PROVIDE WIRING FROM FACP TO THE ELEVATOR CONTROLLERS VIA 'NC' DRY CONTACTS IN THE CZAM MODULES PROVIDED BY THE FIRE ALARM SYSTEM. FINAL WIRING CONNECTION(S) TO THE ELEVATOR CONTROLLERS SHALL BE PROVIDED BY THE ELEVATOR INSTALLER..

E INSTALL SMOKE DETECTOR(S) A MINIMUM OF 3'–0" AWAY FROM AIR SUPPLY OR RETURN REGISTERS & DIFFUSERS.

IN ACCORDANCE WITH SECTION 907.1.1 OF THE NEW YORK STATE BUILDING CODE, THE INSTALLING FIRE ALARM CONTRACTOR SHALL SUBMIT FIRE ALARM CONSTRUCTION DOCUMENTS TO THE LOCAL AUTHORITYY FOR APPROVAL.

TTHE DOCUMENTS SHALL BE STAMPED BY A LICENSED PROFESSIONAL ENGINEER AND INCLUDE, BUT NOT BE LIMITED TO, ALL OF THE FOLLOWING:

1. FLOOR PLAN AND CEILING PLAN
2. LOCATION OF FA INITIATING DEVICES
3. ALARM CONTROL AND SIGNALING DEVICES
4. ANNUNCIATION
5. BATTERY CALCULATIONS
6. VOLTAGE DROP CALACULATIONS
7. MANUFACTURER, MODEL NUMBERS, MATERIALS, LISTING INFORMATION, ETC.
8. DETAILS SHOWING THE MOUNTING HEIGHTS OF DEVICES
9. THE INTERFACE OF FIRE SAFETY CONTROL FUNCTIONS
10. POWER CONNECTION

ABBREVIATIONS

A	AMPERE	IG	ISOLATED GROUND
AC	ALTERNATING CURRENT	J–BOX	JUNCTION BOX
AFCI	ARC–FAULT CIRCUIT–INTERRUPTER	KW	KILOWATT
AFF	ABOVE FINISHED FLOOR	LV	LOW VOLTAGE
AFG	ABOVE FINISHED GRADE	M.C.	MECHANICAL CONTRACTOR
AWG	AMERICAN WIRE GAUGE	NIC	NOT IN CONTRACT
C/W	COMPLETE WITH	P.C.	PLUMBING CONTRACTOR
DC	DIRECT CURRENT	RTU	ROOF TOP UNIT
E.C.	ELECTRICAL CONTRACTOR	SPECS	SPECIFICATIONS
EDF	ELECTRIC DRINKING FOUNTAIN	TEL	TELEPHONE
EXIST	EXISTING	TYP	TYPICAL
EQUIP	EQUIPMENT	V	VOLT
FA	FIRE ALARM	WP	WEATHERPROOF
G,GND	GROUND	WH	WATER HEATER
GFCI	GROUND FAULT CIRCUIT INTERUPTER	ø	PHASE
HP	HORSEPOWER	XFMR	TRANSFORMER

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DOLSONTOWN ROAD
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SCHEDULES & LEGENDS

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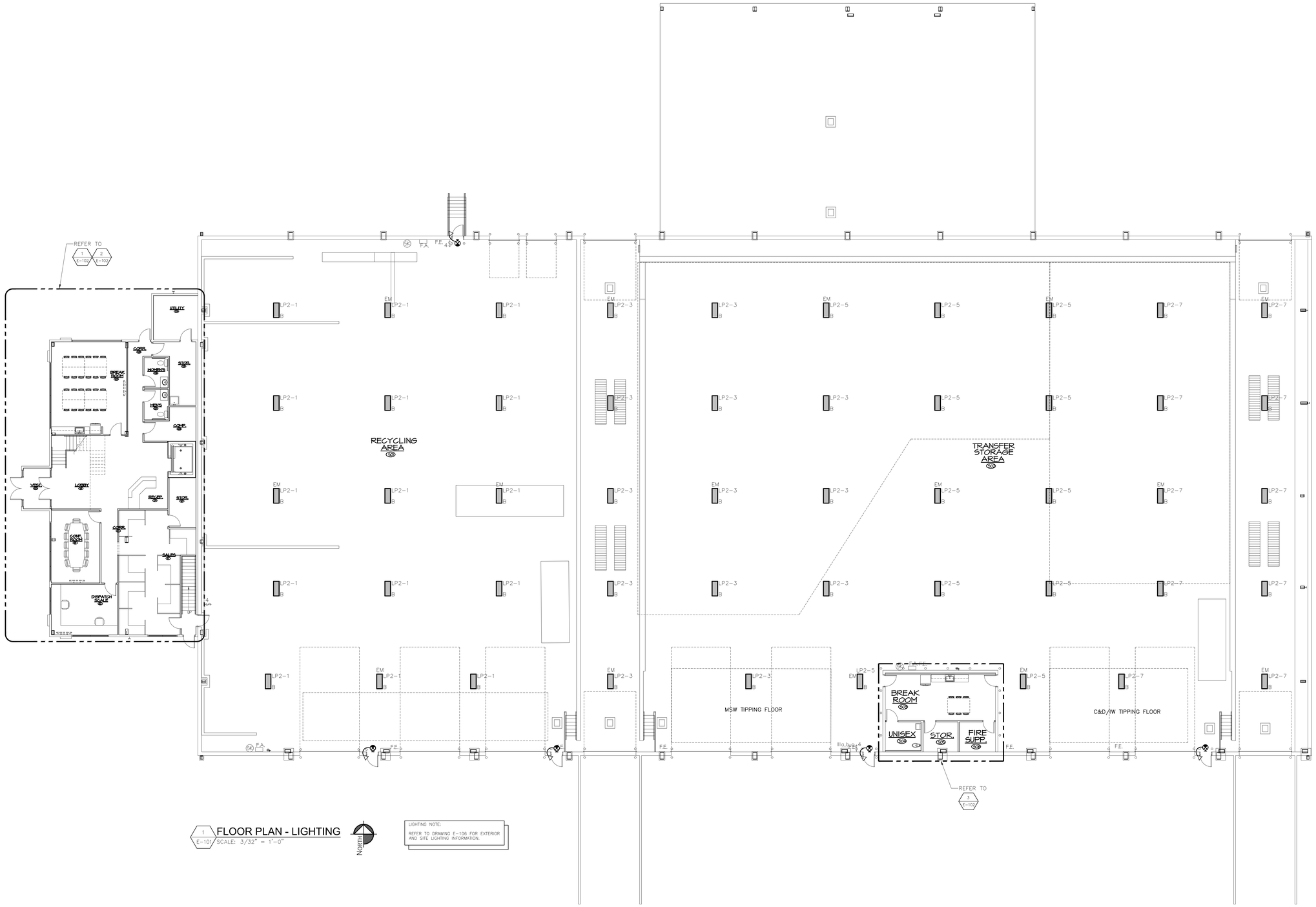

1 E-101 FLOOR PLAN - LIGHTING
SCALE: 3/32" = 1'-0"

NORTH

LIGHTING NOTE:
REFER TO DRAWING E-106 FOR EXTERIOR AND SITE LIGHTING INFORMATION.

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FIRST FLOOR - LIGHTING

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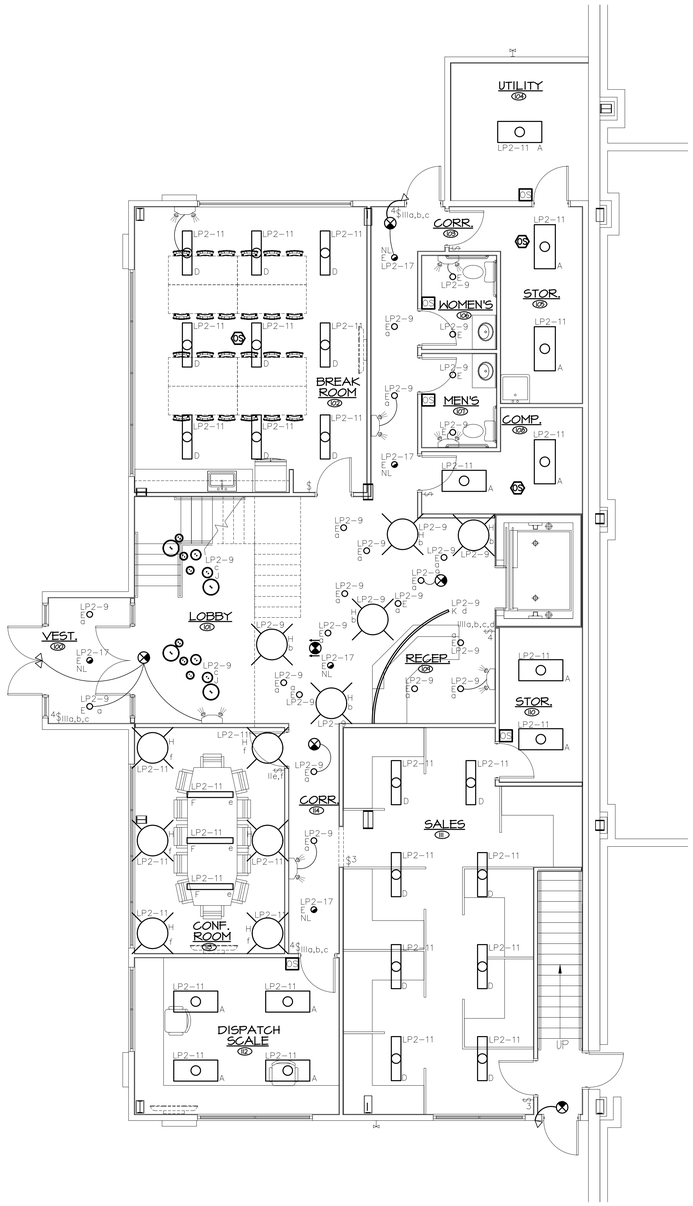
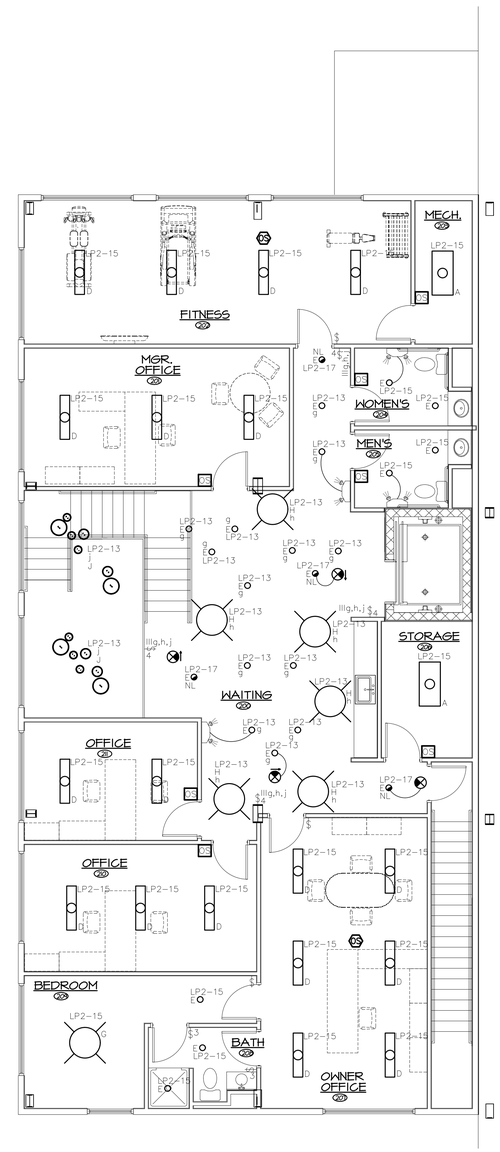
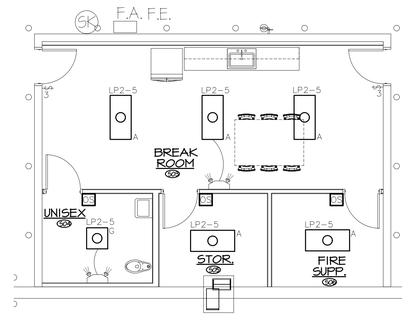


1 E-102 ENLARGED PARTIAL FIRST FLOOR PLAN - LIGHTING
SCALE: 3/16" = 1'-0"



2 E-102 ENLARGED PARTIAL SECOND FLOOR PLAN - LIGHTING
SCALE: 3/16" = 1'-0"



3 E-102 ENLARGED PARTIAL SECOND FLOOR PLAN - LIGHTING
SCALE: 3/16" = 1'-0"

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FIRST & SECOND FLOOR PLANS - LIGHTING

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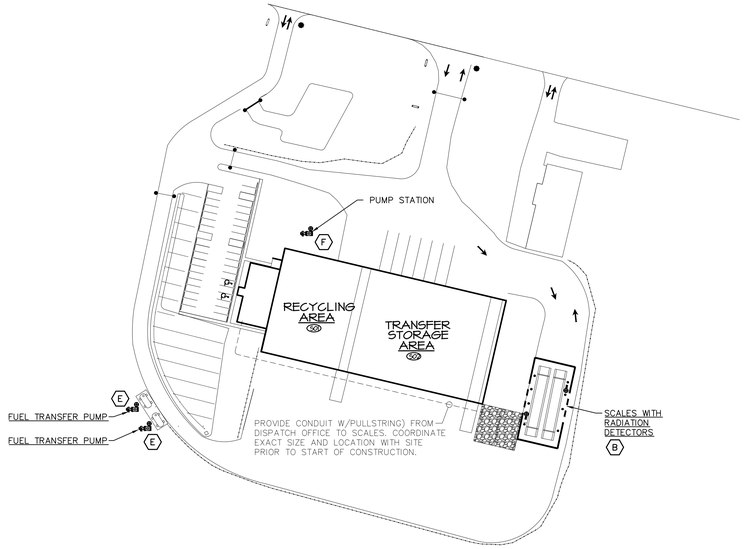


2 E-103 SITE PLAN - POWER
SCALE: NTS

NORTH

KEYED NOTES - POWER

A. OVERHEAD DOOR OPENER SHALL BE FED FROM THE 120V ELECTRIC PANEL. E.C. SHALL PROVIDE A 20A/1P CIRCUIT BACK TO THE EXISTING 120V ELECTRIC PANEL. E.C. SHALL COORDINATE EXACT POWER REQUIREMENTS WITH MANUFACTURES WRITTEN INSTRUCTIONS. COORDINATE DOOR OPENER LOCATION WITH OWNER PRIOR TO ROUGH-IN. COORDINATE DOOR OPERATOR LOCATION WITH OWNER PRIOR TO INSTALLATION.

B. ELECTRICAL CONTRACTOR SHALL MAKE INSTALLATION OF OUTDOOR MONITORING SYSTEM(s) AND SCALE(s) COMPLETE AND OPERATIONAL. E.C. SHALL COORDINATE EXACT POWER REQUIREMENTS WITH EQUIPMENT INSTALLED.

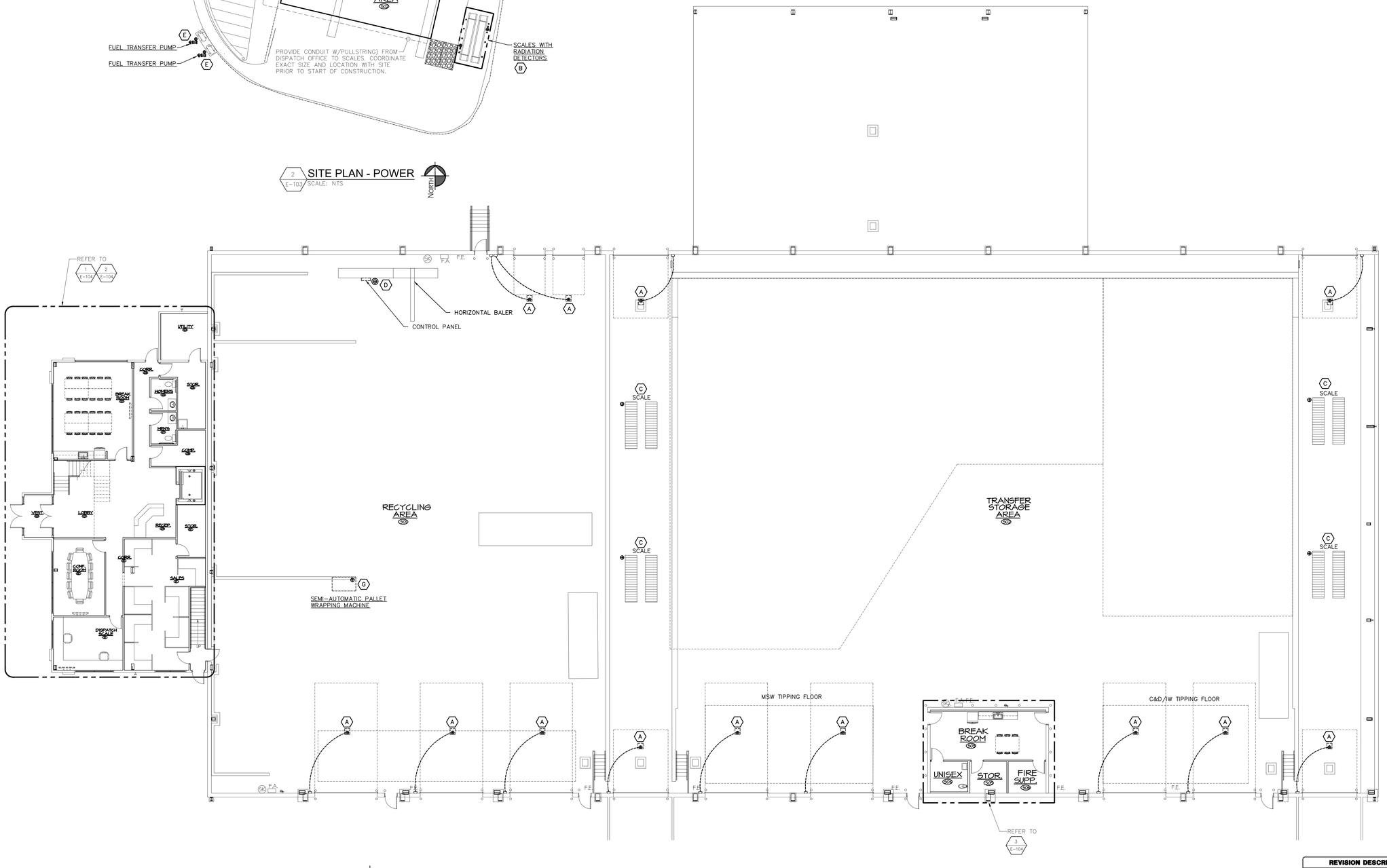
C. ELECTRICAL CONTRACTOR SHALL MAKE INSTALLATION OF SCALE(s) COMPLETE AND OPERATIONAL. E.C. SHALL COORDINATE EXACT POWER REQUIREMENTS WITH EQUIPMENT INSTALLED.

D. ELECTRICAL CONTRACTOR SHALL MAKE INSTALLATION OF BALER COMPLETE AND OPERATIONAL. E.C. SHALL COORDINATE EXACT POWER REQUIREMENTS WITH EQUIPMENT INSTALLED.

E. ELECTRICAL CONTRACTOR SHALL MAKE INSTALLATION OF FUEL PUMPS COMPLETE AND OPERATIONAL. E.C. SHALL COORDINATE EXACT POWER REQUIREMENTS WITH EQUIPMENT INSTALLED.

F. ELECTRICAL CONTRACTOR SHALL MAKE INSTALLATION OF PUMP STATION COMPLETE AND OPERATIONAL. E.C. SHALL COORDINATE EXACT POWER REQUIREMENTS WITH EQUIPMENT INSTALLED.

G. ELECTRICAL CONTRACTOR SHALL MAKE INSTALLATION OF PALLET WRAPPER COMPLETE AND OPERATIONAL. E.C. SHALL COORDINATE EXACT POWER REQUIREMENTS WITH EQUIPMENT INSTALLED.



1 E-103 FLOOR PLAN - POWER
SCALE: 3/32" = 1'-0"

NORTH

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DOM MAR TRANSFER FACILITY

DOLSONTOWN ROAD
TOWN OF WAYANDA, NEW YORK

FIRST FLOOR - POWER

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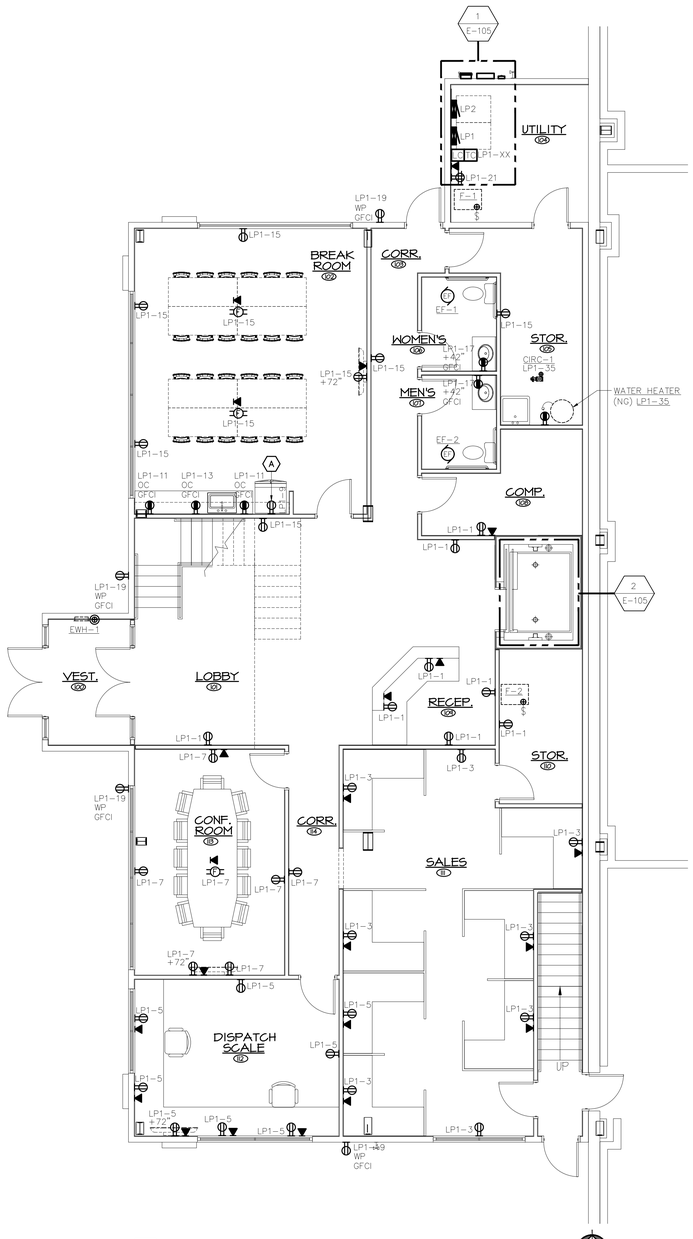
KRØ	KMD	E-103

JOB . 221022	REVISED
DATE 03-14-22	

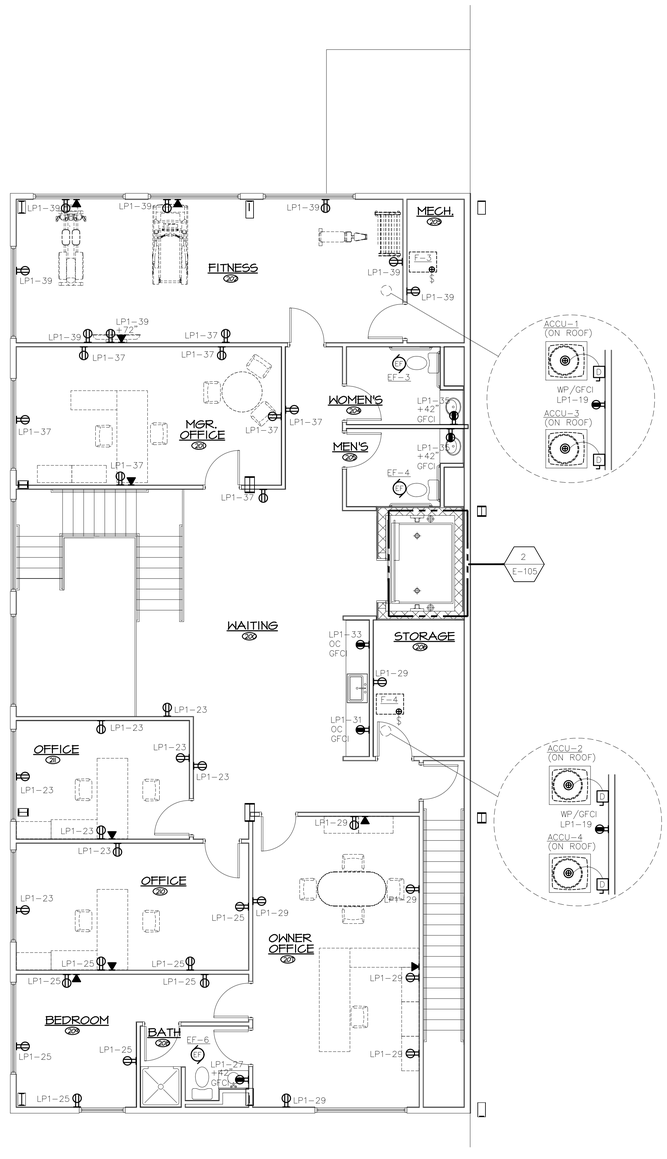
KEYED NOTES - POWER

A. REFRIGERATOR SHALL BE PROTECTED BY A 20A/1P GFCI TYPE CIRCUIT BREAKER BACK TO ELECTRIC PANEL 'LP1'.

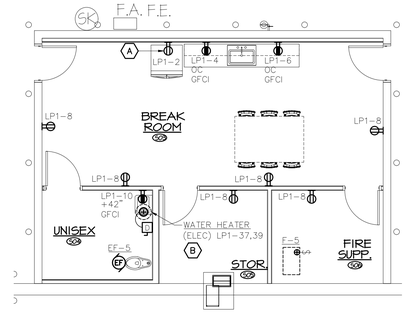
B. E.C. TO MAKE WATER HEATER COMPLETE AND OPERATIONAL. PROVIDE A 30A/2P CIRCUIT FROM LP1. COORDINATE EXACT LOCATION WITH PLUMBING DRAWINGS.



1 E-104 ENLARGED PARTIAL FIRST FLOOR PLAN - POWER
SCALE: 3/16" = 1'-0"



2 E-104 ENLARGED PARTIAL SECOND FLOOR PLAN - POWER
SCALE: 3/16" = 1'-0"



3 E-104 ENLARGED PARTIAL FIRST FLOOR PLAN - POWER
SCALE: 3/16" = 1'-0"

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FIRST & SECOND FLOOR PLANS - POWER

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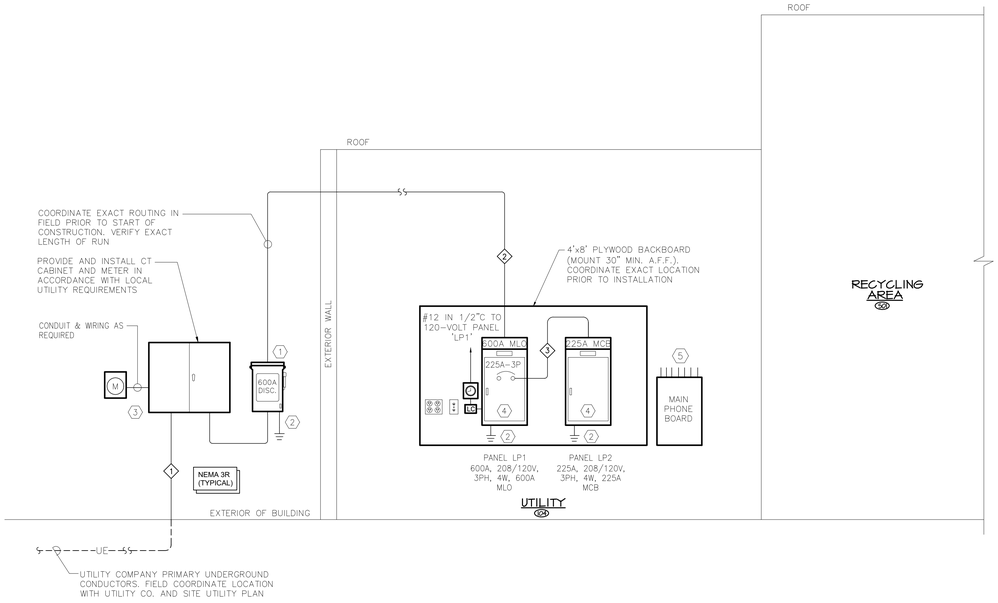


1 E-105 SCALE: NTS

SINGLE-LINE DIAGRAM

(#) SINGLE LINE DIAGRAM NOTES:

1. DISCONNECT SWITCH SHALL BE RATED AS SERVICE ENTRANCE EQUIPMENT, 600A, 600V, 3P, NEMA 3R, HEAVY DUTY TYPE, FUSED WITH A MINIMUM 22,000 AIC FUSES, SOLID NEUTRAL, AND EQUIPMENT GROUNDING KITS. SQUARE 'D' CLASS 3110 OR APPROVED EQUAL.
2. CU GROUNDING ELECTRODE CONDUCTOR IN ACCORDANCE WITH NEC 2017 ART. 250. PROVIDE A 5/8" DIA. X 10 FT. GROUND ROD AND BOND GROUNDING ELECTRODE TO MAIN WATER PIPE WITHIN 5 FT. OF BUILDING, BOND TO BUILDING STEEL AND CONCRETE ENCASED ELECTRODE, SEE DETAIL ON THIS SHEET.
3. CT CABINET AND UTILITY METER, COORDINATE EXACT REQUIREMENTS WITH LOCAL UTILITY.
4. REFER TO PANEL SCHEDULE (THIS DRAWING) FOR FURTHER INFORMATION.
5. PROVIDE 1" CONDUIT FROM DEMARK TO MAIN PHONE BOARD IN UTILITY ROOM WITH PULLSTRINGS. COORDINATE EXACT ROUTING TO SPACE IN FIELD. COORDINATE TERMINATION POINT WITH OWNER IN FIELD.

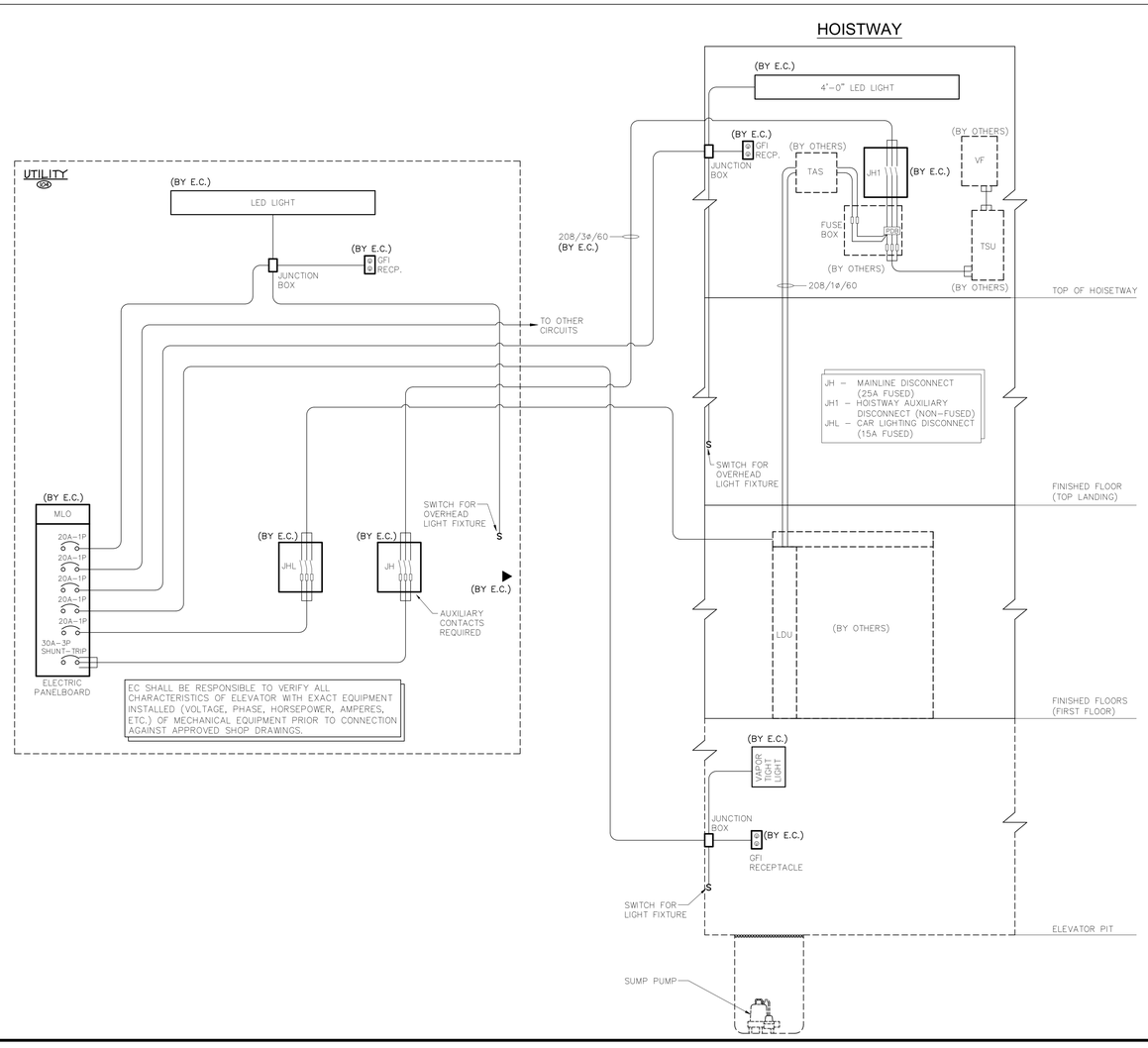
GENERAL NOTES:

- CONTRACTOR SHALL VERIFY AVAILABLE FAULT CURRENT FROM LOCAL UTILITY PRIOR TO COMMENCING WORK AND PROVIDE A LETTER FROM THE UTILITY TO THE LOCAL ELECTRIC INSPECTOR STATING THE AVAILABLE FAULT CURRENT. ALL EQUIPMENT SHALL MATCH THE REQUIRED AIC RATINGS
- ALL ELECTRICAL WIRING AND GROUNDING TO CONFORM WITH THE STATE AND LOCAL ELECTRICAL CODE.
- CONTRACTOR TO VERIFY EXACT LOADS WITH EQUIPMENT PURCHASED. VERIFY EXACT BREAKER AND FEEDER SIZES. SERVING ELECTRICAL PANELS.
- E.C. SHALL VERIFY "HOT" OR "COLD" METERING SEQUENCE WITH LOCAL UTILITY COMPANY PRIOR TO INSTALLATION.

FEEDER SIZE SCHEDULE

(#)	CONDUCTORS (3ø-4 WIRE WITH GROUND)	MTL	COUNDUIT SIZE
	CONDUCTORS		
1			
2			
3			

**PROVIDE AN ALTERNATE FOR COPPER FEEDERS



2 E-105 SCALE: NTS

ELEVATOR CONTROL SCHEMATIC

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ELECTRICAL RISER DIAGRAM & ONE LINE DIAGRAM

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DATE 03-14-22

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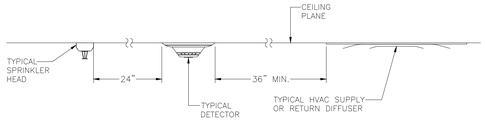
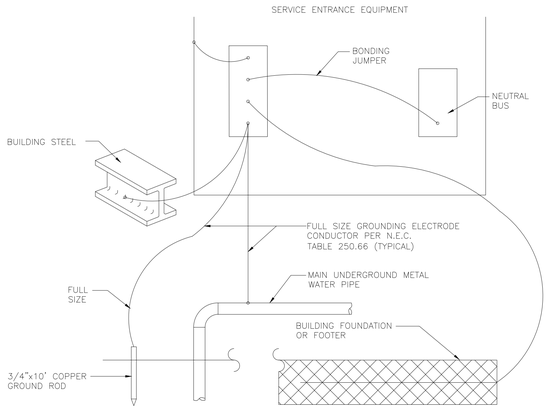
SMOKE DETECTOR INSTALLATION CLEARANCES

NO SCALE



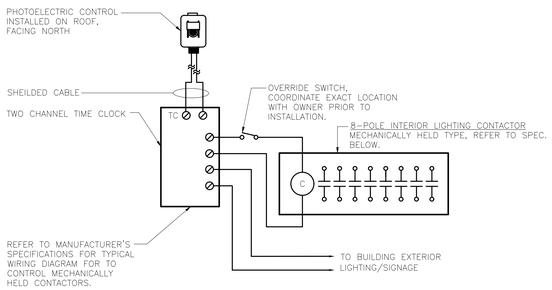
GROUNDING ELECTRODE DETAIL

NO SCALE



TIME CLOCK DETAIL

NO SCALE



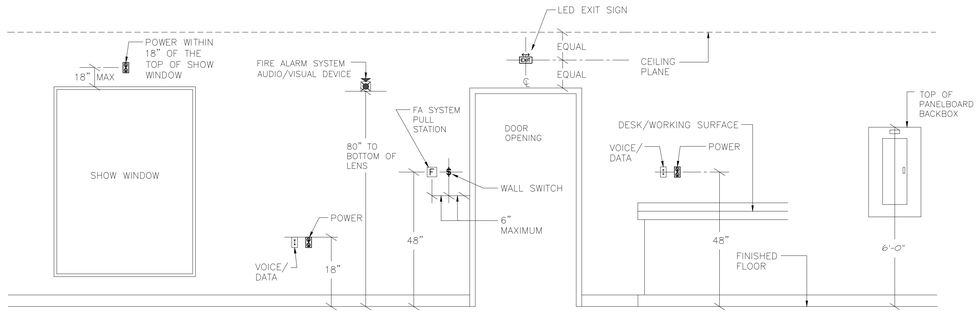
SPECIFICATION

A. CONTACTORS SHALL BE SQUARE D 8903 OR APPROVED EQUAL. MOUNT CONTACTORS IN A NEMA 1 ENCLOSURE NEXT TO PANEL "LP".

B. PROVIDE PARAGON EL72, 2-CHANNEL ELECTRONIC TIME CONTROL. THE CONTROL SHALL HAVE 24-HOUR, 7-DAY, 365 DAY, SUNTRACKER.

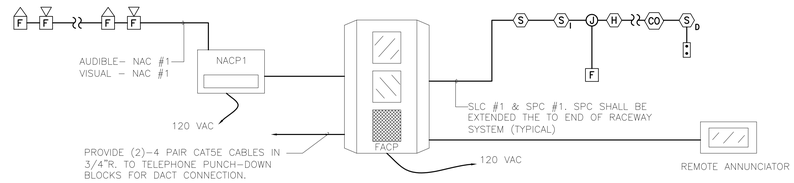
TYPICAL MOUNTING HEIGHTS FOR ELECTRIC WORK

NO SCALE



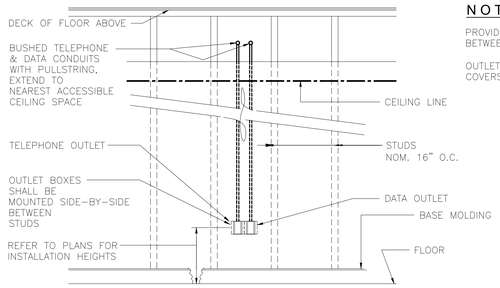
FIRE ALARM RISER DETAIL

NO SCALE



WORK REQUIRED BY E.C. FOR VOICE/DATA SYSTEMS

NO SCALE



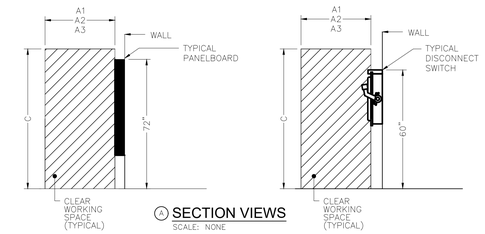
NOTES:

PROVIDE METAL BOX SUPPORT OR OTHER SUITABLE DEVICE, BEHIND OUTLET BOXES & BETWEEN STUDS, FOR LATERAL & FRONT-TO-BACK SUPPORT.

OUTLET BOXES SHALL BE 4" SQ., WITH SINGLE OR MULTIPLE GANG, RAISED DEVICE COVERS. REFER TO PLANS FOR NUMBERS OF GANGS REQUIRED

TYPICAL WORKING SPACE FOR 0 TO 600 VOLT ELECTRIC EQUIPMENT

NO SCALE



A SECTION VIEWS
SCALE: NONE

B PLAN VIEWS
SCALE: NONE

WORKING SPACE DISTANCES-MINIMUM REQUIREMENTS			
DIM	DISTANCE	VOLTS-GND	REMARKS
A1	3'-0"	0-600	NO LIVE/GROUNDED PARTS OPPOSITE EQUIPMENT
A2	3'-6"	151-600	GROUNDED PARTS OPPOSITE EQUIPMENT
A3	4'-0"	151-600	LIVE PARTS OPPOSITE EQUIPMENT
B	2'-6"	0-600	2'-6" OR WIDTH OF EQUIPMENT, WHICHEVER IS GREATER
C	6'-6"	0-600	6'-6" OR HEIGHT OF EQUIPMENT, WHICHEVER IS GREATER

GENERAL NOTES:

1. REFER TO NEC 110-26 FOR ADDITIONAL WORKING SPACE REQUIREMENTS.
2. CONTRACTOR SHALL BE RESPONSIBLE TO ENSURE WORKING SPACE DISTANCE REQUIREMENTS ARE MET. COORDINATE EQUIPMENT LOCATIONS WITH ALL TRADES.

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ELECTRICAL DETAILS

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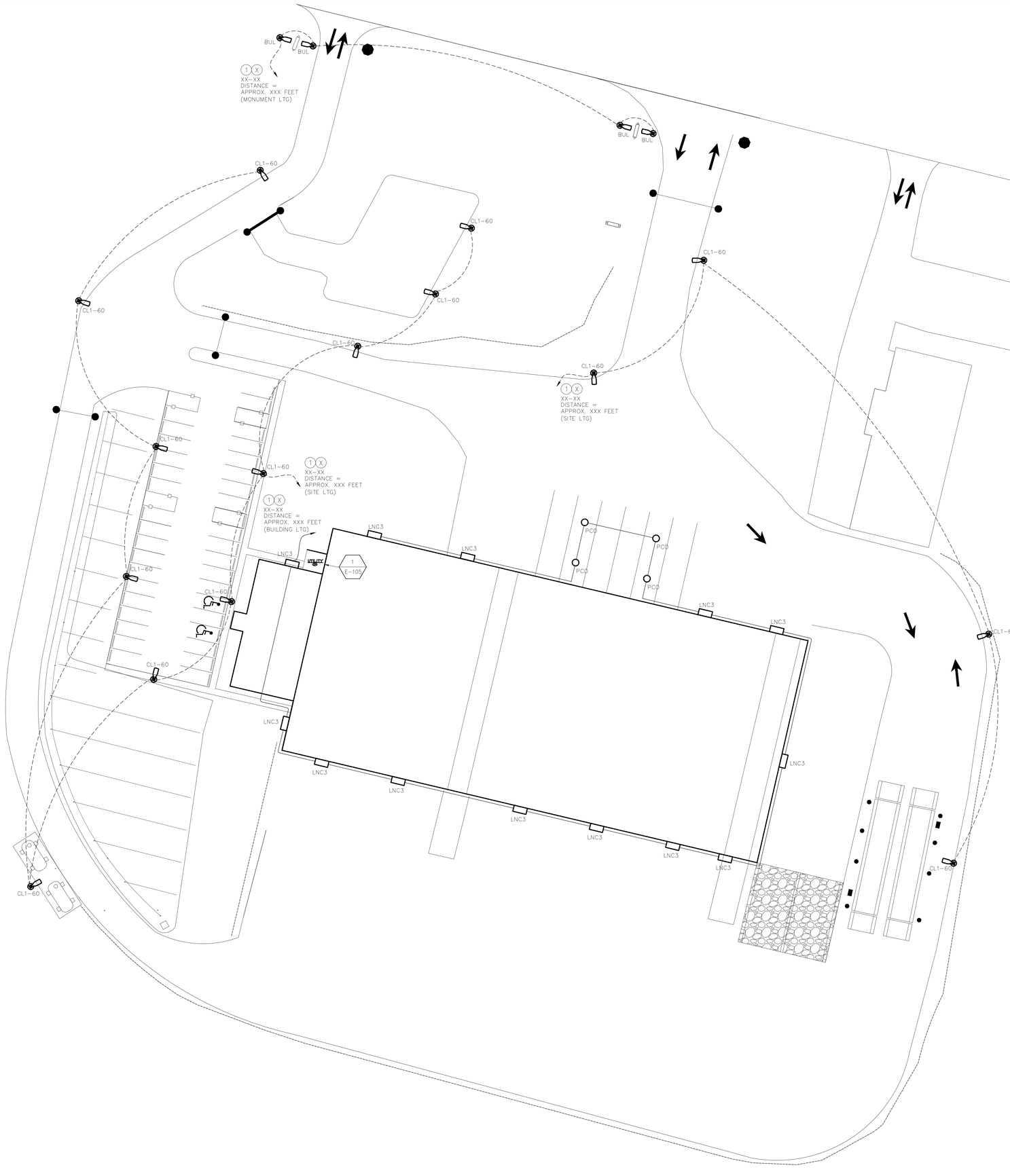

SITE LUMINAIRE NOTE:

REFER TO SITE PHOTOMETRICS PLAN (BY OTHERS) FOR SITE LIGHTING SPECIFICATIONS AND EXACT LOCATIONS. LIGHTING TO BE PROVIDED BY OTHERS AND POWER BY ELECTRICAL CONTRACTOR.

E.C. SHALL WIRE ALL BRANCH SITE LIGHTING CIRCUITS THROUGH CONTACTOR AND TIME CLOCK. REFER TO DRAWING E–106 FOR CONTACTOR DETAIL. BRANCH CIRCUITS SHALL BE FED FROM PANELBOARD LP1 LOCATED IN UTILITY ROOM 104. BRANCH CIRCUIT WIRING SHALL BE A MINIMUM OF #10 AWG.

GENERAL NOTES:

A. E.C SHALL PROVIDE ALL TRENCHING, BACKFILL AND NECESSARY PAVING FOR THE INSTALLATION OF UNDERGROUND CONDUIT FOR ELECTRICAL/TELEPHONE SERVICE AND CATV SERVICE TO BUILDINGS.

B. ALL UNDERGROUND CONDUIT SHALL BE PVC SCHEDULE 80, RGS OR IMC, A MINIMUM OF 36" BELOW GRADE. ALL WIRE SHALL BE COPPER THHN/THWN, SIZE WIRE AND CONDUIT PER DRAWINGS.

C. CONDUIT RUN UNDER SLAB FOR ELECTRICAL SERVICE SHALL BE ENCASED IN CONCRETE. COORDINATE REQUIREMENTS WITH LOCAL UTILITY COMPANY.

D. CONDUIT EMERGING FROM UNDERGROUND AND IS EXPOSED TO PHYSICAL DAMAGE SHALL BE RIGID GALVANIZED STEEL.

E. E.C. SHALL ROUTE ELECTRICAL SERVICE CONDUITS AND TELEPHONE SERVICE CONDUITS IN COMMON TRENCH WHEREVER POSSIBLE.

F. PROVIDE NYLON PULLSTRING IN ALL EMPTY CONDUITS.

G. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL EXCAVATION, PROPER DISPOSAL AND/OR TRANSPORT OF ALL EXCAVATED SOILS AND/OR WATER, BACKFILL AND COMPACTION OF ALL EXCAVATED AREAS AS REQUIRED WITH CLEAN, UNCONTAMINATED, DEBRIS FREE SOIL TO MATCH FINAL GRADE IN ADJACENT AND SURROUNDING AREAS, AND RESEEDING OF ALL GRASS IN EXCAVATED AREAS.

(#) DRAWING NOTES:

1. ROUTE CIRCUIT(S) THROUGH LIGHTING CONTACTOR REFER TO DETAIL DWG E–106.
2. PROVIDE (2)#3 AND (1)#8 GND IN 1–1/4" SCH 80 PVC CONDUIT, 36" BELOW GRADE ROUTE THROUGH LIGHTING CONTACTOR LOCATED IN ELECTRIC ROOM 133.
3. PROVIDE (2)#8 AND (1)#10 GND IN 3/4" SCH 80 PVC CONDUIT, 36" BELOW GRADE ROUTE THROUGH LIGHTING CONTACTOR LOCATED IN ELECTRIC ROOM 133.

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DATE 03-14-22

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ELECTRICAL SPECIFICATIONS

BASIC ELECTRICAL REQUIREMENTS

A. THE INSTRUCTIONS TO BIDDERS, FORM OF BID, FORM OF CONTRACT, GENERAL CONDITIONS, SUPPLEMENTARY GENERAL CONDITIONS AND THE CONTRACT DRAWINGS ARE A PART OF THE SPECIFICATIONS FOR THIS DIVISION OF WORK AND THIS CONTRACTOR SHALL REFER TO THEM FOR INSTRUCTIONS PERTAINING TO HIS WORK.

B. "THE CONTRACTOR", "THIS CONTRACTOR", "EC", AND "DIVISION 16", AS USED IN THESE DRAWINGS AND SPECIFICATIONS, MEANS THE ELECTRICAL CONTRACTOR. "FURNISH AND INSTALL", "SUPPLY", AND "INSTALL", AS USED IN THESE SPECIFICATIONS, MEANS A COMPLETE AND WORKABLE INSTALLATION BY THE E.C.

C. WHERE SPECIFICATIONS AND/OR DRAWINGS CONFLICT WITH ANY CODE REQUIREMENT, CODE REQUIREMENTS SHALL BE FOLLOWED.

D. CODES AND STANDARDS:

1. STATE BUILDING CODE
2. NFPA STANDARDS
3. ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES
4. STATE CONSERVATION CONSTRUCTION CODE
5. LATEST ADOPTED NATIONAL ELECTRICAL CODE

E. THE ELECTRICAL SYSTEMS COVERED BY THIS CONTRACT INCLUDE, BUT ARE NOT LIMITED TO:

1. BRANCH CIRCUIT WIRING AND RACEWAYS
2. WIRING DEVICES
3. DISCONNECTS
4. MOTOR STARTERS AND MOTOR STARTING EQUIPMENT
5. GROUNDING AND BONDING
6. LIGHTING FIXTURES AND LAMPS
7. ELECTRICAL DISTRIBUTION SYSTEM, INCLUDING PANELBOARDS, OVERCURRENT DEVICES, AND FEEDERS
8. EXISTING CONSTRUCTION AND COORDINATION OF DEMOLITION WORK
9. CONNECTIONS TO HVAC, PLUMBING, FIRE PROTECTION, AND ALL OTHER ELECTRICALLY SUPPLIED EQUIPMENT, CONTROLS, CONTROL PANELS, MOTOR STARTERS, MOTOR STARTING EQUIPMENT AND DISCONNECTS NOT FURNISHED UNDER HVAC, PLUMBING, FIRE PROTECTION, OR OTHER CONTRACTS

F. PAY FOR ALL PERMITS, INSPECTION FEES, LICENSES AND FOR TESTS WHICH MAY BE REQUIRED IN DETERMINING THE COMPLETENESS OF THE ELECTRICAL WORK.

G. ALL ELECTRICAL PRODUCTS USED ON THIS PROJECT SHALL BE LISTED BY UNDERWRITER'S LABORATORIES (UL).

H. ALL ELECTRICAL PRODUCTS USED ON THIS PROJECT SHALL CONFORM TO APPLICABLE STANDARD OF THE NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION (NEMA).

I. ALL ELECTRICAL INSTALLATION AND PRODUCTS USED ON THIS PROJECT SHALL COMPLY WITH THE NATIONAL ELECTRICAL CODE (NEC).

J. THE PLANS SHOW THE APPROXIMATE LOCATION OF ALL PARTS OF THE WORK. THE ARCHITECT WILL GIVE EXACT LOCATIONS. WHERE STRUCTURAL CONDITIONS ENCOUNTERED NECESSITATE MINOR CHANGES, THESE SHALL BE MADE WITHOUT CHARGE, BUT MUST MEET WITH THE APPROVAL OF THE ARCHITECT. WHERE MAJOR CHANGES ARE REQUIRED, THEY SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT FOR DECISION BEFORE PROCEEDING WITH THE WORK.

K. NOTIFY THE ARCHITECT, AND OBTAIN APPROVAL, BEFORE ANY COMPONENTS OF THE ELECTRICAL SYSTEM ARE CONCEALED BY CLOSING OFF AREAS, POURING CONCRETE, ETC.

L. DETERMINE AND BE RESPONSIBLE FOR PROPER SIZE AND LOCATION OF OPENINGS AND CHASES, AND GIVE GENERAL CONTRACTOR NOTICE OF REQUIREMENTS. INSTALL ALL SLEEVES NECESSARY FOR THE WORK. WHEREVER ANY RACEWAY PASSES THROUGH A WALL, THE OPENING SHALL BE SEALED TIGHT AGAINST THE RACEWAY BY THIS CONTRACTOR. RACEWAYS THROUGH FOUNDATION WALLS AND ROOFS SHALL BE SEALED WATERTIGHT BY THIS CONTRACTOR.

M. THIS CONTRACTOR SHALL DO ALL NECESSARY CUTTING AND PATCHING WHICH IS NOT CALLED TO BE DONE UNDER ANOTHER DIVISION. ALL CUTTING AND REPAIRING SHALL BE PERFORMED BY SKILLED WORKERS.

N. PAINT ALL EXPOSED RACEWAYS IN FINISHED ROOMS WITH TWO COATS OF PAINT TO MATCH SURROUNDINGS. INSTALL PANELBOARD TRIMS, CABINETS, ENCLOSURES, ETC., IN SUFFICIENT TIME SO THAT THE PAINTING CONTRACTOR MAY PAINT THESE SURFACES WITH THE WALLS. THIS CONTRACTOR SHALL PAY FOR ALL NECESSARY PAINTING IF THE ABOVE PROCEDURE IS NOT FOLLOWED.

O. THE CONTRACTOR SHALL FURNISH AND INSTALL THE POWER AND LIGHTING REQUIRED FOR THE CONSTRUCTION THE SCOPE SHALL INCLUDE, BUT NOT LIMITED TO:

1. TEMPORARY POWER DISTRIBUTION
2. LAMP SOCKETS AND LAMPS
3. OUTLETS AND CONSTRUCTION EQUIPMENT CONNECTION INCLUDING WELDERS
4. REMOVAL OF TEMPORARY DISTRIBUTION AFTER COMPLETION OF CONSTRUCTION

P. THE ELECTRICAL CONTRACTOR SHALL INSTALL RACEWAYS IN SUCH A MANNER THAT THE EXPANSION JOINTS OF THE BUILDING WILL FUNCTION PROPERLY AND NOT STRESS ANY ELECTRICAL RACEWAYS. EXPANSION JOINTS SHALL BE INSTALLED IN ALL RACEWAYS AT THE EXPANSION JOINTS OF THE BUILDING.

Q. BEFORE ORDERING ANY MATERIAL OR DOING ANY WORK THIS CONTRACTOR SHALL VERIFY ALL MEASUREMENTS AT THE BUILDING AND SHALL BE RESPONSIBLE FOR THE CORRECTNESS OF SAME. NO EXTRA CHARGE OR COMPENSATION WILL BE ALLOWED ON ACCOUNT OF DIFFERENCE BETWEEN ACTUAL DIMENSIONS AND THE MEASUREMENTS INDICATED ON THE DRAWINGS; ANY DIFFERENCE WHICH MAY BE FOUND SHALL BE SUBMITTED TO THE ARCHITECT FOR CONSIDERATION BEFORE PROCEEDING WITH THE WORK.

R. PROVIDE PRODUCT DATA, CATALOG CUT SHEETS WITH MFG. SPECIFICATIONS FOR REVIEW BY ARCH./ENGR. FOR THE FOLLOWING ITEMS:

1. PANELBOARDS
2. SAFETY DISCONNECT SWITCHES
3. OUTLET BOXES
4. FITTINGS
5. LIGHTING FIXTURES
6. LAMPS
7. CONDUCTORS
8. DEVICES
9. TIME SWITCHES
10. TRANSFORMERS
11. FIRE ALARM SYSTEM

S. PROVIDE A MINIMUM OF SEVEN (7) SUBMITTAL COPIES FOR EACH ITEM LISTED ABOVE.

T. MAINTAIN THROUGHOUT PROJECT A SET OF PLANS WHICH ACCURATELY PORTRAY THE ACTUAL INSTALLATION, INCLUDING LOCATION OF ALL WIRING, EQUIPMENT, CIRCUIT NUMBERS, ETC. TURN OVER TO OWNER AT COMPLETION OF JOB.

U. TERMINALS: ALL ELECTRICAL EQUIPMENT FURNISHED ON THIS PROJECT SHALL HAVE TERMINALS RATED FOR 75° C OPERATION.

RACEWAYS AND FITTINGS

A. WHERE CALLED FOR ON THE DRAWINGS, FLOOR OUTLET BOXES AND POKE-THROUGH DEVICE SHALL BE AS MANUFACTURED BY HUBBELL, WALKER, OR LEW.

B. WIRING AND RACEWAYS SHALL BE CONCEALED IN ALL ROOMS AND SPACES UNLESS OTHERWISE NOTED.

C. ALL FEEDERS AND BRANCH CIRCUIT HOMERUNS SHALL BE INSTALLED IN EMT. WHERE ALLOWED, BRANCH CIRCUITS MAY BE TYPE MC CABLE BETWEEN HOMERUN JUNCTION BOX AND EQUIPMENT/DEVICE CONNECTION IN DRYWALL PARTITIONS ONLY. HOMERUN JUNCTION BOX TO BE A MAXIMUM OF 20 FT. FROM EQUIPMENT/DEVICE.

D. FOR USE IN UNFINISHED AREAS: WIRE IN SURFACE MOUNTED RGS CONDUIT.

E. FOR OUTDOOR USE: WIRE IN THREADED, RIGID STEEL CONDUIT.

F. FOR UNDERGROUND USE: WIRE IN SCHEDULE 80 RIGID PVC NONMETALLIC CONDUIT.

G. FOR FINAL CONNECTION IN DAMP OR WET LOCATIONS: LIQUID TIGHT FLEXIBLE METAL CONDUIT, WITH LISTED FITTINGS.

H. NOT USED

I. IN ALL INSTANCES, INCLUDE A SEPARATE GROUNDING CONDUCTOR IN EACH FEEDER AND BRANCH CIRCUIT, SIZE PER NEC.

J. FURNISH ALL FITTINGS REQUIRED, BUT NOT LIMITED TO: BUSHINGS TO PREVENT WIRE ABRASION; SINGLE-AND MULTIPLE-GANG BOXES TO ACCOMMODATE DEVICE INSTALLATION; ADAPTERS FROM CONDUIT TO RACEWAY; TRANSITIONS TO BOTH LARGER AND SMALLER SURFACE METAL RACEWAYS; 90 DEGREE ELBOWS, TEES, FIXTURE BOXES, AND FLEXIBLE SECTIONS.

K. SURFACE METAL RACEWAY AND FITTINGS SHALL MEET ALL REQUIREMENTS OF NEC ARTICLE 352A AND SHALL BE UL LISTED.

L. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER APPLICATION, INSTALLATION, AND LOCATION OF ALL NECESSARY AND REQUIRED INSERTS, SUPPORTS, AND ANCHOR BOLTS, AND FOR A SATISFACTORY RACEWAY SYSTEM UPON COMPLETION OF THE PROJECT.

M. WHERE ANY COMPONENT OF THE RACEWAY SYSTEM IS DAMAGED PRIOR TO FINAL ACCEPTANCE BY THE OWNER, THIS CONTRACTOR SHALL BE REQUIRED TO REPLACE SAME OR PROVIDE A NEW RACEWAY SYSTEM, AT THE EXPENSE OF THE CONTRACTOR RESPONSIBLE FOR THE DAMAGE.

N. CONDUITS SHALL BE RUN TO AVOID ADVERSE CONDITIONS SUCH AS HEAT AND MOISTURE AND TO AVOID ALL MATERIALS AND EQUIPMENT OF OTHER TRADES. CONDUITS SHALL MAINTAIN A MINIMUM CLEARANCE OF SIX INCHES FROM ALL HOT WATER PIPES, FLUES, OR AND HIGH TEMPERATURE PIPING OR DUCTWORK. SHOULD IT BE FOUND NECESSARY TO INSTALL CONDUIT CLOSER THAN THIS TO HOT WATER PIPES AN INSULATING COVERING SHALL BE USED TO PROTECT THE CONDUIT FROM HIGH TEMPERATURE.

O. RACEWAYS SHALL NOT BE SMALLER THAN THE SIZE REQUIRED BY THE NATIONAL ELECTRICAL CODE FOR THE CONDUCTORS ENCLOSED AND SHALL BE LARGER WHERE SO SPECIFIED OR INDICATED ON THE PLANS.

P. ALL EXPOSED RUNS OF CONDUIT SHALL BE INSTALLED PARALLEL OR PERPENDICULAR TO WALLS OR CEILINGS. SUPPORTS SHALL BE FROM THE MASONRY OR STEEL STRUCTURE RATHER THAN FROM OTHER MECHANICAL WORK SUCH AS DUCTS, PIPING, ETC., IN ACCORDANCE WITH GOOD INDUSTRY PRACTICE IN A MANNER ACCEPTABLE TO THE ARCHITECT.

Q. SUPPORTS AND ATTACHMENTS PROVIDED SHALL BE SPECIFICALLY DESIGNED FOR THE APPLICATIONS. PERFORATED HANGERS OR WIRE TIE SUPPORTS ARE NOT ACCEPTABLE. ALL HANGERS AND SUPPORTS SHALL HAVE CORROSION RESISTANT FINISH.

R. ALL CONDUITS AND RACEWAYS PASSING THROUGH WALLS, FLOORS, AND CEILINGS SHALL BE SLEEVED WITH A PIECE OF SCHEDULE 40 GALVANIZED STEEL PIPE WITH PLAIN ENDS. ALL SLEEVES SHALL BE SEALED WATERTIGHT USING A MATERIAL SIMILAR IN APPEARANCE TO THE SURROUNDING AREA OR APPROVED MATERIAL.

S. CONDUITS EXTENDING THROUGH ROOFS SHALL BE EQUIPPED WITH PITCH POCKETS.

T. ALL EMPTY RACEWAYS SHALL BE PROVIDED WITH A NYLON PULLWIRE.

U. ALL CONDUIT PASSING THROUGH A FIRE ZONE SHALL HAVE A FIRE RATED INSTALLATION.

V. CONDUIT SHALL BE INSTALLED SO THAT A CONTINUOUS GROUNDING SYSTEM WILL BE MAINTAINED FROM THE FURTHERMOST OUTLET TO THE ESTABLISHED WATER PIPE GROUND.

W. CONDULETS, UNILETS, OR SIMILAR APPROVED TYPE FITTINGS SHALL BE USED ON EXPOSED WORK WHERE CONDUIT CHANGES DIRECTION AND WHERE BENDS WILL NOT MAKE A NEAT JOB.

X. EXPOSED CONDUIT SHALL BE SECURELY FASTENED TO THE BUILDING AT EIGHT-FOOT MINIMUM INTERVALS, USING APPROVED HANGERS, STRAPS, CLAMPS, OR SCREWS. WOOD PLUGS SHALL NOT BE USED FOR FASTENING PURPOSES. CONDUIT RUN ABOVE HUNG CEILING OR IN CRAWL SPACES SHALL BE SUPPORTED IN THE SAME MANNER AS FOR EXPOSED RUNS. WIRE TIES ARE NOT ACCEPTABLE SUPPORTS.

Y. CARE SHALL BE EXERCISED TO MAKE CERTAIN THAT THE CONDUIT SYSTEM NOW PLANNED WILL PERMIT REMOVAL OF CONDUCTORS FOR FUTURE CHANGES AS MAY BE REQUIRED. ALTHOUGH UP TO FOUR 90 DEGREE BENDS ARE PERMITTED BY THE NATIONAL ELECTRICAL CODE, THE PRACTICE OF USING MORE THAN THREE 90 DEGREE BENDS PER RUN SHALL BE AVOIDED. PULL BOXES SHALL BE USED IF AT ALL FEASIBLE.

Z. PULLBOXES SHALL BE INSTALLED AT 100 FOOT INTERVALS IN LONG STRAIGHT RUNS. CLOSE NIPPLES WILL NOT BE PERMITTED.

AA. CONDUIT SMALLER THAN 1/2" SHALL NOT BE USED.

THE REQUIRED STRENGTH OF THE SUPPORTING EQUIPMENT AND THE SIZE AND TYPE OF ANCHORS SHALL BE BASED ON THE COMBINED WEIGHT OF CONDUIT, HANGERS, AND CONDUCTORS. THE USE OF PERFORATED IRON STRAPS FOR SUPPORTING CONDUITS WILL NOT BE PERMITTED.

BB. SINGLE RUNS:

1. WHERE CONDUITS ARE RUN INDIVIDUALLY, THEY SHALL BE SUPPORTED BY APPROVED PIPE STRAPS, SECURED BY MEANS OF TOGGLE BOLTS
2. IN HOLLOW MASONRY; EXPANSION SHIELDS AND MACHINE SCREWS OR STANDARD PRESET INSERTS IN CONCRETE OR SOLID MASONRY; MACHINE SCREWS OR BOLTS IN METAL SURFACES; AND WOOD SCREWS IN WOOD CONSTRUCTION. THE USE OF PERFORATED IRON STRAPS WILL NOT BE PERMITTED.
3. CONDUITS INSTALLED EXPOSED ON THE SURFACE IN DAMP LOCATIONS OR IN REFRIGERATED AREAS SHALL BE PROVIDED WITH CLAMP BACKS UNDER EACH CONDUIT CLAMP TO PREVENT ACCUMULATION OF MOISTURE AROUND THE CONDUITS. WHERE INDIVIDUAL CONDUITS ARE SUSPENDED FROM THE CEILING THEY SHALL BE SUPPORTED BY HANGERS EQUIVALENT TO STEEL CITY NO. C-149.

CC. MULTIPLE RUNS:

1. WHERE A NUMBER OF CONDUITS ARE TO BE RUN EXPOSED AND PARALLEL, ONE WITH ANOTHER, THEY SHALL BE GROUPED AND SUPPORTED BY TRAPEZE HANGERS.
2. HANGER RODS SHALL BE FASTENED TO STRUCTURAL STEEL MEMBERS WITH SUITABLE BEAM CLAMPS, OR TO CONCRETE INSERTS SET FLUSH WITH SURFACE.

DD. THE CONTRACTOR SHALL FURNISH AND INSTALL JUNCTION BOXES, PULLBOXES, AND CABLE SUPPORT BOXES AS SHOWN ON THE DRAWINGS, SPECIFIED HEREIN, OR AS OTHERWISE REQUIRED. BOXES SHALL BE SECURED IN POSITION INDEPENDENTLY OF CONDUITS ENTERING THEM BY MEANS OF BOLTS, ROD HANGERS, BRACKETS, OR OTHER APPROVED METHODS. OUTLET BOXES SHALL BE SECURELY FASTENED TO CEILINGS, WALLS OR COLUMNS.

EE. BOXES INSTALLED IN FINISHED CEILINGS, WALLS OR COLUMNS SHALL BE SET SO THAT THE FRONT EDGE OF THE BOX SHALL BE FLUSH WITH FINISHED CEILINGS, WALLS OR COLUMNS.

FF. UNLESS OTHERWISE NOTED ON THE DRAWINGS OR SPECIFIED HEREIN, RECEPTACLE OUTLET CENTERLINES SHALL BE INSTALLED 18" ABOVE THE FLOOR.

GG. PROVIDE FIRESTOPPING TO CABLE AND RACEWAY PENETRATIONS OR FIRE-RATED FLOOR AND WALL ASSEMBLIES TO ACHIEVE FIRE-RESISTANCE RATING OF THE ASSEMBLY.

WIRE AND CABLE

A. ACCEPTABLE MANUFACTURERS SHALL BE ANACONDA, GENERAL ELECTRIC, CERRO, OR BRAND REX.

B. ALL CONDUCTORS SHALL BY COPPER, WITH 600 VOLT INSULATION, UNLESS OTHERWISE NOTED; STRANDING AND INSULATION TYPES AS FOLLOWS:

C. BRANCH CIRCUIT FEEDERS

1. #10 AWG AND SMALLER (SOLID) – TYPE THHN/THWN INSULATION.
2. #8 AWG AND LARGER (STRANDED) – TYPE THHN/THWN INSULATION.

D. ALL WIRE AND CABLE SHALL BE NEW, WITHIN ONE YEAR OF MANUFACTURE WHEN DELIVERED TO THE SITE AND BEAR THE UL LABEL, INSULATION TYPE, VOLTAGE, AND MANUFACTURER'S NAME AT REGULAR INTERVALS ON THE INSULATION.

E. ALL WIRING SHALL BE DONE SO THAT THE SYSTEM WILL BE CONTINUOUSLY POLARIZED THROUGHOUT, FOLLOWING THE COLOR CODING INDICATED IN THE NEC.

F. ALL CONNECTIONS USING COPPER SHALL BE MADE WITH CONNECTORS THAT ARE DESIGNED AND APPROVED FOR COPPER.

G. JOINTS, TAPS AND SPLICES OF WIRES OF SIZES #10 AWG AND SMALLER SHALL BE MADE BY MEANS OF "SCOTCHLOK" SPRING CONNECTORS.

H. JOINTS, TAPS AND SPICES OF WIRES OF SIZE #8 AWG AND LARGER SHALL BE MADE WITH THOMAS AND BETTS ALUMINUM/COPPER COLOR -KEYED COMPRESSION CONNECTORS, INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

I. WIRE SIZES SHALL BE AS SHOWN ON THE DRAWINGS OR SIZED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE.

J. ALL FEEDER CABLES SHALL BE CONTINUOUS FROM ORIGIN TO EQUIPMENT TERMINATION WITHOUT RUNNING SPLICES IN INTERMEDIATE PULL OR SPLICE BOXES AS FAR AS PRACTICABLE. NO SPLICES ARE ALLOWED IN "C" CONDULETS.

K. CONDUCTORS SHALL NOT BE SMALLER THAN CODE SIZE FOR THE LOADS BEING HANDLED AND SHALL BE LARGER IF SO INDICATED IN THE PLANS OR SPECIFICATIONS. NO CONDUCTOR SHALL BE LESS THAN #12 AWG EXCEPT FOR CONTROL CIRCUITS, WHICH MAY BE #14 WIRE WHEN INDICATED.

L. PROVIDE SEPARATE GREEN GROUND (EQUIPMENT GROUND) CONDUCTOR WITH EACH FEEDER AND BRANCH CIRCUIT.

M. WIRING IN DUCTS, PLENUMS, AND OTHER AIR HANDLING SPACES SHALL BE PROVIDED PER NEC ART. 300.22 AND ALL OTHER APPLICABLE CODE SECTIONS. WHERE PROVIDED PLENUM CABLE SHALL BE LISTED AS BEING SUITABLE FOR USE IN DUCTS, PLENUMS, AND OTHER SPACES USED FOR ENVIRONMENTAL AIR AND SHALL ALSO BE LISTED AS HAVING ADEQUATE FIRE-RESISTANT AND LOW SMOKE-PRODUCING CHARACTERISTICS. WIRING SHALL INCLUDE BUT NOT LIMITED TO POWER, LIGHTING, TELEPHONE, DATA, FIRE ALARM, SECURITY, ETC.

CABINETS, BOXES, AND FITTINGS

A. USE SHEET STEEL JUNCTION, OUTLET AND PULL BOXES SIZED PER NEC IN ALL DRY LOCATIONS.

B. USE CAST BOXES FOR EXTERIOR USE, WHERE IN CONCRETE FLOORS, AND IN ALL DAMP OR WET LOCATIONS.

C. NOT USED.

D. USE STEEL OR MALLEABLE IRON FITTINGS SPECIFICALLY DESIGNED FOR EACH RACEWAY TYPE, AS DICTATED BY GOOD PRACTICE.

E. IN ALL CASES, ALL CABINETS, JUNCTION AND OUTLET BOXES SHALL BE ACCESSIBLE.

ELECTRICAL CONNECTIONS FOR EQUIPMENT

A. FIXED EQUIPMENT REQUIRING ATTACHMENT PLUGS SHALL BE PROVIDED WITH APPROPRIATE RECEPTACLE TO MATCH PLUG.

B. FIXED EQUIPMENT REQUIRING DIRECT WIRED CONNECTIONS SHALL BE PROVIDED WITH LOCAL JUNCTION BOX, AND FLEXIBLE NONMETALLIC CONDUIT, OR LIQUID TIGHT FLEXIBLE NONMETALLIC CONDUIT CONNECTIONS TO EQUIPMENT.

C. PROVIDE SEPARATE FUSIBLE DISCONNECT FOR EQUIPMENT NOT FURNISHED WITH INTEGRAL OR FACTORY FURNISHED DISCONNECTING MEANS.

D. PROVIDE MOTOR STARTER FOR EQUIPMENT NOT FURNISHED WITH FACTORY STARTER.

WIRING DEVICES

A. FOR FINISHED AREAS, USE SPECIFICATION GRADE DEVICES, COLOR AS SELECTED BY ARCHITECT, WITH SMOOTH THERMOPLASTIC WALL PLATE, COLOR TO MATCH DEVICE.

B. FOR UNFINISHED DRY INTERIOR SPACES, USE SPECIFICATION GRADE DEVICE IN STEEL UTILITY BOXES WITH MATCHING STEEL DEVICE COVERS.

C. FOR INTERIOR AND EXTERIOR WET LOCATIONS, USE SPECIFICATION GRADE DEVICES INSTALLED WITH AN OUTLET ENCLOSURE CLEARLY MARKED "SUITABLE FOR WET LOCATIONS WHILE IN USE", AS MANUFACTURED BY TAYMAC CORP., WITH PUSH-BUTTON RELEASE.

D. RECEPTACLES:

20A, 125V DUPLEX RECEPTACLE: HUBBELL #CR5362
20A, 125V DUPLEX GFI RECEPTACLE: HUBBELL #GF5362
20A, 125V DUPLEX IG RECEPTACLE: HUBBELL #CR5362IG

E. SWITCHES:

20A, 120/277V A.C. TOGGLE SWITCH: HUBBELL #CS1221
20A, 120/277V A.C. THREE-WAY SWITCH: HUBBELL #CS1223
20A, 120/277V A.C. FOUR-WAY SWITCH: HUBBELL #CS1224

F. MOUNTING: MOUNT DEVICES IN SINGLE OR GANGED ARRANGEMENT, AS CALLED FOR ON THE DRAWINGS. PROVIDE APPROPRIATE STEEL BACKBOX AS REQUIRED; USE SINGLE OR MULTIPLE DEVICE COVERS, AS REQUIRED. MULTIPLE DEVICES TO BE EQUALLY SPACED, AND ALIGNED STRAIGHT SO AS TO ALLOW DEVICE PLATE TO FIT SNUGLY AND PROPERLY.

G. WHERE MOUNTING ON MILLWORK OR OTHER EQUIPMENT, VERIFY PROPER ROUGH-IN DIMENSIONS WITH ARCHITECT.

H. DEVICES IN MECHANICAL EQUIPMENT ROOMS MAY BE WIRED USING SURFACE MOUNTED CONDUIT. DEVICES TO BE INSTALLED AT HEIGHTS TO COMPLY WITH APPLICABLE HANDICAPPED REQUIREMENTS: RECEPTACLES +18" UNLESS OTHERWISE NOTED; WALL SWITCHES +48"; FIRE ALARM PULLSTATIONS +48"; FIRE ALARM AUDIO VISUAL DEVICES +6'-8" TO CENTERLINE OF STROBE UNLESS OTHERWISE NOTED. DIMENSIONS ABOVE FROM FINISHED FLOOR TO CENTERLINE. REFER TO TYPICAL MOUNTING HEIGHT DETAIL ON DRAWINGS FOR FURTHER REQUIREMENTS.

I. MANUFACTURERS: HUBBELL, PASS & SEYMOUR, LEVITON.

SAFETY DISCONNECT DEVICES

A. DISCONNECTION DEVICES RATING SHALL BE AS SHOWN ON THE DRAWINGS, HEAVY-DUTY, "QUICK-MAKE, QUICK-BREAK", SAFETY SWITCHES WITH INTERLOCKING COVER, CONSTRUCTED OF CODE GAGE STEEL (UL 98). ENCLOSURES SHALL BE TREATED WITH RUST INHIBITING PHOSPHATE AND FINISHED IN GRAY BAKED ENAMEL.

B. DISCONNECTS SHALL BE FUSED OR NON-FUSED AS INDICATED ON THE DRAWINGS, OR AS REQUIRED BY NEC. NUMBER OF POLES, WITH OR WITHOUT SOLID NEUTRAL, SHALL BE AS INDICATED ON THE DRAWINGS, OR AS REQUIRED.

C. ENCLOSURES FOR INDOOR USE SHALL BE NEMA 1; ENCLOSURES FOR EXTERIOR USE SHALL BE NEMA 3R, ENCLOSURES FOR HAZ. LOCATIONS SHALL BE CLASS II DIV. I LISTED.

D. DISCONNECTS SHALL REQUIRE THE USE OF A SCREWDRIVER FOR ACCESS TO INTERIOR WITHOUT OPENING CONTACTS.

E. DISCONNECTS SHALL HAVE PROVISIONS FOR PADLOCKING THE SWITCH IN THE "OFF", OR "OPEN" POSITION.

F. ACCEPTABLE MANUFACTURERS ARE SQUARE D, ITE, WESTINGHOUSE, OR GENERAL ELECTRIC.

G. FURNISH A SAFETY DISCONNECT DEVICE ON ALL EQUIPMENT CONNECTIONS WHERE INDICATED ON THE DRAWINGS, OR AS REQUIRED BY CODE.

H. DISCONNECTS SHALL BE MOUNTED TO PERMANENT STRUCTURAL ELEMENTS WITH APPROVED FASTENING MEANS. DISCONNECTS SHALL NOT BE FASTENED BY WELDING THE ENCLOSURE TO ITS DESIGNATED STRUCTURAL SUPPORT. BEAM CLAMPS, UNISTRUT AND BOLTED WASHERS COMPRISE ACCEPTABLE FASTENING MEANS.

I. GROUND SERVICE, EQUIPMENT, CIRCUITS PER NEC.ART 250. USE COPPER CONDUCTORS.

J. NAMEPLATES SHALL BE PLASTIC LAMINATE WITH WHITE BACKGROUND AND 1/4" BLACK ENGRAVED LETTERS WITH THE TITLE OF THE EQUIPMENT THAT IS FED. NAMEPLATES SHALL BE ATTACHED USING RIVETS OR NUTS, WASHERS, AND BOLTS.

GROUNDING

A. GROUND SERVICE, EQUIPMENT, CIRCUITS PER NEC.ART 250. USE COPPER CONDUCTORS.

PANELBOARDS

A. SHALL BE UL LISTED AS "SUITABLE FOR USE AS SERVICE ENTRANCE EQUIPMENT", WHERE APPLICABLE.

B. PHASE, NEUTRAL AND GROUND BUSSES SHALL BE COPPER, AND PHASE BUSSES SHALL EXTEND THE ENTIRE HEIGHT OF PANELBOARD, FOR FUTURE INSTALLATION OF ADDITIONAL CIRCUIT BREAKERS, WITHOUT THE NEED FOR CONNECTORS, BUT CIRCUIT BREAKERS CONNECTIONS TO THE BUS SHALL BE: BOLT-ON, DOUBLE ROW ARRANGEMENT, DISTRIBUTED PHASE BUS TYPE.

C. CIRCUIT BREAKERS SHALL BE MOLDED CASE, THERMAL MAGNETIC, BOLT-ON TYPE, DEAD FRONT DESIGN, WITH QUICK-MAKE, QUICK-BREAK, COMMON TRIP TYPE SINGLE TOGGLE OPERATING MECHANISMS, 1, 2, OR 3 POLE, AND HACR LISTED WHEN USED FOR HVAC EQUIPMENT, SIZED PER PANELBOARD SCHEDULE.

D. BACKBOXES SHALL BE FABRICATED FROM GALVANIZED, CODE GAUGE, SHEET STEEL, MEETING OR EXCEEDING NECESSARY REQUIREMENT FOR WIRE BENDING SPACE, WITHOUT KNOCKOUTS.

E. COVERS SHALL BE DEAD FRONT DESIGN, WITH HINGED DOOR, CONCEALED FASTENERS, FABRICATED FROM CODE GAGE STEEL WITH POINTED ENAMEL FINISH, FLUSH LOCK AND CATCH.

F. PANELBOARD DIRECTORY CARD, WITH CLEAR PLASTIC COVER, SHALL BE PROVIDED ON BACK OR DOOR. CONTRACTOR SHALL COMPLETE DIRECTORY CARD, WITH CIRCUIT BREAKER NUMBERS CROSS REFERENCED TO THEIR RESPECTIVE LOAD(S), BY LOAD TYPE AND ROOM OR SPACE NAME AND NUMBER.

G. PROVIDE PERMANENT LAMACOID OR EQUAL TYPE LABEL INSIDE PANELBOARD DOOR, IDENTIFYING PANELBOARD NAME.

H. DESIGN EQUIPMENT SHALL BE SQUARE D CO. – TYPE NQOD FOR 208Y/120V PANELBOARDS; TYPE NF FOR 480Y/277V PANELBOARDS; TYPE I-LINE FOR DISTRIBUTION PANELBOARDS. ALTERNATE MANUFACTURERS ARE: CUTTLER-HAMMER/WESTINGHOUSE, OR SIEMENS/ITE.

FUSES

A. PROVIDE INSTANTANEOUS OR TIME DELAY TYPE FUSES FOR EACH FUSIBLE DEVICE, INCLUDING DISCONNECTS, FUSIBLE MOTOR STARTERS, SERVICE SWITCHES. PROVIDE TIME CURRENT CURVES FOR EACH TYPE AND SIZE FUSE USED. PROVIDE ONE SPARE SET OF FUSES FOR EACH SIZE INSTALLED.

B. CARTRIDGE FUSE APPLICATION:

1. MAIN SERVICE: CLASS L FAST ACTING.
2. MAIN FEEDERS: CLASS J TIME DELAY.
3. MOTOR BRANCH CIRCUITS: CLASS RK1 TIME DELAY.
4. OTHER BRANCH CIRCUITS: CLASS RK5 NON-TIME DELAY.

C. MANUFACTURERS: BUSSMAN, EAGLE ELECTRIC, GENERAL ELECTRIC, GOULD.

MOTOR STARTERS

A. FRACTIONAL HORSEPOWER MOTOR CIRCUIT SWITCH: FOR MANUALLY CONTROLLED MOTORS LESS THAN 1 H.P., USE MOTOR CIRCUIT SWITCH WITH PILOT LIGHT, WITH THERMAL UNITS, FOR MOTORS NOT EQUIPPED WITH SAME, BASIS FOR DESIGN: SQUARE D TYPE K.

B. MANUAL MOTOR STARTER: FOR MANUALLY CONTROLLED MOTORS 1 H.P. THROUGH 3 H.P., USE INTEGRAL HORSEPOWER MANUAL STARTER, PUSH-BUTTON TYPE, WITH THERMAL UNITS, ONE AUXILIARY N.O./N.C. CONTACT, PILOT LIGHT, BASIS FOR DESIGN: SQUARE D TYPE M.

C. COMBINATION MOTOR STARTER: FOR ALL OTHER MOTORS, OR WHEN INDICATED ON THE DRAWINGS, USE COMBINATION MOTOR STARTER, FUSIBLE DISCONNECT TYPE, WITH OVERLOADS, CONTROL POWER TRANSFORMER AND FUSES, HAND-OFF-AUTO SELECTOR SWITCH, OFF AND RUNNING PILOT LIGHTS, (2) N.O./N.C. AUX CONTACTS; NEMA 1 ENCLOSURE FOR INDOOR USE, NEMA 4 ENCLOSURE FOR EXTERIOR USE. NON-REVERSING OR REVERSING AS INDICATED ON THE DRAWINGS. SIZE AS REQUIRED FOR MOTOR HORSE POWER SERVED; LARGER SIZE REQUIRED WHERE A SPECIFIC SIZE IS INDICATED ON THE DRAWINGS. FUSIBLE TYPE SHALL BE FURNISHED, UNLESS INDICATED OTHERWISE ON THE DRAWINGS. BASIS FOR DESIGN: SQUARE D CLASS 8538(FUSIBLE, NON-REVERSING); CLASS 8738(FUSIBLE, REVERSING); CLASS 8539(CIRCUIT BREAKER, NON-REVERSING); CLASS 8739(CIRCUIT BREAKER, REVERSING).

D. MANUFACTURERS: SQUARE-D, GENERAL ELECTRIC, CHALLENGER, SIEMENS.

INTERIOR LIGHTING

A. PROVIDE AND INSTALL ITEMS AS SPECIFIED HEREIN AND LISTED ON THE LIGHTING FIXTURE SCHEDULE ON THE DRAWINGS.

B. CATALOG NAMES AND NUMBERS USED IN THE LIGHTING FIXTURE SCHEDULE ARE TO ESTABLISH A STANDARD OF QUALITY AND SHALL NOT BE CONSTRUED AS LIMITING COMPETITION.

C. IF ALTERNATED, OR OPTIONAL, METHODS ARE PROPOSED AS SUBSTITUTION FOR ANY ONE OF THE LIGHTING FIXTURES, THEY MUST BE EQUAL IN DESIGN AND QUALITY, AS DETERMINED BY THE ARCHITECT/ENGINEER. THE DATA SUBMITTED MUST INCLUDE A DESCRIPTION OF THE LIGHTING FIXTURE, LENS, BALLAST, SHEET METAL GAGE, PHOTOMETRIC DATA, ETC.

D. UPON REQUEST OF THE ENGINEER, A SAMPLE OF THE PROPOSED SUBSTITUTION SHALL BE PROVIDED.

E. FURNISH AND INSTALL ALL LIGHTING FIXTURES COMPLETE WITH LAMPS. PROVIDE 10% ADDITIONAL LAMPS FOR EACH TYPE OF LAMP REQUIRED ON PROJECT AND TURN OVER TO OWNER.

F. ALL LIGHTING FIXTURES SHALL CARRY THE UNDERWRITER'S LABEL OF APPROVAL.

G. FIXTURES SHALL BE FREE OF IMPERFECTIONS, HANDLING, OR INSTALLATION DAMAGE.

H. OBTAIN EXACT LOCATION OF ALL CEILING OUTLETS FROM THE ARCHITECT.

I. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE FIT OF ALL LIGHTING FIXTURES INTO THE ACTUAL CEILING INSTALLED.

J. ALL WIRING WITHIN EACH LIGHTING FIXTURE SHALL BE CONTAINED IN METALLIC WIRING CHANNEL AND NOT IN THE LAMP CHAMBER.

K. FLUORESCENT LIGHTING FIXTURES SHALL BE "P" RATED, PREMIUM GRADE, AND SO LABELED AS PER NEC.

L. CONFIRM COMPATIBILITY AND INTERFACE OF OTHER MATERIALS WITH LUMINAIRE AND CEILING SYSTEM. REPORT DISCREPANCIES TO THE ENGINEER/ARCHITECT AND DEFER ORDERING UNTIL CLARIFIED.

M. COORDINATE WITH DIVISION 15 TO AVOID CONFLICTS BETWEEN LUMINARIES, SUPPORTS, FITTINGS, AND MECHANICAL EQUIPMENT.

N. ALL INCANDESCENT, FLUORESCENT, METAL HALIDE, AND HIGH PRESSURE SODIUM LAMPS SHALL BE AS MANUFACTURED BY GENERAL ELECTRIC, GTE-SYLVANIA, WESTINGHOUSE, OR PHILLIPS.

O. ALL FLUORESCENT LIGHTING FIXTURES SHALL HAVE HIGH POWER FACTOR BALLASTS HAVING A SOUND LEVEL OF "A". BALLASTS CONSIDERED BY THE OWNER OR ENGINEER TO HAVE OBJECTIONABLE NOISE OR HUM SHALL BE REPLACED DURING THE PERIOD OF GUARANTEE AT THE DIVISION 16 CONTRACTOR'S EXPENSE.

P. FLUORESCENT BALLASTS TO BE PROGRAMMED START, SOLID STATE ELECTRONIC, LOW LOSS ENERGY SAVINGS TYPE, WITH THE FOLLOWING RATINGS FOR COMPACT TWIN TUBE FLUORESCENT LAMPS 18 TO 55 WATTS, AND LINEAR FLUORESCENT LAMPS 16 TO 60 WATTS:

a. TOTAL HARMONIC DISTORTION (THD) LESS THAN 10% ACCORDING TO NEMA, C82.11
b. LAMP CURRENT CREST FACTOR AT OR BELOW 1.7
c. TRANSIENT VOLTAGE PROTECTION: ANSI/IEEE C62.41, CATEGORY A.
d. OPERATE IN AMBIENT TEMPERATURES UP TO 105 DEGREES F.
e. MINIMUM 95 PERCENT POWER FACTOR.
f. MINIMUM 85 PERCENT BALLAST FACTOR.

Q. IT WILL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO VERIFY, WITH THE CONSTRUCTION CONTRACTOR, THE TYPES OF CEILINGS IN ALL ROOMS HAVING TROFFERS, AS TO THE TYPE OF TROFFER CONSTRUCTION REQUIRED TO MATCH THE CEILING CONSTRUCTION

R. MOUNT HIGH INTENSITY DISCHARGE BALLASTS ON RUBBER GROMMETS TO REDUCE NOISE TRANSMISSION.

S. ALL METAL PARTS SHALL BE GROUNDED AS A COMMON UNIT.

T. SUPPORT FLUORESCENT LUMINARIES DIRECTLY FROM BUILDING STRUCTURE BY ROD HANGERS AND INSERTS, OR METAL ANGLE HEADERS SUPPORTED FROM

FRAMING STRUCTURE OF CEILING SUSPENSION SYSTEM.

U. INSTALL RECESSED LUMINARIES TO PERMIT REMOVAL FROM BELOW, TO GAIN ACCESS TO OUTLET OR PRE-WIRED LIGHTING FIXTURE BOX.

LED FIXTURES

-QUALITY

A. LIGHTING FIXTURES SHALL BE OF SPECIFICATION GRADE AND LISTED OR LABELED BY UNDERWRITERS LABORATORIES (UL) OR AN APPROVED EQUAL.

B. LED FIXTURES SHALL COMPLY WITH THE FOLLOWING:
1. UL STANDARD 8750 "LIGHT EMITTING DIODE EQUIPMENT FOR USE IN LIGHTING PRODUCTS". IES STANDARD LM-79 " ELECTRICAL AND PHOTOMETRICS MEASUREMENTS OF SOLID STATE LIGHTING PRODUCTS", IES STANDARD LM-80 "MEASURE LUMENS MAINTENANCE OF LED LIGHT SOURCE", AND IES STANDARD TM-21 "PROJECTING LONG TERM LUMEN MAINTENANCE OF LED LIGHT SOURCE".

2.ANSI C78.377 "SPECIFICATIONS OR THE CHROMATICITY OF SOLID STATE LIGHTING PRODUCTS" WITH LED BINNED WITHIN A MAXIMUM THREE-STEP MACADAM ELLIPSE TO ENSURE COLOR CONSISTENCY AMONGST LUMINARIES OF THE SAME TYPE.

-WARRANTY

A. LED FIXTURES, LAMPS DRIVERS AND COMPONENTS PROVIDE A COMPLETE WARRANTY FOR PARTS AND LABOR FOR A MINIMUM OF FIVE YEARS.

-PRODUCTS

A. LED FIXTURES SHALL BE MODULAR AND ALLOW FOR SEPARATE REPLACEMENT OF LED LAMPS AND DRIVERS. USER SERVICEABLE LED LAMPS AND DRIVERS SHALL BE REPLACEABLE FROM THE ROOM SIDE.

B. DIMMABLE LED FIXTURES SHALL HAVE A 0-10 VOLT, 3-WIRE DIMMING DRIVER OR A TWO STEP (50%-100%) LINE VOLTAGE, TWO SWITCH CONTROLLER DIMMING DRIVER.

-LAMPS

A. LED LAMPS SHALL HAVE A COLOR TEMPERATURE 3500° K, A CRI OF 80 MINIMUM, AND A LUMEN MAINTENANCE L70 RATING OF 50,000 HOURS MINIMUM.

-DRIVERS

A. LED DRIVERS SHALL BE ELECTRONIC-TYPE, LABELED AS COMPLIANT WITH RADIO FREQUENCY INTERFACE (RFI) REQUIREMENTS OF FCC TITLE 47 PART 15, AND COMPLY WITH NEMA SSL 1 "ELECTRONIC DRIVERS FOR LED DEVICES, ARRAYS OF SYSTEMS". LED DRIVERS SHALL HAVE A SOUND RATING OF "A" HAVE MINIMUM EFFICIENCY OF 85%, AND BE RATED FOR A THD OF LESS THEN 20% AT ALL INPUT VOLTAGES.

B. DIMMABLE LED DRIVERS SHALL BE 0-10V TYPE. DIMMABLE DRIVERS SHALL BE CAPABLE OF DIMMING WITHOUT LED STROBING OR FLICKERING ACROSS THEIR DIMMING RANGE.

REVISION DESCRIPTION

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NOT FOR CONSTRUCTION

DOM MAR TRANSFER FACILITY
DOLSONTOWN ROAD
TOWN OF WAWAYANDA, NEW YORK

ELECTRICAL SPECIFICATIONS

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DATE 03-14-22

PLUMBING FIXTURE SCHEDULE

MARK	FIXTURE	SYMBOL	DRAINAGE		WATER			REMARKS
			SAN	VENT	DCW	DHW	DTW	
WC1	WATER CLOSET –12" ROUGH–IN –ADA COMPLIANT –		3"	2"	1/2"	–	–	
WC2	WATER CLOSET –12" ROUGH–IN –ADA COMPLIANT –		3"	2"	1/2"	–	–	
WC3	WATER CLOSET –12" ROUGH–IN – –		3"	2"	1/2"	–	–	
LV1	LAVATORY –BATHROOM – –		1–1/2"	1–1/2"	1/2"	–	1/2"	
LV2	LAVATORY –BATHROOM – –		1–1/2"	1–1/2"	1/2"	–	1/2"	
LV3	LAVATORY –BATHROOM – –		1–1/2"	1–1/2"	1/2"	–	1/2"	
CS1	COUNTER SINK –SINGLE BOWL –STAINLESS STEEL		1–1/2"	1–1/2"	1/2"	–	–	
SH1	SHOWER –SECOND FLOOR – – – – BATH		2"	2"	1/2"	–	1/2"	
MS1	MOP SINK – – – –		3"	1–1/2"	1/2"	–	1/2"	
FD1	FLOOR DRAIN – – – – –		3"OR 4"	2"	–	–	–	MANUFACTURER: MIFAB MODEL: F1000 – STAINLESS STEEL STRAINER – –
SS1	QUAD CLOSE TRAP SEAL WATERLESS TRAP PRIMER –TO ALL FLOOR DRAINS – –		3"	–	–	–	–	
WH1	ELECTRIC WATER HEATER –50 GAL – – –		–	–	3/4"	3/4"	–	
RP1	RECIRCULATING PUMP –(WH1) – – –		–	–	–	–	–	
WH2	ELECTRIC WATER HEATER –6 GALLON – – – –							
MV1	MIXING VALVE –WATER HEATER –(WH1) – –		–	–	3/4"	3/4"	3/4"	
HB1	HOSE BIBB – – – –		–	–	3/4"	–	–	
WHY1	WALL HYDRANT – – – –		–	–	3/4"	–	–	
SP1	SUMP PUMP –ELEVATOR SUMP PIT – – –							REFER TO DETAIL 11/P–104

PLUMBING FIXTURE NOTE:
ALL PLUMBING FIXTURES TO BE APPROVED BY BUILDING OWNER/REPRESENTATIVE PRIOR TO ORDERING.

PLUMBING FIXTURE NOTES:

1. ROUGH ACCORDING TO ABOVE SCHEDULE UNLESS OTHERWISE INDICATED ON DRAWINGS.
2. PROVIDE ALL ACCESSORIES REQUIRED FOR A COMPLETE PLUMBING INSTALLATION AS SPECIFIED IN SPECIFICATIONS AND ON DRAWINGS.
3. PROVIDE ACCESS PANEL ON ALL NON–ACCESSIBLE CEILINGS BELOW PLUMBING VALVES.
4. REFER TO DRAWINGS FOR ADDITIONAL PLUMBING EQUIPMENT SPECIFICATIONS.
5. PLUMBING FIXTURES (TOILETS, LAVATORIES, COUNTER SINKS AND ACCESSORIES) TO BE COORDINATED WITH OWNER'S/ REPRESENTATIVE.

ADA ACCESS NOTES

1. TOILET FLUSH CONTROLS SHALL BE OPERABLE WITH ONE HAND AND SHALL NOT REQUIRE TIGHT GRASPING, PINCHING OR TWISTING OF THE WRIST. CONTROLS FOR THE FLUSH VALVES SHALL BE MOUNTED NO MORE THAN 44" ABOVE THE FLOOR. THE FORCE REQUIRED TO ACTIVATE CONTROLS SHALL BE NO GREATER THAN 5 LBS.
2. HOT WATER AND DRAIN PIPING UNDER LAVATORIES SHALL BE INSULATED OR OTHERWISE COVERED. THERE SHALL BE NO SHARP OR ABRASIVE SURFACES UNDER LAVATORIES.

WATER HAMMER ARRESTER

UNITS	FIXTURE UNITS	PIPE SIZE	REMARKS
A	1 – 11	1/2"	INSTALL PER PDI
B	12 – 32	3/4"	INSTALL PER PDI
C	33 – 60	1"	INSTALL PER PDI
D	61 – 113	1–1/4"	INSTALL PER PDI
E	114 – 154	1–1/2"	INSTALL PER PDI
F	155 – 330	2"	INSTALL PER PDI

NOTE:
INSTALL WATER HAMMER ARRESTER ON ALL AUTO SHUT–OFF WATER LINES. (FLUSH VALVES AND FAUCETS)

VENT PIPING SIZING TABLE

TO COMBINE VENTS FOR MINIMAL VENT THRU ROOF PENETRATIONS, USE THE FOLLOWING

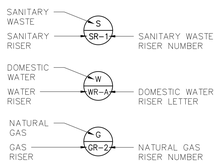
FIXTURE	VENT FIXTURE UNITS
WATER CLO.S	3
LAVATORIES	1
BATHTUB/SHOWER	2
KITCHEN SINK	2
CLOTHES WASHER	2
MOP SINK	3
FLOOR DRAIN	3
WATER COOLER	1

PIPE	MAX. FIXTURE UNITS	REMARKS
4"	256	
3"	84	
2–1/2"	48	
2"	24	
1–1/2"	8	DO NOT USE FOR WATER CLO.

LEGEND

- —NG— NATURAL GAS PIPING
- —DCW/CW— DOMESTIC COLD WATER
- —DHW/HW— DOMESTIC HOT WATER (115°F)
- —CIRC— CIRCULATING HOT WATER (110°F)
- —SAN/S— SANITARY SEWER LINE
- —V— VENT LINE
- BALL VALVE
- UNION
- GAS VALVE
- CHECK VALVE
- P.O.C. POINT OF PIPE CONNECTION (NEW PLUMBING TO EXISTING PLUMBING)
- VENT THROUGH ROOF
- FLOOR DRAIN WITH TRAP
- FLOOR CLEANOUT
- DRAIN HUB WITH TRAP
- 1 / P–102 DETAIL OR FLOOR PLAN NUMBER / DRAWING NUMBER

PLUMBING RISER LEGENDS



GENERAL PLUMBING NOTES

1. GENERAL NOTES ARE APPLICABLE TO ALL PLUMBING WORKING DRAWINGS.
2. THE WORK SHALL BE EXECUTED IN STRICT CONFORMITY WITH BASE BUILDING SPECIFICATION AND WITH THE LATEST EDITION OF THE PREVAILING LOCAL PLUMBING AND BUILDING CODES AND ALL LOCAL REGULATIONS THAT MAY APPLY. IN CASE OF CONFLICT BETWEEN THE CONTRACT DOCUMENTS AND A GOVERNING CODE OR ORDINANCE THE MORE STRINGENT STANDARD SHALL APPLY.
3. ALL PLUMBING WORK SHALL BE COORDINATED WITH ALL OTHER TRADES BEFORE PROCEEDING WITH INSTALLATION.
4. NO CHANGES ARE TO BE MADE IN PLUMBING LAYOUT WITHOUT WRITTEN PERMISSION BY THE ENGINEER OF RECORD.
5. NO PIPING SHALL RUN EXPOSED IN FINISHED AREAS.
6. PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND FOR PAYING RELATED FEES.
7. ROUGH–IN DIMENSIONS OF TOILET FIXTURES MUST BE COORDINATED WITH CONTRACTOR AND FIELD SUPERVISOR.
8. INSTALL BALL VALVES ON ALL BRANCH SUPPLY LINES.
9. **PROVIDE ACCESS PANELS ON ALL INACCESSIBLE VALVES AND CLEANOUTS. PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR THEIR LOCATION. MOUNT SHUT–OFF VALVES NO HIGHER THAN 12'–8" AFF.**
10. ALL WORK SHALL BE PROPERLY TESTED, BALANCED AND CLEANED. PROVIDE A ONE (1) YEAR WARRANTY FROM DATE OF FINAL INSPECTION ON ALL PARTS AND LABOR.
11. FOLLOW PDI STANDARDS FOR WATER HAMMER ARRESTORS.
12. ALL PLUMBING FIXTURES TO BE SUPPLIED AND INSTALLED BY PLUMBING CONTRACTOR.
13. CONTRACTOR SHALL COORDINATE WATER METER LOCATION AND INSTALLATION WITH LOCAL AUTHORITIES AND CIVIL DRAWINGS IF NOT EXISTING.
14. SANITARY SEWER PIPING SHOWN IS BASED ON 0.125"/FT FOR 3"–6" & 0.25"/FT FOR 2 1/2" OR LESS FOR ALL PIPING. COORDINATE BUILDING SEWER LOCATION AND INVERT ELEVATION WITH CIVIL DRAWINGS.
15. SURE SEAL PRIMERS ARE TO BE PROVIDED AT ALL FLOOR DRAIN LOCATIONS PER 5/P103.

GENERAL NOTES:

A. THESE DRAWINGS ARE DIAGRAMMATIC IN NATURE AND INDICATE THE SIZE AND GENERAL ARRANGEMENT OF PIPING, EQUIPMENT, ETC. EXACT LOCATIONS AND ROUTINGS SHALL BE DETERMINED IN THE FIELD BEFORE AND AS THE WORK PROGRESSES. CAREFULLY COORDINATE THE WORK OF THIS TRADE WITH ALL OTHER TRADES.

B. DRAWINGS DO NOT INDICATE ALL OFFSETS, CHANGES IN ELEVATION, ETC. WHICH MAY BE REQUIRED BY ACTUAL FIELD CONDITIONS. THE CONTRACTOR IS TO FIELD VERIFY CONDITIONS PRIOR TO INSTALLATION AND MAKE SUCH CHANGES IN PIPING, EQUIPMENT LOCATIONS, ETC. AS NECESSARY TO ACCOMMODATE FIELD CONDITIONS. COORDINATE ALL CHANGES WITH OTHER TRADES AND ARCHITECT/ENGINEER.

C. ALL CUTTING AND PATCHING OF BUILDING COMPONENTS REQUIRED TO ACCOMMODATE THE WORK OF THIS CONTRACT SHALL BE THE RESPONSIBILITY OF THIS CONTRACT. ALL PATCHING SHALL MATCH THE EXISTING COMPONENTS AND FINISHES. CUTTING AND PATCHING WORK SHALL BE PERFORMED BY PERSONNEL TRAINED AND REGULARLY EMPLOYED FOR SUCH SERVICES.

D. PLUMBING CONTRACTOR TO PROVIDE ALL ACCESSORIES REQUIRED FOR COMPLETE AND OPERATIONAL SYSTEM..

ABBREVIATIONS

DCW/CW	DOMESTIC COLD WATER
DHW/HW	DOMESTIC HOT WATER
CIRC	CIRCULATING HOT WATER
NG	NATURAL GAS
SAN/S	SANITARY SEWER
V/VT	VENT
VTR	VENT THROUGH ROOF
FCO	FLOOR CLEANOUT
WCO	WALL CLEANOUT
POC	POINT OF CONNECTION
SOV	SHUTOFF VALVE
AFF	ABOVE FINISHED FLOOR
BFF	BELOW FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
BFG	BELOW FINISHED GRADE
CFH	CUBIC FEET PER HOUR
MEP	MECHANICAL–ELECTRICAL–PLUMBING
AAV	AIR ADDMITTANCE VALVE
DFU	DRAINAGE FIXTURE UNIT

PLUMBING SPECIFICATIONS

DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND DIVISION 1 SPECIFICATION SECTIONS, APPLY TO THIS SECTION.

PLUMBING WORK SHALL BE AS INDICATED ON THE PLANS AND AS HEREIN SPECIFIED. WORK SHALL CONSIST OF PROVIDING A COMPLETE AND OPERATIONAL SYSTEM INCLUDING ALL FIXTURES, PIPING, VALVES, AND OTHER REQUIRED DEVICES, EQUIPMENT, ETC. ALL WORK SHALL BE INSTALLED IN ACCORDANCE WITH ALL STATE AND LOCAL CODE REQUIREMENTS. WHERE THERE ARE CONFLICTS BETWEEN THE PLANS, SPECIFICATIONS, AND CODE REQUIREMENTS, THE CONTRACTOR SHALL MAKE ANY ADJUSTMENTS AS REQUIRED FOR COMPLIANCE WITH ALL CODES AND FOR APPROVAL OF THE SYSTEM. THE SYSTEM SHALL EXTEND TO AND CONNECT INTO THE EXISTING PROJECT WATER AND WASTE SYSTEM AS INDICATED ON THE DRAWINGS.

WHENEVER A MATERIAL, ARTICLE, OR PIECE OF EQUIPMENT IS IDENTIFIED ON THE DRAWINGS BY REFERENCE TO MANUFACTURERS' OR VENDORS NAMES, TRADE NAMES, CATALOG NUMBERS, OR THE LIKE, IT IS SO IDENTIFIED FOR THE PURPOSE OF ESTABLISHING A STANDARD, AND ANY MATERIAL, ARTICLE, OR PIECE OF EQUIPMENT OF OTHER MANUFACTURERS OR VENDORS WHICH WILL PERFORM ADEQUATELY THE DUTIES IMPOSED BY THE GENERAL DESIGN WILL BE CONSIDERED EQUALLY ACCEPTABLE PROVIDED THE MATERIAL, ARTICLE OR PIECE OF EQUIPMENT SO PROPOSED IS, IN THE OPINION OF THE ARCHITECT/ENGINEER, OF EQUAL SUBSTANCE, APPEARANCE, AND FUNCTION. THE MATERIAL ARTICLE OR PIECE OF EQUIPMENT SHALL NOT BE PURCHASED OR INSTALLED BY THE CONTRACTOR WITHOUT THE ARCHITECT'S/ ENGINEER'S WRITTEN APPROVAL.

THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR APPROVAL, SHOP DRAWINGS AND/OR MANUFACTURERS SUBMITTAL DATA WITH CAPACITY AND CHARACTERISTICS OF ALL MATERIAL AND EQUIPMENT FOR APPROVAL PRIOR TO PURCHASE AND OR INSTALLATION OF THE WORK. A MINIMUM OF FIVE (5) COPIES SHALL BE SUBMITTED. SUBMITTALS SHALL BE IN ACCORDANCE WITH THE CONDITIONS OF THE CONTRACT.

THE CONTRACTOR SHALL VISIT THE PROJECT SITE PRIOR TO BEGINNING WORK FOR THE PURPOSE OF OBSERVING EXISTING CONDITIONS AND TO DETERMINE THE EXTENT OF THE WORK. THE CONTRACTOR SHALL MAKE ALLOWANCES FOR PROVIDING ALL MATERIAL, EQUIPMENT, AND LABOR AS REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM IN ACCORDANCE WITH THE REQUIREMENTS OF THE DRAWINGS, SPECIFICATIONS, AND ALL CODE REQUIREMENTS.

ALL WATER PIPING SHALL BE TYPE "L" HARD COPPER WITH WROUGHT COPPER FITTINGS. JOINTS SHALL BE SOLDERED WITH LEAD FREE SOLDER OR CPVC. ALL EXPOSED PIPING SHALL BE CHROME PLATED. WASTE AND VENT SHALL BE SERVICE WEIGHT CAST IRON WITH EITHER NO–HUB OR "CHARLOTTE SEAL" JOINTS. NO–HUB JOINTS ARE NOT PERMITTED BELOW GRADE OR PVC. ALL EQUIPMENT REQUIRING PLUMBING CONNECTIONS SHALL BE CONNECTED BY THE PLUMBER REGARDLESS OF WHO PROVIDES THE EQUIPMENT OR FIXTURE. UNDERGROUND WATER PIPING SHALL BE TYPE "K" COPPER OR DUCTILE IRON.

HUBLESS CAST IRON SOIL RESTRAINTS – HOLDRITE #117 SERIES MEETS CISPI INSTALLATION GUIDELINES.

ALL HOT AND COLD WATER PIPING ABOVE GRADE SHALL BE INSULATED WITH MINIMUM 1" THICK 3 PCF DENSITY FIBERGLASS PIPE COVERING WITH VAPOR BARRIER JACKET OR AS REQUIRED BY CODE. ALL JOINTS SHALL BE LAPPED AND SEALED WITH AN APPROVED TYPE ADHESIVE AND END STRIPS AS RECOMMENDED BY THE INSULATION SUPPLIER AND/OR MANUFACTURER.

HORIZONTAL STORM/SEWER PIPING ABOVE GRADE SHALL BE INSULATED WITH MINIMUM 1" THICK 3 PCF DENSITY FIBERGLASS PIPE COVERING WITH VAPOR BARRIER JACKET OR AS REQUIRED BY CODE. ALL JOINTS SHALL BE LAPPED AND SEALED WITH AN APPROVED TYPE ADHESIVE AND END STRIPS AS RECOMMENDED BY THE INSULATION SUPPLIER AND/OR MANUFACTURER. (TO AVOID CONDENSATION) DRAIN HUBS TO BE INSULATED.

VACUUM BREAKERS SHALL BE PROVIDED FOR ALL HOSE CONNECTIONS AND OTHER POINTS WHERE CROSS CONTAMINATION CAN OCCUR. REDUCED PRESSURE BACKFLOW PREVENTERS SHALL BE PROVIDED WHERE REQUIRED BY CODE. ALL FIXTURES, HOSE BIBBS, FLOOR DRAINS, ETC., SHALL BE PROVIDED AS INDICATED AND SCHEDULED ON THE PLANS. THE SYSTEM SHALL BE TESTED, CLEANED, AND DISINFECTED IN ACCORDANCE WITH ALL STATE AND LOCAL REQUIREMENTS.

THE ENTIRE PLUMBING SYSTEM SHALL BE UNCONDITIONALLY GUARANTEED FOR ONE (1) YEAR FROM ACCEPTANCE BY THE OWNER. ALL GUARANTEES SHALL BE WRITTEN, DATED, AND FORWARDED TO THE OWNER. ALL DEFECTIVE EQUIPMENT AND/OR MATERIAL SHALL BE REPLACED AT NO EXPENSE TO THE OWNER.

AT THE CONTRACTOR'S OPTION, PVC MAY BE UTILIZED ABOVE GRADE IN CONCEALED LOCATIONS FOR DWV SYSTEM, SUBJECT TO CODE COMPLIANCE. APPROVAL FROM OWNER/TENANT OR LOCAL INSPECTOR IS REQUIRED.

AT THE CONTRACTOR'S OPTION, PEX PIPING MAY BE UTILIZED ABOVE GRADE SUBJECT TO CODE COMPLIANCE. APPROVAL FROM OWNER/TENANT OR LOCAL INSPECTOR IS REQUIRED. PEX–A (UPONOR–PEX–A TUBING) PIPING AND FITTINGS (UPONOR F1960)

PVC/CPVC PIPING SHALL HAVE A FLAME SPREAD RATING LESS THAN 25 AND A SMOKE DEVELOPMENT RATING LESS THAN 50.

GAS PIPING – SCHEDULE 40 BLACK STEEL WITH MALLEABLE SCREWED FITTING IN SIZE UP TO 3" AND OVER 3" TO BE SCHEDULE 40 BLACK STEEL WITH WELDED FITTINGS.

NATURAL GAS PIPING – COORDINATE ALL NEW GAS LINES ROUTING PER PLANS IN FIELD. PAINT EXTERIOR GAS PIPING AND SUPPORTS TWO COATS EXTERIOR ENAMEL.

FIRE STOPPING PROVIDED FOR PLASTIC PIPE PENETRATIONS SHALL BE HOLDRITE HYDROFLAME NON–METALLIC CAST–IN–PLACE SLEEVING SYSTEMS FOR CORRUGATED DECKS, WOOD FORMED DECKS AND CONCRETE WALLS.

ALL PLUMBING SERVICE PIPING USE ON PROJECT TO MEET ALL STATE AND LOCAL CODES. COORDINATE USE OF PVC PIPING ABOVE AND BELOW GRADE WITH LOCAL AUTHORITIES PRIOR TO WORK START–UP. (NATURAL GAS, WASTE, STORM, VENT, DOMESTIC HOT, COLD AND CIRCULATING WATER LINES)

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SCHEDULES AND SPECIFICATIONS

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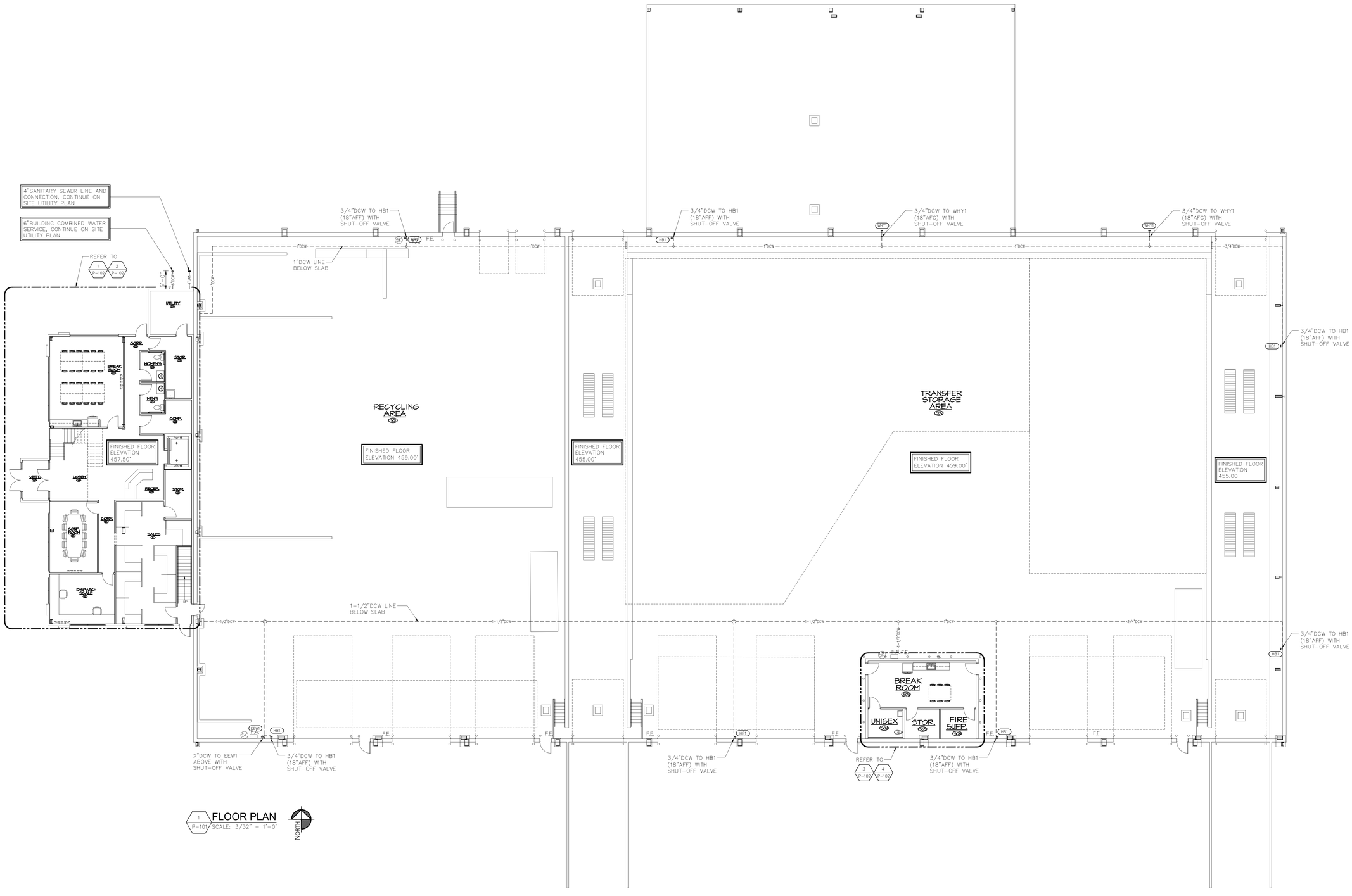

1 P-101 FLOOR PLAN
SCALE: 3/32" = 1'-0"

North

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FLOOR PLAN

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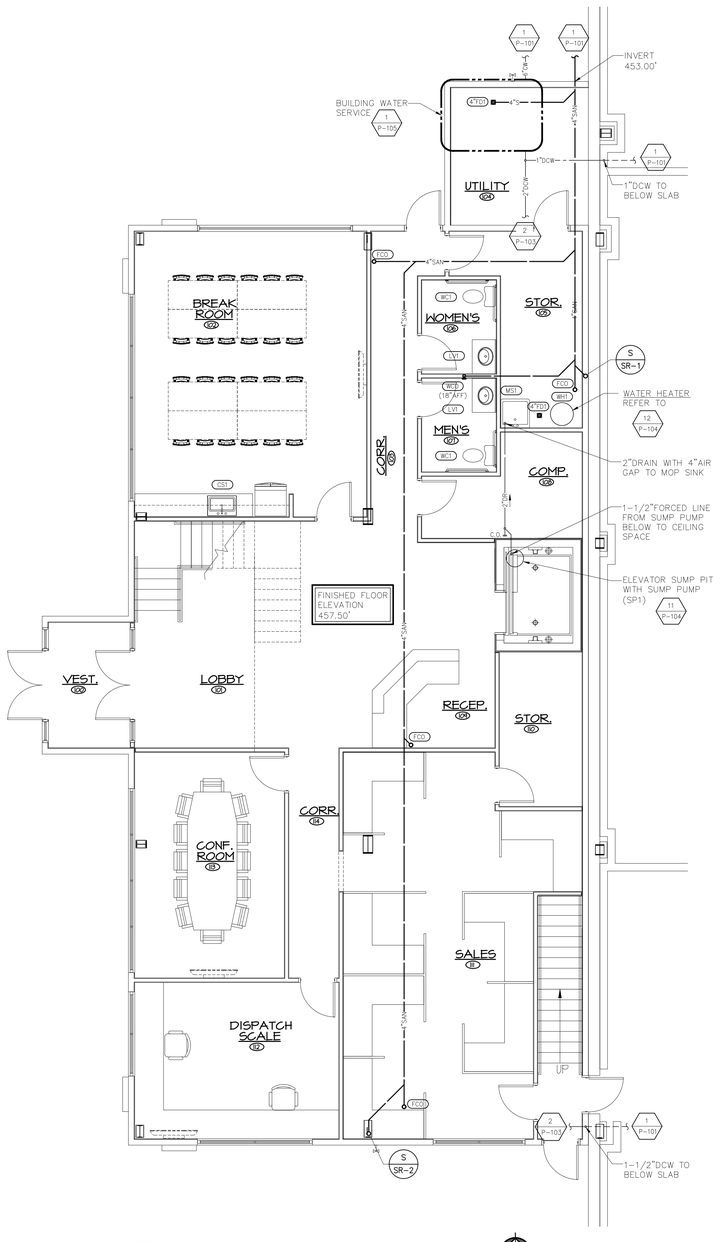
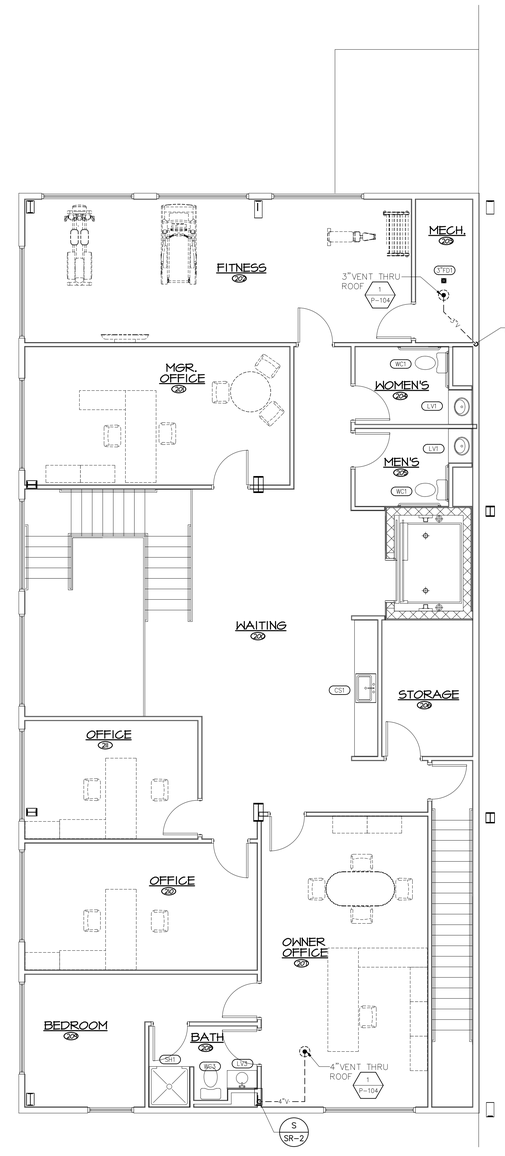
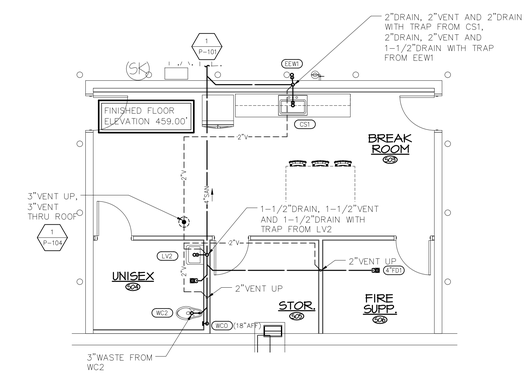


1 P-102 ENLARGED PARTIAL FIRST FLOOR PLAN
SCALE: 3/16" = 1'-0"



2 P-102 ENLARGED PARTIAL SECOND FLOOR PLAN
SCALE: 3/16" = 1'-0"



(SANITARY WASTE AND VENT)

3 P-102 ENLARGED PARTIAL FIRST FLOOR PLAN
SCALE: 3/16" = 1'-0"

(DOMESTIC WATER)

4 P-102 ENLARGED PARTIAL FIRST FLOOR PLAN
SCALE: 3/16" = 1'-0"

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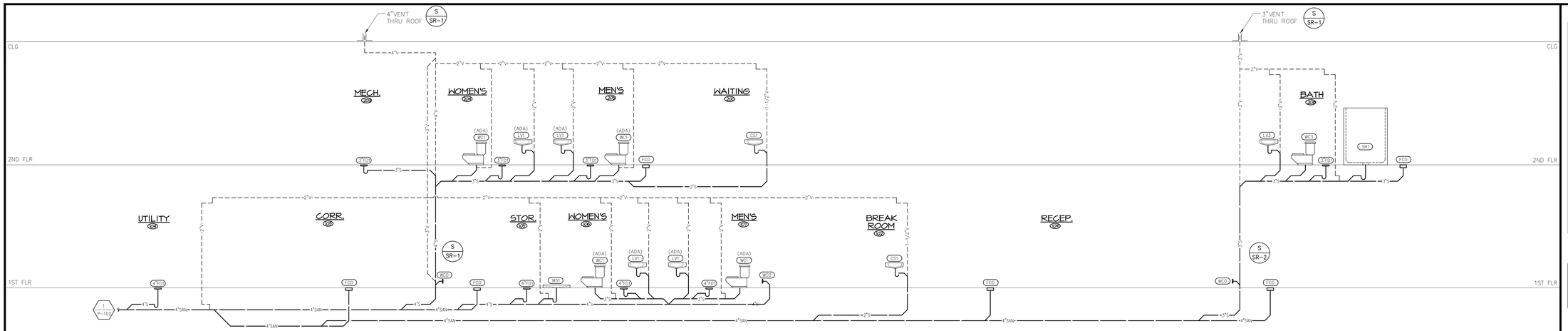
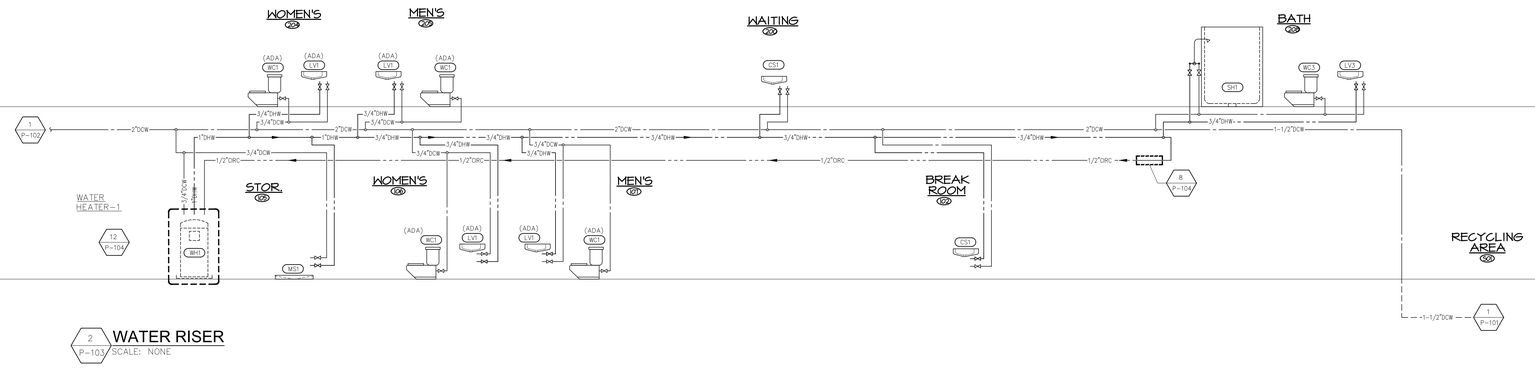


1 P-103 WASTE AND VENT RISER
SCALE: NONE



2 P-103 WATER RISER
SCALE: NONE

3 P-103 WASTE AND VENT RISER
SCALE: NONE

4 P-103 WATER RISER
SCALE: NONE

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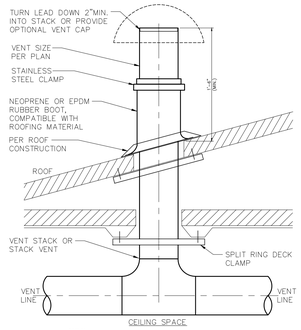
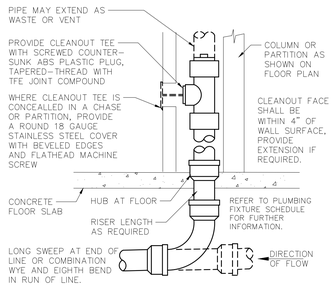
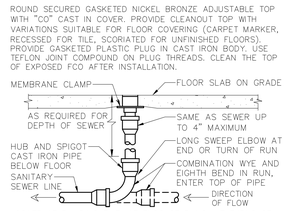


NOTE:
VENT THROUGH SHALL BE A MINIMUM OF 10'-0" FROM ANY/ALL FRESH AIR INTAKES

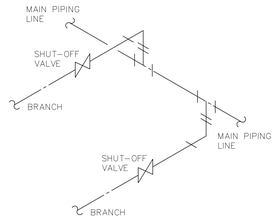
1 P-104 **VENT THRU ROOF DETAIL**
SCALE: NONE



2 P-104 **WALL CLEANOUT DETAIL**
SCALE : NONE

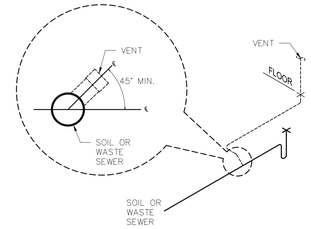


3 P-104 **FLOOR CLEANOUT DETAIL**
SCALE : NONE



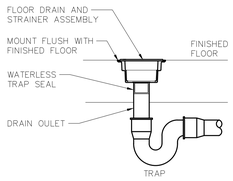
NOTE: TOP OFFSET REQUIRED ON ALL PIPING TAKEOFFS.

4 P-104 **PIPING TAKE-OFF DETAIL**
SCALE : NONE

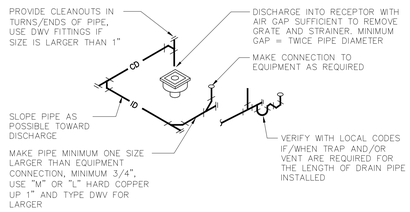


NOTE:
CONNECT VENT TO SOIL OR WASTE PIPING ABOVE CENTERLINE. UNDER SLAB HORIZONTAL CONNECTIONS OF VENT PIPING TO WASTE SEWER SYSTEM PIPELINE SHALL NOT BE ALLOWED.

5 P-104 **VENT PIPE INSTALLATION**
SCALE: NONE

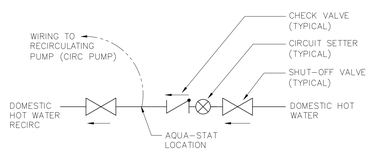


6 P-104 **FLOOR DRAIN TRAP SEAL DETAIL**
SCALE: NONE



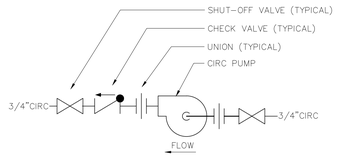
NOTE:
ROUTE PIPE INCONSPICUOUSLY AND UNOBTRUSIVELY. HANG PIPE AS REQUIRED. DO NOT INSULATE INDIRECT DRAIN PIPE WHEN INSTALLED EXPOSED IN FOOD SERVICE FACILITY. REFER TO LOCAL CODES FOR FURTHER INFORMATION.

7 P-104 **INDIRECT/CONDENSATE DRAIN DETAIL**
SCALE: NONE

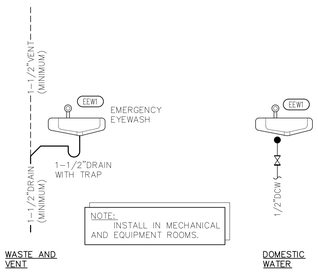


NOTE:
PROVIDE AQUA-STAT AND TIMER KIT FOR CONTROL TO CIRC PUMP, COORDINATE FINAL LOCATION IN FIELD DOWNSTREAM OF FINAL HOT WATER CONNECTION.

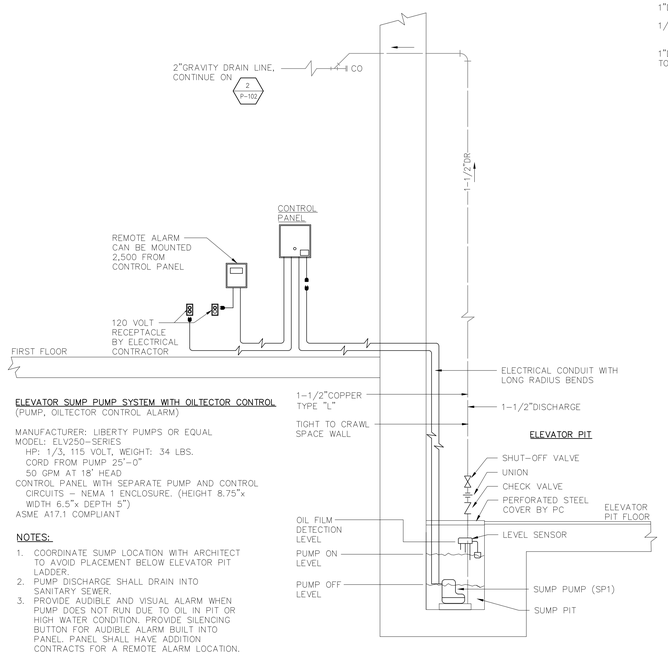
8 P-104 **HOT WATER RECIRC INSTALLATION**
SCALE : NONE



9 P-104 **CIRCULATION PUMP DETAIL**
SCALE: NONE



10 P-104 **EYE/FACE WASH DETAIL**
SCALE: NONE



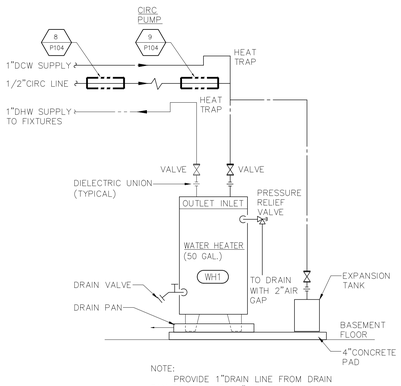
ELEVATOR SUMP PUMP SYSTEM WITH OILTECTOR CONTROL
(PUMP, OILTECTOR CONTROL ALARM)

MANUFACTURER: LIBERTY PUMPS OR EQUAL
MODEL: ELV250-SERIES
HP: 1/3, 115 VOLT, WEIGHT: 34 LBS.
CORD FROM PUMP 25'-0"
50 GPM AT 18' HEAD
CONTROL PANEL WITH SEPARATE PUMP AND CONTROL CIRCUITS - NEMA 1 ENCLOSURE. (HEIGHT 8.75"x WIDTH 6.5"x DEPTH 5")
ASME A17.1 COMPLIANT

NOTES:
1. COORDINATE SUMP LOCATION WITH ARCHITECT TO AVOID PLACEMENT BELOW ELEVATOR PIT LADDER.
2. PUMP DISCHARGE SHALL DRAIN INTO SANITARY SEWER.
3. PROVIDE AUDIBLE AND VISUAL ALARM WHEN PUMP DOES NOT RUN DUE TO OIL IN PIT OR HIGH WATER CONDITION. PROVIDE SILENCING BUTTON FOR AUDIBLE ALARM BUILT INTO PANEL. PANEL SHALL HAVE ADDITION CONTRACTS FOR A REMOTE ALARM LOCATION.

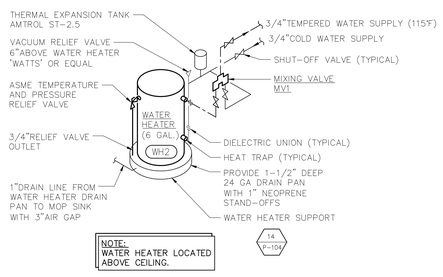
(VERIFY ELEVATOR TYPE PRIOR TO WORK START-UP)

11 P-104 **ELEVATOR PUMP DETAIL**
SCALE: NONE



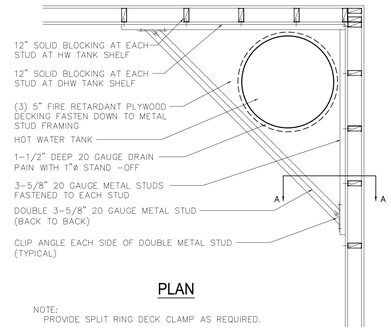
NOTE:
PROVIDE 1"DRAIN LINE FROM DRAIN PAN TO FD1 WITH 2"AIR GAP.

12 P-104 **WATER HEATER WH-1**
SCALE: NONE



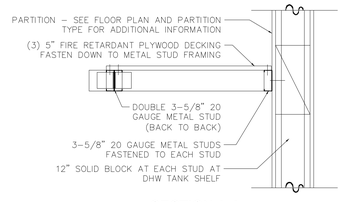
NOTE:
WATER HEATER LOCATED ABOVE CEILING.

13 P-104 **WATER HEATER WH-2**
SCALE: NONE



PLAN

NOTE:
PROVIDE SPLIT RING DECK CLAMP AS REQUIRED.



SECTION A-A

NOTE:
COORDINATE WITH ARCHITECTURAL PLANS.

14 P-104 **WATER HEATER SUPPORT DETAIL**
SCALE: NONE

REVISION DESCRIPTION
1 -
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DOM MAR TRANSFER FACILITY

DOLSONTOWN ROAD
TOWN OF WAWAYANDA, NEW YORK

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P-104

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DRAWN BY KMD

JOB . 221022
DATE 03-14-22
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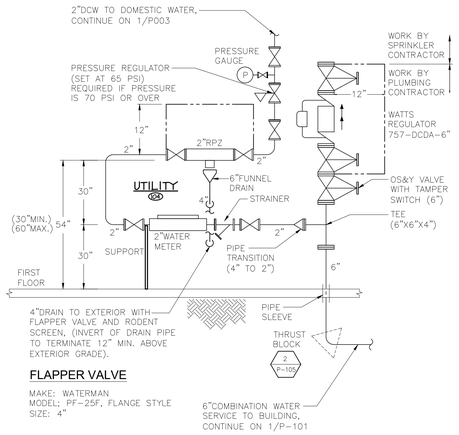


FLAPPER VALVE

MAKE: WATERMAN
MODEL: PF-25F, FLANGE STYLE
SIZE: 4"

NOTE:

1. PROVIDE 10"CLEAR BACK OF RPZ AND DCDA TO WALL.
2. PROVIDE 18"CLEAR ABOVE RPZ AND DCDA.
3. PROVIDE 30"CLEAR IN FRONT OF RPZ AND DCDA.
4. PROVIDE SUPPORT TO EQUIPMENT FROM WALL/FLOOR AS REQUIRED. (RPZ AND DCDA)

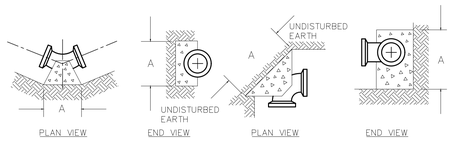
EQUIPMENT:

-WATER METER PURCHASED BY PLUMBER, COORDINATE MANUFACTURER AND TYPE WITH LOCAL WATER AUTHORITY.

-REDUCED PRESSURE ZONE ASSEMBLY (RPZ) WATTS MODEL No. SERIES LF-009-QT-2"

-DOUBLE CHECK DETECTOR ASSEMBLY (DCDA) WATTS MODEL No. SERIES 757 (6")

1 P-105 **BUILDING WATER SERVICE**
SCALE : NONE



PIPE SIZE	11-1/4" BEND	22-1/2" BEND	45° BEND	90° BEND	CAP PLUG, TEE OR TAP SLEEVE	VERTICAL BEND	
	A	A	A	A	A	A	B
4"	12"	15"	17"	17"	17"	17"	17"
6"	15"	17"	21"	27"	24"	21"	27"
8"	17"	21"	27"	34"	30"	27"	34"
10"	17"	24"	32"	43"	36"	32"	43"
12"	17"	27"	38"	51"	43"	38"	51"

BASED ON MAX 225 PSI

2 P-105 **THRUST BLOCK DETAIL**
SCALE: NONE

REVISION DESCRIPTION
1
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3
4

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DRAWN BY KMD

JOB # 221022

DATE 03-14-22

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Attachment 2

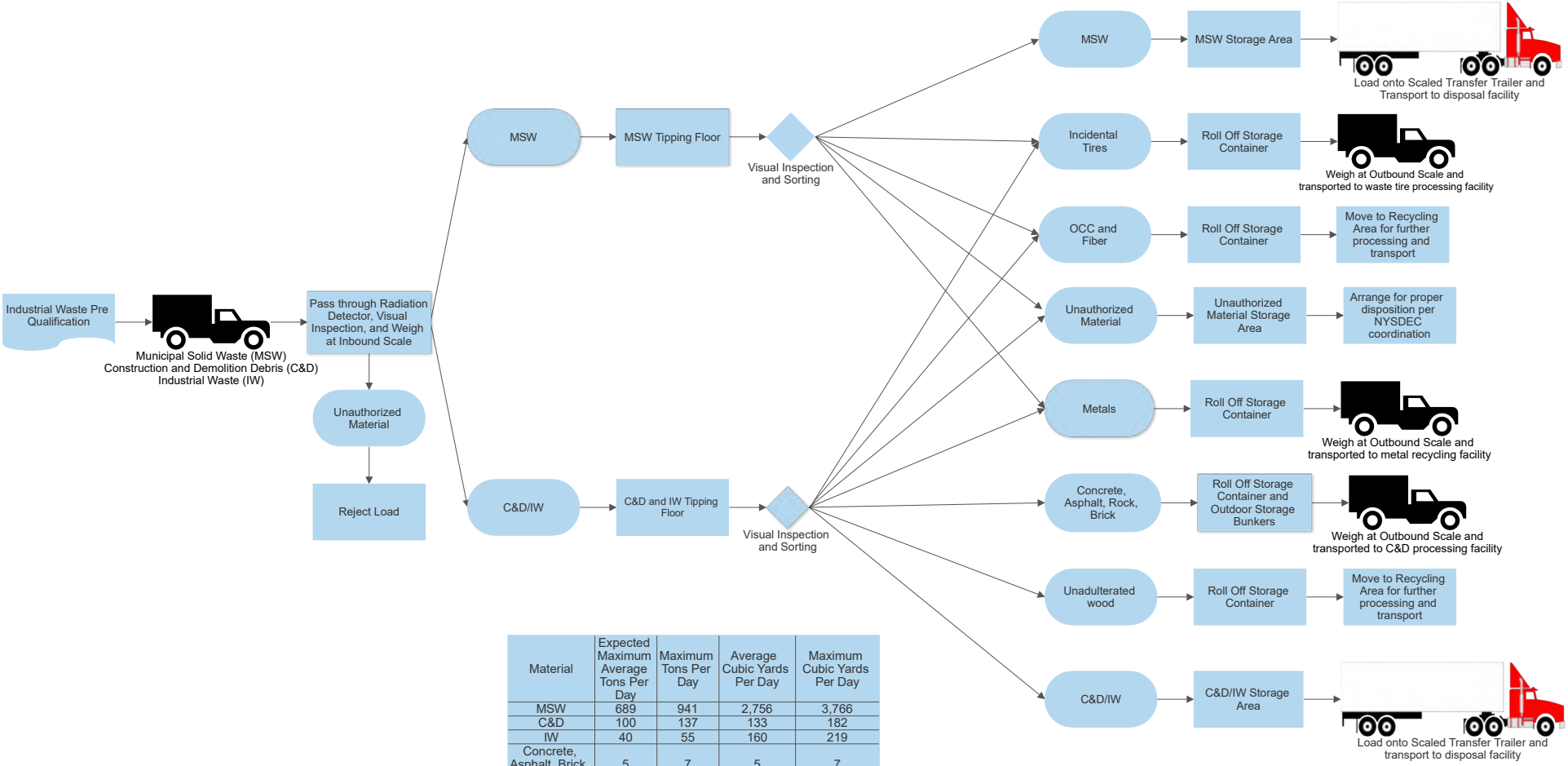
EnSol, Inc.

ENGINEERING + ENVIRONMENTAL

Process Flow Diagrams

FLOW DIAGRAM 1

Dom-Mar Transfer and Recycling Facility MSW/C&D/IW Process Flow Diagram

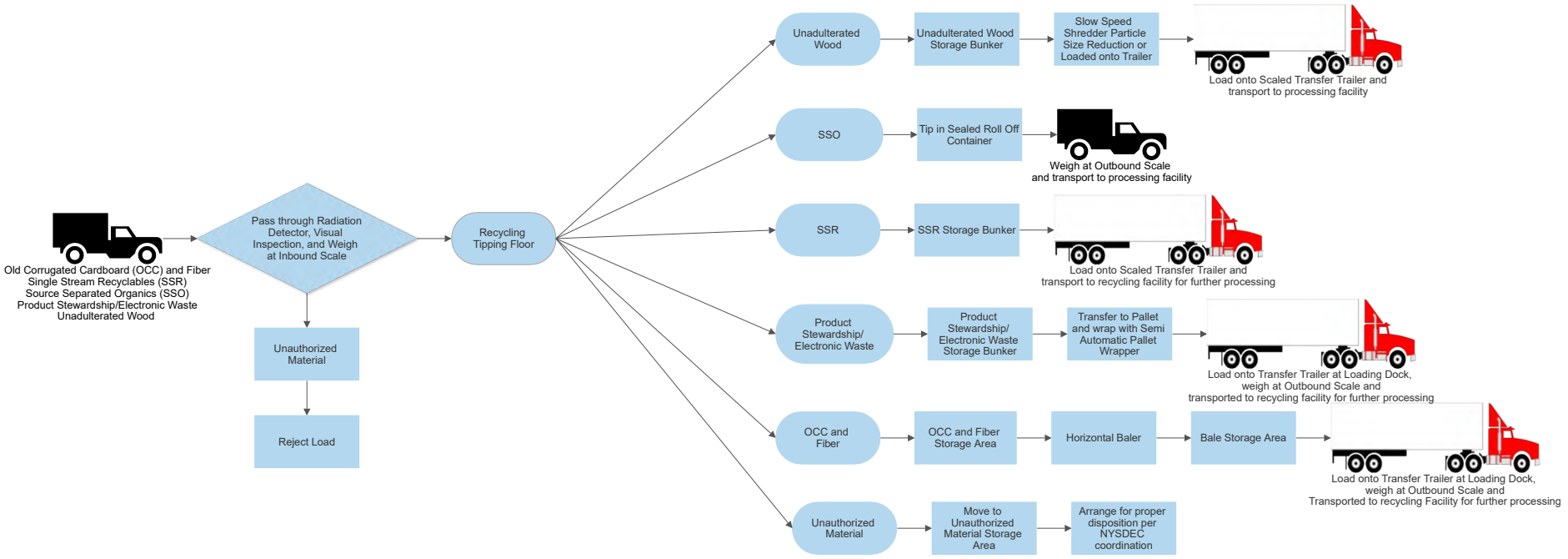


Material	Expected Maximum Average Tons Per Day	Maximum Tons Per Day	Average Cubic Yards Per Day	Maximum Cubic Yards Per Day
MSW	689	941	2,756	3,766
C&D	100	137	133	182
IW	40	55	160	219
Concrete, Asphalt, Brick, Rock, Soil	5	7	5	7
Metals	10	14	11	16
Tires	1	1.4	10	14

The expected maximum average tons per day is based on a weekly average.
See Flow Diagram 2 for OCC and Fiber and Unadulterated Wood Throughput

FLOW DIAGRAM 2

Dom-Mar Transfer and Recycling Facility Recovered Material Process Flow Diagram



Material	Expected Maximum Average Tons Per Day	Maximum Tons Per Day	Average Cubic Yards Per Day	Maximum Cubic Yards Per Day
Unadulterated Wood	10	14	67	91
OCC and Fiber	40	55	229	312
Product Stewardship/Electronic Waste	15	20	60	82
SSR	35	48	438	598
SSO	5	7	20	27

Expected maximum average tons per day is based on a weekly average.

Attachment 3

EnSol, Inc.

ENGINEERING + ENVIRONMENTAL

Waste Processing Calculations and Equipment Specifications

DOM-MAR TRANSFER AND RECYCLING FACILITY

TABLE 1 - Facility Throughput and Capacity

Material	Process Description	Product	Storage Structure				Throughput						Density (lbs/CY)
			Type	Capacity			Expected Maximum Average Daily Rate (Tons/Day)	Expected Annual Rate (Tons/Year)	Maximum Daily Rate (Tons/Day)	Average Daily Rate (CY/Day)	Annual Rate (CY/Year)	Maximum Rate (CY/Day)	
				Area (SQFT)	Cubic Yards (CY)	Tons							
Municipal Solid Waste (MSW)	Tip and load into transfer trailer	Transferred for disposal	Concrete Push Wall	10,260	4,560	1,140	689	197,054	941	2,756	788,216	3,766	500
			Concrete Trailer Parking Area	5,400	528	132							
Construction and Demolition Debris (C&D)	Tip and load into transfer trailer	Transferred for Disposal	Concrete Push Wall	2,000	889	667	100	28,600	137	133	38,133	182	1,500
Industrial Waste (IW)	Tip and load into transfer trailer	Transferred for disposal					40	11,440	55	160	45,760	219	500
Old Corrugated Cardboard (OCC) and Fiber	Tip, bale and load into transfer trailer	Bales transferred for further processing	Concrete Block Bunker Prior to Baling	1,000	444	78	40	11,440	55	229	65,371	312	350
			Concrete Block Bunker Bale Storage Area	430	123	61							1,000
Single Stream Recyclables (SSR)	Tip and load into transfer trailer	Transferred for further processing	Concrete Block Bunker	1,000	444	36	35	10,010	48	438	125,125	598	160
Source Separated Organics (SSO)	Transfer to sealed roll off container	Transferred for further processing	40 CY Sealed Roll-off Container	165	40	10	5	1,430	7	20	5,720	27	500
Unadulterated Wood	Tip and load into transfer trailer, or reduce particle size with a slow speed shredder directly into transfer trailer	Transferred for further processing	Concrete Block Bunker	550	244	37	10	2,860	14	67	19,067	91	300
Metals	Load into roll-off container	Transferred for further processing	40 CY Roll-Off Container	165	40	35	10	2,860	14	11	3,259	16	1,755
Concrete, Asphalt, Rock, and Brick	Load into roll-off container	Transferred for further processing	40 CY Roll-Off Container	165	40	40	5	1,430	7	5	1,430	7	2,000
			Outdoor Concrete Block Bunker	2,300	450	450							
Product Stewardship/Electronic Waste	Load onto pallet, and wrap with automatic wrapping machine	Wrapped pallets transferred for further processing	Concrete Block Bunker	370	103	26	15	4,290	20	60	17,160	82	500
Tires	Load into roll-off container	Transferred for further processing	40 CY Roll-Off Container	165	40	4	1	286	1.4	10	2,860	14	200
			Totals:	**23,970**	**7,945**	**2,714**	**950**	**271,700**	**1,298**	**3,888**	**1,112,102**	**5,313**	

Notes:

1. The Expected Maximum Average Daily Rate is based on a weekly average. The Expected Annual Rate is based on the maximum average daily rate and assumes 286 operating days per year.
2. MSW, C&D and IW, OCC, SSR, SSO, and Unadulterated Wood Concrete push wall and concrete block bunker storage volumes assume a 16 foot storage height over 75% of the storage area.
3. The OCC and Fiber Bale Storage Area assumes a bale size of 2.625 ft x 2.625 ft x 5 ft stored three wide, by eight deep, by four high for a total of 96 bales.
4. The Full Trailer Parking Area capacity assumes six trailers with a 22 ton capacity.
5. The Product Stewardship/Electronic Waste Concrete Block Bunker Storage Area assumes a storage height of ten feet over 75% of the storage area.
6. The Concrete, Asphalt, Rock, and Brick Outdoor Concrete Block Bunker assumes a storage height of six feet.
7. The Maximum Daily Rate values are based on the maximum MSW/C&D/IW Equipment Capacity as shown on Table 2.

DOM-MAR TRANSFER AND RECYCLING FACILITY

Table 2 - Process and Storage Equipment/Structure Capacity and Detention Time

Material	Process Step/Structure	Capacity	Unit	Equipment	Detention Time	Unit
MSW/C&D/IW	Sort/Tipping Floor	24	Tons	-	10	Min
	Concrete Push Wall Storage Area	1,140	Tons	-	1.7	Days
	Load into Transfer Trailer	1,298	Tons/Day	Excavator with 4.5 CY Grapple	10	Min
OCC and Fiber	Tipping Floor	24	Tons	-	10	Min
	Concrete Block Bunker Storage Area	78	Tons	-	1.9	Days
	Load into Baler	106	Tons/Day	Horizontal Baler	4	Min
	Concrete Block Bunker Bale Storage Area	61	Tons	-	1.5	Days
	Load onto Transfer Trailer	630	Tons/Day	Fork Lift	23	Min
Unadulterated Wood	Tipping Floor	24	Tons	-	10	Min
	Concrete Block Bunker Storage Area	37	Tons	-	3.7	Days
	Shred directly into Transfer Trailer	132	Tons/Day	Mobile Slow Speed Shredder	1.5	Hours
	Load directly to Transfer Trailer	352	Tons/Day	Front Loader with 4 CY Bucket	0.6	Hours
SSR	Tipping Floor	12	Tons	-	10	Min
	Concrete Block Bunker Storage Area	36	Tons	-	1.0	Day
	Load onto Transfer Trailer	187	Tons/Day	Front Loader with 4 CY Bucket	35	Min
Product Stewardship/ Electronic Waste	Tipping Floor	24	Tons	-	10	Min
	Concrete Block Bunker Storage Area	26	Tons	-	1.7	Days
	Place on Pallet and Wrap	90	Tons/Day	Automatic Pallet Wrapping Machine	6	Min
	Load onto Transfer Trailer	328	Tons/Day	Fork Lift	43	Min
Concrete, Asphalt, Rock, Brick	40 CY Roll-Off Container	40	Tons	-	8.0	Days
	Outdoor Concrete Block Storage Bunker	450	Tons	-	90	Days
SSO	40 CY Sealed Roll-Off Container	10	Tons	-	2.0	Days
Tires	40 CY Roll-Off Container	4	Tons	-	4.0	Days
Metals	40 CY Roll-Off Container	35	Tons	-	3.5	Days

Notes:

1. No back-up facilities or equipment shall be maintained at the Facility. Should back-up equipment become necessary, the operator will arrange for a rental or lease.
2. Tipping floor capacity is based on two doors for each tipping floor, one truck unloads a 12 ton load at each door. The Tipping floor detention time is based on a peak rate of 12 inbound trucks per hour.
3. Storage Area detention times represent the time to fill the storage area based on the expected maximum average daily rate. All putrescible waste shall be removed from the facility within seven calander days of receipt. Storage of unprocessed C&D debris shall not exceed 30 calander days. Unprocessed asphalt, concrete, brick, fill material, rock, or wood storage shall not exceed 365 calander days. Unprocessed and processed recyclables storage shall not exceed 180 calendar days.
4. The Excavator with grapple capacity is based on a 4.5 cubic yard grapple with a 25 second cycle time. The estimated time to fill a 22 ton capacity transfer trailer is 8 minutes, the estimated time to switch out transfer trailers is two minutes. The estimated number of outbound 22 ton transfer trailers that can be loaded over 10 operating hours is 59.
5. The OCC and Fiber Bale Fork Lift Capacity is based on carrying two 2.625'x2.625'x5' bales at a density of 1,000 lbs/CY at a time. The estimated forklift cycle time is approximately 1 minute based on a travel time of 0.8 minutes and a raise and lower time of 18 seconds. The estimated transfer trailer capacity is 24.2 tons based on bales loaded two high by 19 deep. The estimated time to switch out transfer trailers is two minutes. The estimated outbound transfer trailers that can be loaded at 24.2 tons each over 10 operating hours is 26.
6. The Horizontal baler capacity is based on OCC and fiber being loaded into the baler by a front loader at a rate 10.6 tons per hour (80% of the maximum baler capacity), at 10 operating hours per day.
7. The Mobile Slow Speed Shredder capacity is based on a processing rate of 19.6 tons per hour for wood waste. The estimated time to switch out trailers is two minutes. The estimated number of 22 ton capacity transfer trailers that can be filled over 10 operating hours is 8.
8. The SSR Front Loader capacity is based on a 4 cubic yard bucket, with a cycle time is estimated at approximately one minute. The estimated time to fill a 11 ton capacity transfer trailer is 35 minutes. The estimated time to switch out transfer trailers is two minutes. The estimated number of outbound trailers that can be loaded over 10 operating hours is 17.
9. The Semi Automatic Pallet Wrapping Machine capacity is based on 10 pallets per hour, 1,800 lbs pallets, and 10 operating hours per day.
10. The Product Stewardship/Electronic Waste Fork Lift Capacity is based on carrying one 40"x48"x85", 1,800 lbs pallet at a time. The estimated fork lift cycle time is 1.6 minutes based on a travel time of 1.3 minutes, and a raise and lower time of 18 seconds. The estimated transfer trailer capacity is 23.4 tons based on 26 pallets per trailer. The estimated time to switch out trailers is two minutes. The estimated number of outbound trailer loads over 10 operating hours is 14.

DOM-MAR TRANSFER AND RECYCLING FACILITY
Table 3 - Daily Traffic Flow

Table 3-1 Waste/Truck Traffic

Vehicle Type	Average Vehicle Size (Tons per Load)	Expected Maximum Average Daily Rate (Tons/Day)	Loads/Trucks Per Day	Trips Per Day
Inbound Trucks: Front, Rear, and Side Packers, Dump Trucks, Pickup Trucks, Trailers, Roll Off Containers	12	950	80	160
Outbound Trucks: 53 foot long Trailers	22	950	44	88
		Total:	**124**	**248**

Table 3-2 Employee/Visitor Traffic

Employee Type		Per Day	Trips Per Day
Administrative		20	40
Visitors (one per hour)		10	20
Facility		10	20
Total:		**40**	**80**

Total Maximum Average Traffic Flow (Trips Per Day):	**328**

Table 3-3 Maximum Number of Waste Trucks That Can be Accommodated On-Site

Vehicle Type	Average Vehicle Size (Tons per Load)	Maximum Daily Processing Rate (Tons Per Day)	Maximum No. of Vehicles per Day
Inbound Trucks: Front and Rear Packers, Pickup Trucks, Trailers, Roll Off Containers	12	1,298	109
Outbound Trucks: 53 foot long Trailers	22	1,298	59
Total Amount of Waste Trucks that can be accomodated:			**168**

PRODUCT SPECIFICATIONS FOR 320

	US	Metric
Net Power - ISO 9249	172 HP	
Engine Model	Cat C4.4e TTA	
Engine Power - ISO 14396	173 HP	
Bore	4 in	
Stroke	5 in	
Displacement	269 in³	
Main System - Maximum Flow	429 l/min (113 gal/min)	
Maximum Pressure - Equipment	5075 psi	
Maximum Pressure - Travel	4974 psi	
Maximum Pressure - Swing	3988 psi	
Maximum Swing Torque	60300 ft·lbf	
Operating Weight	50265 lb	
Fuel Tank Capacity	86.6 gal (US)	
Cooling System	6.6 gal (US)	

Engine Oil	4 gal (US)
Swing Drive - Each	3.2 gal (US)
Final Drive - Each	1.3 gal (US)
Hydraulic System - Including Tank	61.8 gal (US)
Hydraulic Tank	30.4 gal (US)
DEF Tank	10.3 gal (US)

Boom	Reach 5.7 m (18'8")
Stick	Reach 2.9 m (9'6")
Bucket	1.19 m^3 (1.56 yd^3)
Shipping Height - Top of Cab	9.8 ft
Handrail Height	9.8 ft
Shipping Length	31 ft
Tail Swing Radius	9.3 ft
Counterweight Clearance	3.4 ft
Ground Clearance	1.6 ft
Track Length	14.7 ft
Length to Center of Rollers	12 ft
Track Gauge	7.9 ft

Transport Width	9.8 ft

Maximum Digging Depth	22.1 ft
Boom	Reach 5.7 m (18'8")
Stick	Reach 2.9 m (9'6")
Bucket	1.19 m ³ (1.56 yd³)
Maximum Reach at Ground Level	32.4 ft
Maximum Cutting Height	30.8 ft
Maximum Loading Height	21.4 ft
Minimum Loading Height	7.1 ft
Maximum Depth Cut for 2440 mm (8 ft) Level Bottom	21.5 ft
Maximum Vertical Wall Digging Depth	17 ft
Bucket Digging Force - ISO	38811 lbf
Stick Digging Force - ISO	23911 lbf

320 STANDARD EQUIPMENT

NOTE

Standard and optional equipment may vary. Consult your Cat dealer for details.

CAB

ROPS, sound suppression
Mechanically adjustable seat
High-resolution 203 mm (8 in) LCD touchscreen monitor

CAT TECHNOLOGY

Cat Product Link
Cat GRADE with 2D

CAT TECHNOLOGY

Cat GRADE with Assist
Cat PAYLOAD
2D E-Fence
Lift Assist
Auto Dig Boost
Remote troubleshoot

ENGINE

Three selectable power modes

Auto engine speed control
52°C (126°F) ambient cooling capacity
-32°C (-25°F) cold start capability
Reversing electric cooling fans
Biodiesel capability up to B20

HYDRAULIC SYSTEM

Boom and stick regeneration circuits
Slide joysticks
Auto hydraulic warm up
Auto two-speed travel
Boom and stick drift reduction valve
Advanced tool control - Europe only

BOOM AND STICKS

5.7 m (18'8") reach boom, 2.9 m (9'6") stick

UNDERCARRIAGE AND STRUCTURES

Tie-down points on base frame

ELECTRICAL SYSTEM

Two 1,000 CCA maintenance-free batteries
Programmable time-delay LED working lights
LED chassis light, left-hand/right-hand boom lights, cab lights

SERVICE AND MAINTENANCE

Sampling ports for Scheduled Oil Sampling (S·O·S)
Ground-level and platform-level engine oil dipsticks

SAFETY AND SECURITY

Rear and right-hand-sideview cameras
Signaling/warning horn
Right-hand mirror
Ground-level engine shutoff switch
Right-hand handrail and hand hold
Signaling/warning horn

320 OPTIONAL EQUIPMENT

NOTE

Standard and optional equipment may vary. Consult your Cat dealer for details.

CAB

Air-adjustable seat with heat (Deluxe only)
High-resolution 254 mm (10 in) LCD touchscreen monitor
Cat Stick Steer

CAT TECHNOLOGY

Cat GRADE with 3D
Cat GRADE with Advanced 2D (not available on SLR)

Cat GRADE with 3D (not available on SLR)

SAFETY AND SECURITY

Cat Command remote control
Right-hand-side camera
360° visibility

Inspection Lighting
Cat Detect People Detection

ENGINE

52°C (125°F) high-ambient cooling capacity

HYDRAULIC SYSTEM

Boom and stick lowering check valves
Hammer return filter circuit
Combined flow/high-pressure auxiliary circuit
Medium-pressure circuit
Quick coupler circuit for Cat Pin Grabber
Auto Heavy Lift

BOOM AND STICKS

8.85 m (29'0") SLR boom, 6.28 m (20'7") SLR stick

UNDERCARRIAGE AND STRUCTURES

600 mm (24") triple grouser shoes
700 mm (28") triple grouser shoes
790 mm (31") triple grouser shoes
900 mm (35") triple grouser shoes
4200 kg (9,300 lb) counterweight for HD boom and stick

ELECTRICAL SYSTEM

Premium surround lighting package

Cat®
Trash Grapples

Hydraulic Excavators

Features:

Greater Capacity

- The basic 4-over-5 tine construction and wide jaws are ideal for handling municipal solid waste, wood chips, wood debris, and other low-density material.
- Cat® Trash Grapples are matched to the capacities of Cat excavators, providing you with the best possible productivity for your machine and application, whether it is tamping and sorting or production loading. Multiple grapples are offered for some machines to optimize performance in differing loading conditions.

Simple Installation, No Additional Hydraulics Required

- Cat Trash Grapples operate using the power of the excavator bucket cylinder—no additional hydraulics required.
- Installation is fast and simple with only a single plate to be welded to the underside of the excavator stick for the fixed link. All brackets have three holes so the fixed link can be pinned in any of three positions for maximum efficiency in varying job conditions.

Minimal Weight, Maximum Durability

- Box-type construction is used in the frame to minimize weight and maximize durability.
- Grapples are effectively protected with wear plates on the inner wrapper.
- Wear plates and wear strips are fully replaceable.
- The outer wrapper features thick steel, high hardness wear strips.
- Grapple bearings are made of high hardness, quality alloy steel.

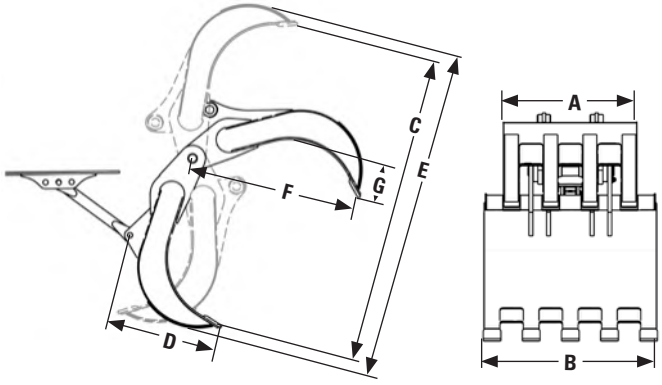
Trash Grapple/Hydraulic Excavator Compatability

Recommended machine matches. Contact your local Cat dealer for more detailed matching information.

Model	Machines
TG-315	315, 316, 318
TG-B	319, 320, 321
TG-CB	324, 328, 329
TG-DB	324, 329, 336
TG-TB	336, 345, 349

Cat Trash Grapples

Specifications



Tamping & Sorting

				TG-315		TG-B		TG-B		TG-CB		TG-DB		TG-TB	
	Capacity	m^3	(yd^3)	1.83	(2.40)	2.70	(3.60)	3.44	(4.5)	3.80	(5.00)	4.60	(6.00)	5.03	(6.58)
	Weight	kg	(lb)	907	(2,000)	1,288	(2,840)	1,392	(3069)	2,077	(4,569)	2,268	(5,001)	2,800	(6,174)
A	Upper Jaw Width	mm	(in)	1,118	(44)	1,118	(44)	1,100	(43)	1,196	(47)	1,295	(51)	1,581	(62)
B	Lower Jaw Width	mm	(in)	1,480	(58)	1,450	(57)	1,450	(57)	1,545	(61)	1,676	(66)	2,038	(80)
C	Max Opening	mm	(in)	2,210	(87)	2,540	(100)	2,600	(102)	3,129	(123)	3,086	(122)	3,161	(124)
D	Minimum (jaw closed)	mm	(in)	665	(26)	740	(29)	300	(12)	878	(35)	1,126	(44)	338	(13)
E	Maximum (jaw open)	mm	(in)	2,244	(88)	2,500	(98)	2,802	(110)	3,205	(126)	3,248	(128)	3290	(130)
F	Tip Radius	mm	(in)	1,165	(46)	1,390	(55)	1,449	(57)	1,639	(64)	1,658	(65)	1,679	(66)
G	Jaw Depth	mm	(in)	246	(10)	285	(11)	204	(8)	403	(16)	417	(16)	430	(17)
	Tip Thickness	mm	(in)	13	(0.51)	13	(0.51)	25	(0.98)	25	(0.98)	25	(0.98)	25	(0.98)
	Wear Plate Thickness	mm	(in)	13	(0.51)	13	(0.51)	14	(0.55)	12	(0.47)	12	(0.47)	12	(0.47)
	Wrapper Thickness	mm	(in)	10	(0.39)	10	(0.39)	10	(0.39)	16	(0.63)	16	(0.63)	16	(0.63)

Production Loading

				TG-DB		TG-TB	
	Capacity	m^3	(yd^3)	5.50	(7.25)	8.17	(10.69)
	Weight	kg	(lb)	2,033	(4,473)	3,075	(6780)
A	Upper Jaw Width	mm	(in)	1,257	(49)	1,667	(66)
B	Lower Jaw Width	mm	(in)	1,626	(64)	2,148	(85)
C	Max Opening	mm	(in)	3,470	(137)	3,800	(150)
D	Minimum (jaw closed)	mm	(in)	1,185	(47)	540	(21)
E	Maximum (jaw open)	mm	(in)	3,610	(142)	3,862	(152)
F	Tip Radius	mm	(in)	1,815	(71)	2,037	(80)
G	Jaw Depth	mm	(in)	461	(18)	626	(25)
	Tip Thickness	mm	(in)	20	(0.79)	19	(0.75)
	Wear Plate Thickness	mm	(in)	14	(0.55)	12	(0.47)
	Wrapper Thickness	mm	(in)	10	(0.39)	12	(0.47)

For more Work Tool Attachments available for your excavator, contact your local Cat dealer.

For more complete information on Cat products, dealer services, and industry solutions, visit us on the web at **www.cat.com**

GEHH0009-01 (06-13)

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Materials and specifications are subject to change without notice. Featured machines in photos may include additional equipment. See your Cat dealer for available options.

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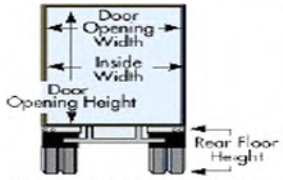
Cycle Time Estimating Chart

Model		307	311B	312B, 312B L	315B, 315B L	318B L*, 318B LN	320B	322B	325B	330B	345B*	350	375	5130 ME	5230 ME
Bucket Size															
L		280	450	520	520		800	1000	1100	1400		1900	2800	10 m^3	15.5 m^3
(yd^3)		**0.37**	**0.59**	**0.68**	**0.68**		**1.05**	**1.31**	**1.44**	**1.83**		**2.5**	**3.66**	**13**	**20.3**
Soil Type		←		Packed Earth		→	←			Hard Clay			→		
Digging Depth	**(m)**	1.5	1.5	1.8	3.0		2.3	3.2	3.2	3.4		4.2	5.2	4.0	5.0
	(ft)	**5**	**5**	**6**	**10**		**8**	**10**	**10**	**11**		**14**	**17**	**13**	**16**
Load Bucket	**(min)**	0.08	0.07	0.07	0.10		0.09	0.09	0.09	0.09		0.10	0.11	0.12	0.12
Swing Loaded	**(min)**	0.05	0.06	0.06	0.04		0.06	0.06	0.06	0.07		0.09	0.10	0.13	0.14
Dump Bucket	**(min)**	0.03	0.03	0.03	0.02		0.03	0.04	0.04	0.04		0.04	0.04	0.04	0.04
Swing Empty	**(min)**	0.06	0.05	0.05	0.05		0.05	0.06	0.06	0.07		0.07	0.09	0.13	0.14
Total Cycle Time	**(min)**	0.22	0.21	0.21	0.21		0.23	0.25	0.25	0.27		0.30	0.34	0.42	0.44

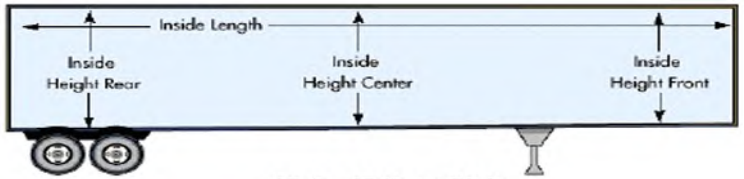
*Information not available at time of printing.

CYCLE TIME ESTIMATING CHART															
	MACHINE SIZE CLASS														
CYCLE TIME	**307**	**311B**	**312B**	**315B**	**318B L***	**320B**	**322B**	**325B**	**330B**	**345B***	**350**	**375**	**5130B ME**	**5230 ME**	**CYCLE TIME**
10 SEC.															**0.17** min.
15															**0.25** min.
20 SEC.															**0.33** min.
25															**0.42** min.
30 SEC.															**0.50** min.
35															**0.58** min.
40 SEC.															**0.67** min.
45															**0.75** min.
50 SEC.															**0.83** min.
55															**0.92** min.
60 SEC.															**1.0** min.

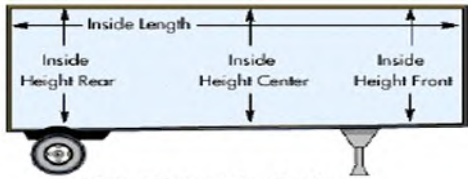
*Information not available at time of printing.



28 ft., 45 ft., 48 ft. or 53 ft. Wedge Trailer



45 ft., 48 ft. or 53 ft. Wedge Trailer



28 ft. High Cube Trailer

Semi-Trailer Dimensions

	Length	Inside Width	Inside Height Rear	Inside Height Center	Inside Height Front	Door Opening Width	Door Opening Height	Rear Floor Height	Cubic Capacity	Overall Width	Overall Height
28' High Cube	27'3"	100"	110"	109"	107"	93"	104"	47.5"	2029 cu. ft.	102"	13'6"
45' Wedge	44' 1.5"	93"	112"	109"	106"	87"	105.5"	50"	3086 cu. ft.	96"	13'6"
48' Wedge	47'3"	99"	112.5"	110.5"	108.5"	93"	105"	48.5"	3566 cu. ft.	102"	13'6"
53' Wedge	52'	99"	110.25"	110.25"	110.25"	93"	105"	49"	4050 cu.ft.	102"	13'6"

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MACPRESSE EUROPA

BALING PRESS MAC106/2

TO:EnSol

661 Main Street

Niagara Falls, N.Y. 14301

ATTN.Mr. David A. Lenox

OFFER NR. 010-22

DATE 14th of January 2022

Macpresse Europa | Loc. S. Giuseppe 20080 Vernate - Milano - Italy | P.IVA 04413130966

INTRODUCTION

The subject of this offer is to define the technological and commercial conditions for the supply of nr. 1 continuous hydraulic baler, complete with automatic bale tying device using metal or plastic wire.

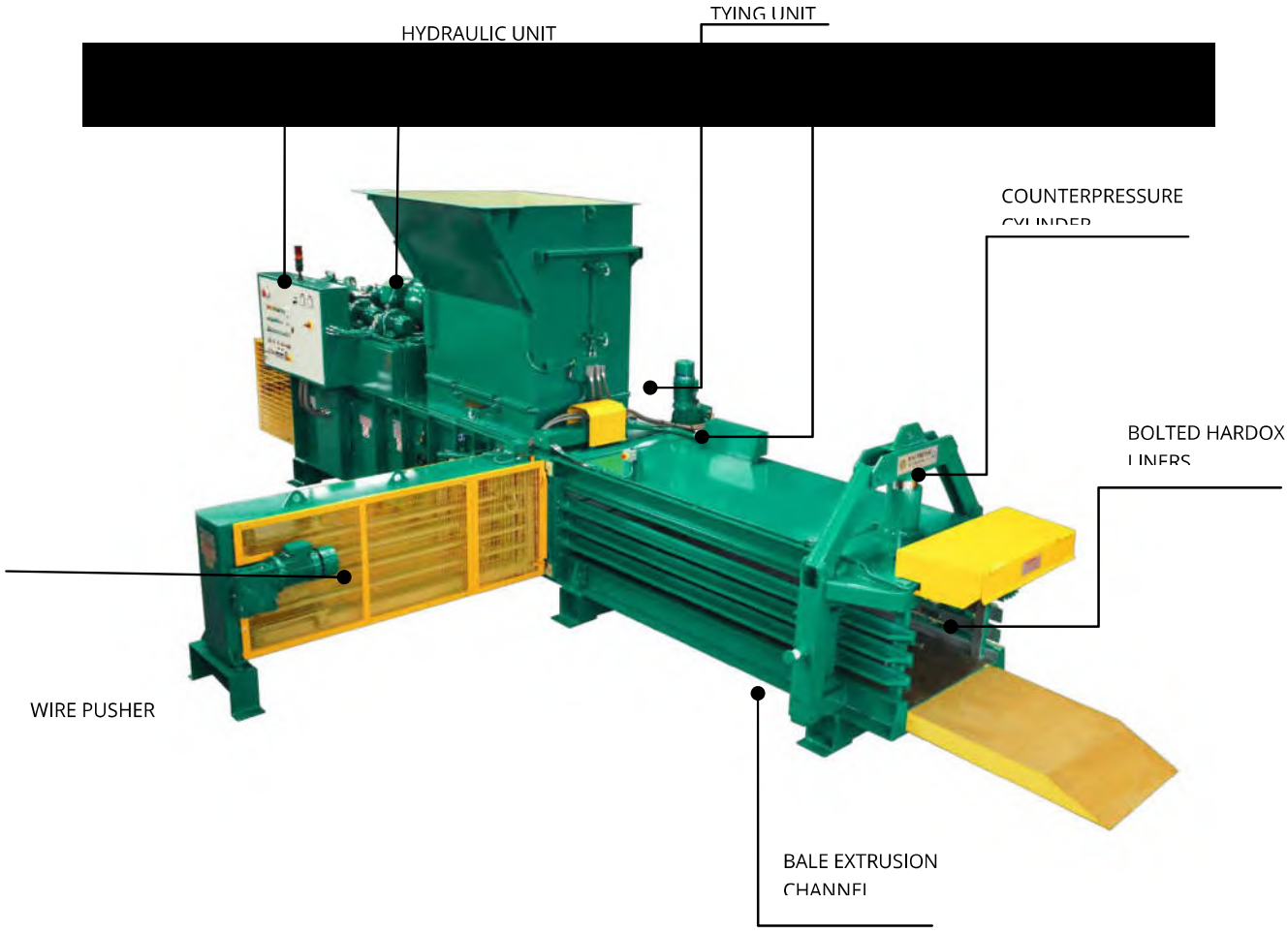
MACPRESSE hydraulic balers with automatic tying unit are the result of our company's fifty years of experience in this specific field, and the technical level achieved is certainly among the highest in this sector.

In particular, the automatic hydraulic baler MAC106/2 has been developed for baling plastic materials, wastepaper and RDF in tied bales, with high density metal or plastic wires and a stable shape in order to facilitate stowing and loading operations by transport vehicles, obtaining, at the same time, an overall weight in line with the ever-increasing market demands.

To achieve these goals, MACPRESSE is based on the solid experience gained that has led to the creation of a baler with main construction criteria described below.

GENERAL DESCRIPTION

Horizontal automatic hydraulic baler for baling RDF, paper, cardboard and plastic.



MAC 106/2 TECHNICAL SPECIFICATIONS

GENERAL SPECIFICATIONS	EUROPE (mm)	USA
OVERALL LENGTH	9'950	**32'8"**
MAXIMUM WIDTH	5'050 (AT TIER STATION)	**16'7"**
OVERALL HEIGHT	3'860 (FLANGE HOPPER)	**12'7"**
LOADING HOPPER	1'800 X 1'020	**71" x 40"**
BALES DIMENSIONS	1'100 X 750 (WXH SIZE)	**43"1/3 x 29"1/2**
BALER WEIGHT WITHOUT FLUFFER	21'000 KG (DRY)	**46 297 lb**
BALER WEIGHT WITH FLUFFER	25'500 KG (DRY)	**56 217 lb**

TECHNICAL DATA		
MAIN MOTOR POWER	1 X 45KW (60HP) VOLTAGE AND FREQUENCY UNDER REQUEST	
MAIN HYDRAULIC PUMP	DOUBLE VANE PUMP	
PUMP FLOW CAPACITY	309 LT/MIN	**81.6 GPM**
OPERATING PRESSURE	OPERATIONAL 220-280 BAR MAXIMUM 315 BAR	**3200-4000PSI** **4500PSI**
RAM FORCE	75'000 KG.	**165 500 lb.**
SPECIFIC TROLLEY PRESSURE	9 kg/cm²	**129 PSI**
OIL TANK CAPACITY 3000 LITRES	1'400 LITERS	**370 GAL**
COOLING SYSTEM	THERMOSTATICALLY CONTROLLED AIR TO OIL HEAT EXCHANGER	
OPERATING CONTROL	S7 1500 SIEMENS PROGRAMMABLE PLC	

MAC 106/2 TECHNICAL SPECIFICATIONS

PERFORMANCE WITHOUT MATERIAL	EUROPE (mm)	USA
LOADING VOLUME	1.6 m³	56.5 ft^3
- CYCLE TIME	13 sec.	13 sec.
- CYCLES PER MINUTE	4.6	4.6
- VOLUMETRIC PRODUCTION	**439 m³/hour**	**15 503 ft³/hour**

TYING UNIT

4 WIRE HORIZONTAL ELECTROMECHANICAL TYING UNIT

BALES LENGTH CONTROLLED BY ELECTRONIC PROGRAMMABLE UNIT

HOURLY OUTPUT

DENSITY OF INCOMING MATERIALS	HOURLY PRODUCTION	HOURLY PRODUCTION
25 – 30 kg / m³	6 ton/h	6.67 ton (US)/h
70 – 80 kg / m³	12 ton/h	13.2 ton (US)/h
100 – 120 kg / m³	20 ton/h	22 ton (US)/h
150 – 200 kg / m³	24 ton/h	26.4 ton (US)/h

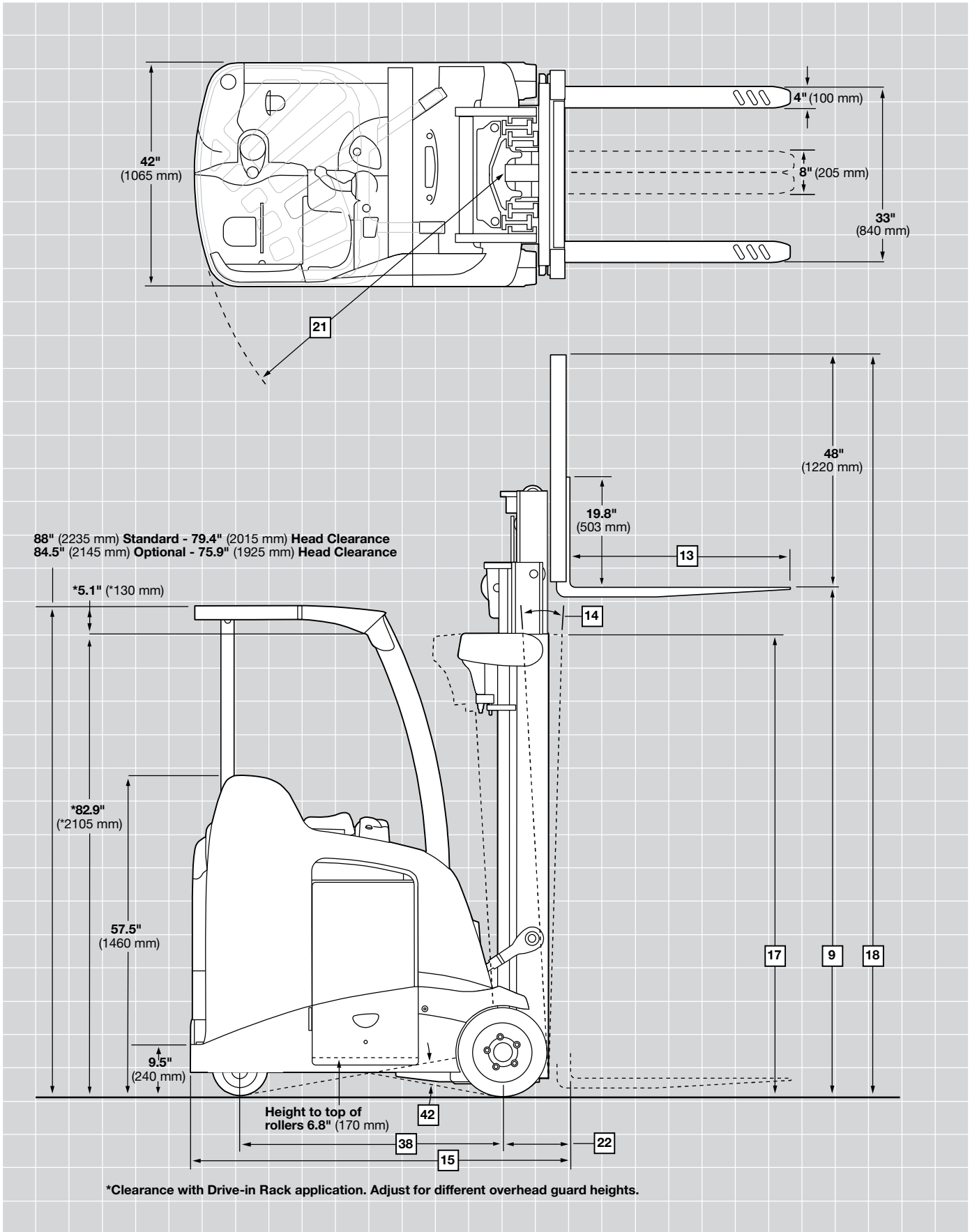





- The hourly production and the density of the bales depend on the correct use of the baler.
- Hourly output can be achieved with a continuous feed to ensure a constant material load.
- The productions vary according to the density of the incoming material.

RC 5700
SERIES

Specifications
Stand-Up Rider Lift Truck



*Clearance with Drive-in Rack application. Adjust for different overhead guard heights.

					Imperial	*Metric*	*Imperial*	*Metric*	*Imperial*	*Metric*
General Information	1	**Manufacturer**			**Crown Equipment Corporation**					
	2	**Model**		RC	5715-30		5725-30		5735-30	
	3	**Load Capacity***	Rated to 154" (3911 mm)	lb kg	3000	1360	3000	1360	3000	1360
	4	**Load Center**	Fork Face to Load CG	in mm	24	600	24	600	24	600
	5	**Power**	Electric		36 Volts					
	6	**Operator Type**			Stand-up Rider Counterbalanced					
	7	**Tire Type**	Press-on Solid		Cushion					
	8	**Wheels (x = driven)**	Number Front/Rear		2x/2					
Dimensions	9	**Mast**	Lifting Height	in mm	See Mast Chart					
	11		Free Lift Height†	in mm	See Mast Chart					
	12	**Fork Carriage**			ITA Class II					
	13	**Forks**	Standard L x W x T	in mm	36x4x1.5	915x102x38	36x4x1.5	915x102x38	36x4x1.5	915x102x38
			Optional Lengths	in mm	30, 39, 42, 45, 48, 54, 60	760, 990, 1070, 1145, 1220, 1370, 1525	30, 39, 42, 45, 48, 54, 60	760, 990, 1070, 1145, 1220, 1370, 1525	30, 39, 42, 45, 48, 54, 60	760, 990, 1070, 1145, 1220, 1370, 1525
	14	**Tilt**	B°/F°	degree	See Mast Chart					
	15	**Headlength****		in mm	62.9	1598	65.2	1656	67.5	1715
	16	**Width Overall**	Standard Tread	in mm	42.0	1065	42.0	1065	42.0	1065
	17	**Height**	Mast Collapsed	in mm	See Mast Chart					
	18		Mast Extended†	in mm	See Mast Chart					
	21	**Turning Radius**		in mm	51.7	1315	54.0	1375	56.2	1430
	22	**Load Distance****	Wheel Cntr to Fork Face	in mm	11.3	287	11.3	287	11.3	287
	23	**Aisle Width**	Right Angle Stack	in mm	Turn Radius + Load Distance + Load Length + Clearance					
Performance	24	**Speed Travel**	Empty/Loaded	mph km/h	7.2/7.2	11.6/11.6	7.2/7.2	11.6/11.6	7.2/7.2	11.6/11.6
	24a	**w/Productivity Pkg.**	Empty/Loaded	mph km/h	7.8/7.2	12.6/11.6	7.8/7.2	12.6/11.6	7.8/7.2	12.6/11.6
	25	**Speed Lift**	Empty/Loaded	fpm m/s	110/65	0.56/0.33	110/65	0.56/0.33	110/65	0.56/0.33
	26	**Speed Lower**	Empty/Loaded	fpm m/s	90/90	0.46/0.46	90/90	0.46/0.46	90/90	0.46/0.46
Weight	32	**Weight, Less Battery**		lb kg	6350	2880	6390	2900	5929	2690
	33	**Axle Load with Max Battery**	Unloaded Front	lb kg	3992	1810	4167	1890	4522	2050
	34		Unloaded Rear	lb kg	4337	1970	4489	2035	4057	1840
Chassis	35	**Tires**	Number Front/Rear		2/2					
	36		Size Front	in mm	16x7x10.5	406x178x267	16x7x10.5	406x178x267	16x7x10.5	406x178x267
	37		Size Rear	in mm	10x5x6.5	254x127x165	10x5x6.5	254x127x165	10x5x6.5	254x127x165
	38	**Wheelbase**		in mm	42.7	1085	45.0	1145	47.2	1200
	39	**Tread Width**	Front - Drive	in mm	35.0	889	35.0	889	35.0	889
			Rear - Steer	in mm	6.7	170	6.7	170	6.7	170
	40	**Ground Clearance, Loaded**	Lowest Point	in mm	3.0	76	3.0	76	3.0	76
	41		Center of Wheelbase	in mm	4.2	107	4.2	107	4.2	107
	42	**Grade Clearance, Loaded**		%	41		39		37	
	43	**Brakes**	Service		Foot - Motor					
	44		Parking		Auto - Electric					
Battery	45	**Battery**	Type		Lead Acid					
			Compartment		B		C		D	
	46		Capacity	AH	775		930		1085	
				kWh	27.2		32.6		38.1	
	47		Weight - Min	lb kg	1710	780	1990	905	2280	1035
			Weight - Max	lb kg	1980	895	2270	1025	2650	1200
			Comp't. Size - Max	Length	13.6	345	15.9	404	18.1	460
				Width	38.56	979	38.56	979	38.56	979
				Height	31	787	31	787	31	787
		Cable Lead Length	Connector Position	in mm	12/A	300/A	12/A	300/A	12/A	300/A
	48	**Battery Floor Height**	With Rollers	in mm	6.8	170	6.8	170	6.8	170
Motors	49	**Motors**	Traction Motor, dia	in mm	7.5	191	7.5	191	7.5	191
	50		Lift Motor, dia	in mm	7.5	191	7.5	191	7.5	191
	51	**Operating Pressure**	For Attachments	psi bar	Up to 2500	Up to 175	Up to 2500	Up to 175	Up to 2500	Up to 175

* Optional masts, attachments, longer load dimensions and higher lifting heights may result in derating of the capacity. Contact your local dealer.
** Add 4.25" (108 mm) for quad masts, add 1.4" (36 mm) for Crown integrated sidesift, add 2.3" (59 mm) for hook on sideshift.
† Includes load backrest.

Performance specifications are based on a truck equipped with a 190" (4825 mm) triple telescopic mast.

RC 5700 Series

Specifications

					Imperial	*Metric*	*Imperial*	*Metric*	*Imperial*	*Metric*
General Information	1	**Manufacturer**			**Crown Equipment Corporation**					
	2	**Model**		RC	5735-35		5745-40		5755-40	
	3	**Load Capacity***	Rated to 154" (3911 mm)	lb kg	3500	1600	4000	1800	4000	1800
	4	**Load Center**	Fork Face to Load CG	in mm	24	600	24	600	24	600
	5	**Power**	Electric		36 Volts					
	6	**Operator Type**			Stand-up Rider Counterbalanced					
	7	**Tire Type**	Press-on Solid		Cushion					
	8	**Wheels (x = driven)**	Number Front/Rear		2x/2					
Dimensions	9	**Mast**	Lifting Height	in mm	See Mast Chart					
	11		Free Lift Height†	in mm	See Mast Chart					
	12	**Fork Carriage**			ITA Class II					
	13	**Forks**	Standard L x W x T	in mm	36x4x1.75	915x102x45	36x4x1.75	915x102x45	36x4x1.75	915x102x45
			Optional Lengths	in mm	30, 39, 42, 45, 48, 54, 60	760, 990, 1065, 1145, 1220, 1370, 1525	30, 39, 42, 45, 48, 54, 60	760, 990, 1065, 1145, 1220, 1370, 1525	30, 39, 42, 45, 48, 54, 60	760, 990, 1065, 1145, 1220, 1370, 1525
	14	**Tilt**	B°/F°	degree	See Mast Chart					
	15	**Headlength****		in mm	67.7	1720	70.1	1781	74.4	1889
	16	**Width Overall**	Standard Tread	in mm	42.0	1065	42.0	1065	42.0	1065
	17	**Height**	Mast Collapsed	in mm	See Mast Chart					
	18		Mast Extended†	in mm	See Mast Chart					
	21	**Turning Radius**		in mm	56.2	1430	58.6	1490	62.8	1600
	22	**Load Distance****	Wheel Cntr to Fork Face	in mm	11.5	292	11.5	292	11.5	292
	23	**Aisle Width**	Right Angle Stack	in mm	Turn Radius + Load Distance + Load Length + Clearance					
Performance	24	**Speed Travel**	Empty/Loaded	mph km/h	7.2/7.2	11.6/11.6	7.2/7.2	11.6/11.6	7.2/7.2	11.6/11.6
	24a	**w/Productivity Pkg.**	Empty/Loaded	mph km/h	7.8/7.2	12.6/11.6	7.8/7.2	12.6/11.6	7.8/7.2	12.6/11.6
	25	**Speed Lift**	Empty/Loaded	fpm m/s	110/60	0.56/0.30	110/55	0.56/0.28	110/55	0.56/0.28
	26	**Speed Lower**	Empty/Loaded	fpm m/s	90/90	0.46/0.46	90/90	0.46/0.46	90/90	0.46/0.46
Weight	32	**Weight, Less Battery**		lb kg	6429	2915	6457	2930	7975	3615
	33	**Axle Load with Max Battery**	Unloaded Front	lb kg	4557	2065	4850	2200	5897	2675
	34		Unloaded Rear	lb kg	4521	2050	4678	2120	5528	2505
Chassis	35	**Tires**	Number Front/Rear		2/2					
	36		Size Front	in mm	16x7x10.5	406x178x267	16x7x10.5	406x178x267	16x7x10.5	406x178x267
	37		Size Rear	in mm	10x5x6.5	254x127x165	10x5x6.5	254x127x165	10x5x6.5	254x127x165
	38	**Wheelbase**		in mm	47.2	1200	49.6	1260	53.9	1370
	39	**Tread Width**	Front - Drive	in mm	35.0	889	35.0	889	35	889
			Rear - Steer	in mm	6.7	170	6.7	170	6.7	170
	40	**Ground Clearance, Loaded**	Lowest Point	in mm	3.0	76	3.0	76	3.0	76
	41		Center of Wheelbase	in mm	4.2	107	4.2	107	4.2	107
	42	**Grade Clearance, Loaded**		%	37		35		31	
	43	**Brakes**	Service		Foot - Motor					
	44		Parking		Auto - Electric					
Battery	45	**Battery**	Type		Lead Acid					
			Compartment		D		E		F	
	46		Capacity	AH	1085		1240		1395	
				kWh	38.1		43.6		48.5	
	47		Weight - Min	lb kg	2280	1035	2600	1180	3100	1410
			Weight - Max	lb kg	2650	1200	3070	1390	3450	1560
			Comp't. Size - Max	Length	18.1	460	20.5	521	22.8	580
				Width	38.56	979	38.56	979	38.56	979
				Height	31	787	31	787	31	787
		Cable Lead Length	Connector Position	in mm	12/A	300/A	12/A	300/A	12/A	300/A
	48	**Battery Floor Height**	With Rollers	in mm	6.8	170	6.8	170	6.8	170
Motors	49	**Motors**	Traction Motor, dia	in mm	7.5	191	7.5	191	7.5	191
	50		Lift Motor, dia	in mm	7.5	191	7.5	191	7.5	191
	51	**Operating Pressure**	For Attachments	psi bar	Up to 2500	Up to 175	Up to 2500	Up to 175	Up to 2500	Up to 175

* Optional masts, attachments, longer load dimensions and higher lifting heights may result in derating of the capacity. Contact your local dealer.
** Add 4.25" (108 mm) for quad masts, add 1.4" (36 mm) for Crown integrated sidesift, add 2.3" (59 mm) for hook on sideshift.
† Includes load backrest.

Performance specifications are based on a truck equipped with a 190" (4825 mm) triple telescopic mast.

	Mast Chart RC 5700 Series		TT									
			in	mm	in	mm	in	mm	in	mm	in	mm
Dimensions	9	**Lifting Height**	154	3910	190	4825	208	5280	226	5740	244	6200
	11	**Free Lift Height**	20.2	510	32.2	815	38.2	970	44.2	1120	50.2	1275
	14	**Tilt B/F* (degree)**	3/5	3/5	5/5	5/5	5/5	5/5	5/5	5/5	5/5	5/5
	17	**Mast Collapsed Height**	71.3	1815	83.3	2115	89.3	2265	95.3	2415	101.3	2565
	18	**Mast Extended Height**	202	5135	238	6045	256	6505	274	6960	292	7420

	Mast Chart RC 5700 Series		QUAD									
			in	mm	in	mm	in	mm	in	mm	in	mm
Dimensions	9	**Lifting Height**	240	6095	246	6245	258	6550	264	6705	276	7010
	11	**Free Lift Height**	33.2	840	36.2	915	39.2	995	42.2	1070	45.2	1145
	14	**Tilt B/F* (degree)**	3/5	3/5	3/5	3/5	3/5	3/5	3/5	3/5	3/5	3/5
	17	**Mast Collapsed Height**	83.4	2120	86.4	2195	89.4	2275	92.4	2350	95.4	2425
	18	**Mast Extended Height**	288	7315	294	7470	306	7775	312	7925	324	8230

All values with 48" (1220 mm) load backrest
*Forward tilt limited to 2º above staging

Standard Equipment

1. Crown's Access 1 2 3® Comprehensive System Control
2. e-GEN® Braking System with automatic parking brake
3. Intrinsic Stability System®
   - Travel speed reduction and appropriate brake control when forks are above free lift
   - Forward tilt interlock above staging
   - Controlled tilt speeds
   - Counterweight exceeds required standards
   - Cornering speed control
   - Ramp hold
   - Ramp speed control
4. FlexRide® Suspension
5. Operator compartment
   - Crown flexible side stance
   - Padded back support with integral side restraint
   - Premium rubber floor mat
   - Padded arm rest
   - Operator console with desk top work surface and storage
   - Entry Bar® safety switch
   - Posture relief step
6. Multi-task control handle
7. Tilt position assist
8. Crown display
   - Battery discharge indicator with lift interrupt and re-key feature
   - Hour meters / travel distance / stop watch
   - Pin code access capable
   - Event code display with five (5) key navigation
   - Access 1 2 3 diagnostics
   - P1, P2, P3 Performance tuning
9. AC hydraulics and on-demand steering
10. 36-volt system
11. 350 amp battery connector
12. InfoPoint® System
13. Color-coded wiring
14. Battery rollers
15. Dual 10" (254 mm) cushion steer tires
16. Large 16" (406 mm) cushion drive tires
17. Crown-manufactured drive and lift motors
18. High visibility power unit
19. Radial design overhead guard with third post
20. High visibility mast with in-line hose routing
21. Hydrostatic power steering
22. 5° forward tilt
23. 48" (1220 mm) high load backrest
24. Reverse steering
25. Hoist-travel interlock
26. Auto power down

Optional Equipment

1. Factory installed attachments
2. Load backrest heights
3. Fork lengths
4. Polished and tapered forks
5. Power Sources
   - Lead acid
   - V-Force® Lithium-Ion Ready
   - Thin Plate Pure Lead ready
   - Fuel cell ready
6. Lead acid battery fast charge (dual battery cables)
7. Drive and steer tires
8. Overhead guard heights
9. Drive-in rack overhead guards
10. Suspended floorboard
11. Adjustable armrest
12. 2 5/8" (67mm) radius steer tiller
13. Forward steering
14. Quick disconnect hydraulics
15. Electronic pressure regulator
16. 5th hydraulic function
17. Visual warning devices
    - Floor spot lights
    - Floor line lights - side lights only
    - Floor line lights - side and rear lights
    - Flashing lights
18. Work lights
19. Dome light
20. Audible warning devices
    - Travel alarms
21. Work Assist® Accessories
    - Operator fan
    - Clip pad and hook
    - Clamp
    - Mounting plate
    - Shrink wrap holder
    - Cup holder
    - Pockets
    - Organization kits
    - Desktop clip pad
22. Chain slack detection
23. Keyless on/off switch
24. Fire extinguisher
25. Accessory cable (36V)
26. Uninterrupted power supply
27. Counterweight for RC 5755-40
28. Knee pad
29. InfoLink Ready
30. Productivity package
31. Environmental packages
    - EE Rated
    - Corrosion package
    - Freezer package

Operator Compartment

Soft, rounded surfaces make the compartment interior more comfortable. Streamlined exterior smooths entry/exit for the operator.

A low floor height, (9.5" [240 mm]) first greets the operator. A patented FlexRide suspended floor provides a comfortable ride for a wide range of operators. A footrest provides postural relief during stationary tasks, complementing the largest floorboard in its class.

Crown's flexible side stance allows the operator to change positions to increase comfort and productivity.

The Entry Bar™ safety switch with sensors to automatically slow truck travel, encourages safe foot positioning inside the truck.

The Multi-Task Control Handle naturally bridges Crown's current and past designs. Intuitive operation is increased, reducing the learning curve. Blending of hydraulic control functions and traction can improve productivity. Control handle activation forces are reduced. Soft grip steer tiller with hydrostatic steering reduces operator fatigue.

Operator visibility is improved with:

- Low-profile sculpted power unit
- High visibility mast
- Angled overhead guard post and placement
- Radial design overhead guard
- Flexible side stance

Crown Drive System

Crown has applied the latest generation AC drive system, enhanced with Access 1 2 3® technology. The demand for high efficiency systems that closely match customer torque requirements is met with this generation control system. Crown-manufactured, independently controlled, AC drive motors are specifically designed to optimize system integration between the traction and braking controls.

Crown's Access 1 2 3 technology provides optimum performance and control by offering a communication interface for operators and technicians, intelligent coordination of lift truck system and simplified service with advanced diagnostics.

The Crown display is used for easy troubleshooting, access service history and set performance features. A distribution panel is conveniently located with all test points, control fuses and central wiring for easy troubleshooting.

Three modes of performance can be selected to accommodate operator experience or application requirements.

e-GEN® Braking System

Variable regenerative motor braking is optimized and virtually eliminates brake maintenance. The appropriate amount of stopping force is applied to match operator brake input and the current operating conditions of the truck.

The closed loop Access 1 2 3 traction control will keep the truck static until a travel input is requested, even when operating on a grade.

Automatic electric parking brakes activate when the operator releases the brake pedal, a travel input has not been requested or battery power has been disconnected.

Steering

Load-sense hydrostatic steering is an on-demand system which reduces energy consumption. Smooth, quiet steering control with minimal operator effort required at the steer tiller. Steer tires rotate 182º for maximum maneuverability. Crown's hydrostatic steering system is simplified with significantly fewer parts, thus reducing maintenance requirements.

Hydraulics

The hydraulic system provides continuous filtration. A pressurized steel hydraulic tank reduces oil misting and contamination. Hydraulic attachments can be added easily in the field.

Hydraulic manifold is mounted on the mast reducing the number of hoses and fittings.

Ram displacement type lift cylinders and two double acting tilt cylinders are Crown-manufactured. All rams and piston rods are hard chrome plated to reduce pitting and extend cylinder packing life. O-ring face seal fittings are used to eliminate leaks.

Mast Assembly

Crown-manufactured mast assembly utilizes a "flush-face" interlocked I-beam design to improve visibility and reduce truck length. Roller bearing studs are welded on both sides of the rails for maximum strength and roller bearings are canted to run in the thick cross section of the rail. Tie bars wrap around the rails for added strength and to resist off-center load forces.

"In-line" hose routing opens up visibility. Cylinders are placed to the sides to create a high visibility design.

The mast has four points of attachment to the truck for good load force distribution. Two mounting points are at the frame, where tilt cylinders attach. Tilt cylinders use spherical bushings to resist off center load distortions. Two large diameter studs secure the mast to the drive units.

Drive Units

Two Crown-manufactured independent double reduction planetary gear drives offer 27 to 1 gear reduction. The first and second reduction use helical gears for low noise and efficiency. The drive unit gears are splash lubricated in an oil bath.

Carriage

An ITA Class II carriage is standard. An optional hook type ITA sideshifter or other attachments are easily added. Optional fork lengths are available.

Warning Device Options

Audible or Visual Alerts

Safety considerations and dangers associated with audible travel alarms and lights include:

- Multiple alarms and/or lights can cause confusion.
- Workers ignore the alarms and/or lights after day-in and day-out exposure.
- Operator may transfer the responsibility for "looking out" to the pedestrians.
- Annoys operators and pedestrians.

Other Options Available

Contact factory for additional options.

Dimensions and performance data given may vary due to manufacturing tolerances. Performance is based on an average size vehicle and is affected by weight, condition of truck, how it is equipped and the conditions of the operating area. Crown products and specifications are subject to change without notice.

You can count on Crown to build lift trucks designed for safe operation, but that's only part of the safety equation. Crown encourages safe operating practices through ongoing operator training, safety-focused supervision, maintenance and a safe working environment. Go to crown.com and view our safety section to learn more.

Crown Equipment Corporation
New Bremen, Ohio 45869 USA
Tel 419-629-2311
Fax 419-629-3796
crown.com

Because Crown is continually improving its products, specifications are subject to change without notice.

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IMPAKTOR 250

Slow Speed Shredder

ARJES
EXCLUSIVELY DISTRIBUTED BY BANDIT

No other slow-speed shredder on the market can match the Impaktor 250 in versatility and performance at this size and price point. Grind, crush and shred concrete, rubble, asphalt, bricks, ceramic, metal, wood, and waste **from a single machine!** Special shaft geometry positions material to be crushed, then secondary double jaw breakers, in conjunction with the breaker bars, help operators achieve a **more uniform final product size**. In short – the 220 horsepower Impaktor 250 is the most compact, most versatile slow speed shredder available today.

PRODUCE MORE

The Impaktor 250 is designed from the ground up to *really produce*. It's able to do this by being easier to transport, quicker to set up, and tougher on a variety of material you need to shred. The larger infeed hopper means less prep work to feed material, and compact dimensions means its easier to tow and position, weighing only 13.3 tons.

A TOOL FOR YOUR APPLICATION

The Impaktor 250 can be outfitted with either standard Impaktor shafts or the special paddle shafts, depending on the application. And the switch is relatively quick, taking only a few hours, thanks to the unique quick change cassette shaft system.

VERSATILITY

Rip, shred and crush a wide variety of material with the Impaktor 250. No other shredder can handle as wide a variety of materials. Operators can crush material such as concrete, rubble, asphalt, then switch to processing metals, and then finish with green waste and C&D waste – all from the same machine.

A MACHINE FOR YOUR LOCATION

Get your Impaktor 250 either as an electric stationary unit, or on a track undercarriage. Tracks make it easy to move and position at the job, or across difficult terrain, and the stationary setup makes it the perfect addition to dedicating grinding yards.

Bandit INDUSTRIES, INC.

6750 Millbrook Rd. • Remus, MI 49340 • **1-800-952-0178**

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Hand-Fed Chippers • Stump Grinders • Whole Tree Chippers
The Beast® Horizontal Grinders • Track Carriers • Attachments

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AR250_2269-19

SPECIFICATIONS

DIMENSIONS		
Length:	22’	6.7 m
Width:	7’ 10.5”	2.4 m
Height:	9’ 2”	2.8 m
Weight:	29,763 lbs.	13500.3 kg
Hopper Size:	98.5” x 62”	2.5 m x 1.57 m
Engine:	220 HP (164.1 kW) Volvo T4f	
Shafts:	59”	1.5 m
Shaft Speed:	11 - 45 RPM	
Torque:	(2) 80,000 ft./lbs.	
Conveyor Width:	31.5”	80 cm
Conveyor Speed:	118”/second	3 m/second
Discharge Height:	11’ 5”	3.48 m
Fuel Tank:	75 gallon	285 L
Hydraulic Tank:	26 Gallon	98.4 L

COMMITTED TO QUALITY & SERVICE

The Bandit Backbone™ Support

The Bandit Backbone is Bandit’s commitment to customer service and support. It’s always been a cornerstone of Bandit’s philosophy, and today that backbone is stronger than ever. If you own a Bandit hand-fed chipper – regardless the age, hours, or warranty status – the Bandit Backbone is here to support you.

We Are Here to Support You

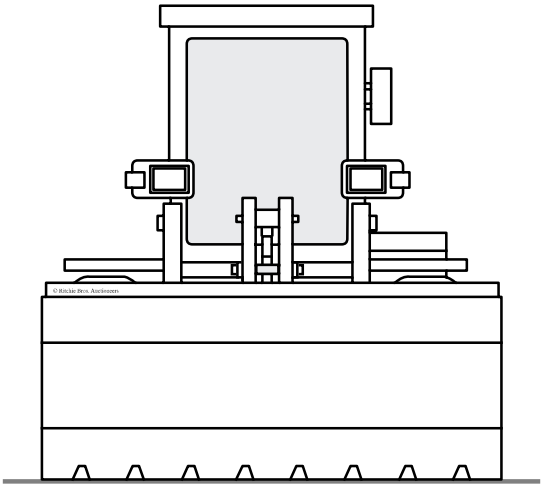
There are nearly 200 dealer locations in the US and over 60 international dealers to support you. They are factory trained. Plus we have an experienced parts and service department supporting you and our dealers.

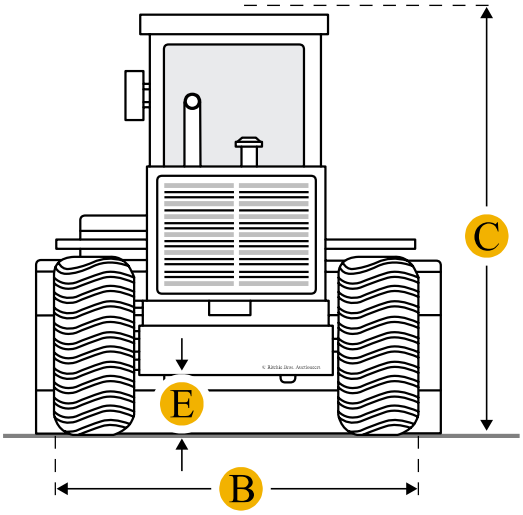
IMPAKTOR 250 FEATURES

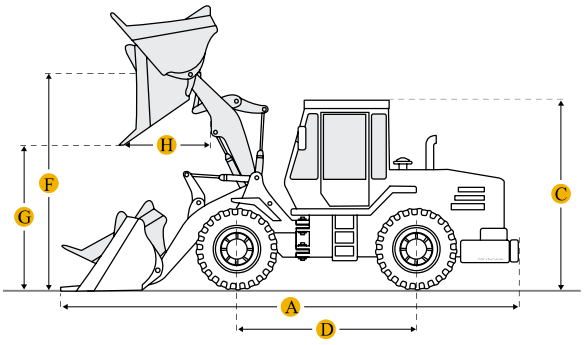
- **Large Material Hopper**
  The large infeed hopper means larger raw material can be placed in the machine, requiring less prep work
- **Nearly 10’ Discharge Height**
  Conveyors can discharge material up to 9.85 feet
- **Powerful Overbelt Magnets**
  Separate iron material from your end product with a powerful magnet
- **Powerful Engine Option**
  The track unit is equipped with a 220 horsepower Volvo diesel engine
- **Adjustable Shaft Speed**
  Fine tune the shaft speed to allow for the smooth intake of material
- **Auto Reverse Function**
  The system will sense the load and automatically reverse the shafts to prevent damage to the cutting tools
- **Short Setup Times**
  The Impaktor 250 can be set up in as little as two minutes and ready to work!

Bandit Also Offers a Complete Line of Tree Care Equipment:
Hand-Fed Chippers • Stump Grinders • Whole Tree Chippers
The Beast® Horizontal Grinders • Track Carriers • Attachments

Caterpillar 980G Wheel Loader







Units Imperial Metric

Dimensions

Bucket

G	**Dump Clearance At Max Raise**	10.74 ft in
	Breakout Force	47277 lb
	Bucket Capacity - Heaped	5.5 yd3
	Bucket Width	11.31 ft in

Dimensions

E	**Ground Clearance**	1.54 ft in

Top

A	**Length With Bucket On Ground**	31.06 ft in
B	**Width Over Tires**	10.67 ft in
C	**Height To Top Of Cab**	12.31 ft in
H	**Reach At Max Lift And Dump**	5.07 ft in

Specifications

Engine

Engine Make	2236
Engine Model	3406DITA
Net Power	323 hp
Gross Power	300 hp
Displacement	891 cu in
Engine Model	Cat? 3406C DITA
Flywheel Power	300 hp
Maximum Flywheel Power	300 hp

Operational

Operating Weight	65638.3 lb
Fuel Capacity	124.2 gal
Hydraulic System Fluid Capacity	55 gal
Engine Oil Fluid Capacity	10 gal
Static Tipping Weight	44767.1 lb

Transmission

Number Of Forward Gears	4
Number Of Reverse Gears	4
Max Speed - Forward	23.3 mph
Max Speed - Reverse	26.6 mph
Travel Speed	23.2 mph
Forward - 1	4.4 mph

Top

Forward - 2	7.7 mph
Forward - 3	13.5 mph
Forward - 4	23.3 mph
Reverse - 1	5 mph
Reverse - 2	8.7 mph
Reverse - 3	15.3 mph
Reverse - 4	26.6 mph

Weights

Operating Weight	65078 lb

Buckets

Maximum Bucket Capacity	7.5 yd3

Hydraulic System

Raise Time	6 sec
Dump Time	2 sec
Lower Time	3.4 sec

Axles

Front	Fixed
Rear	Trunnion
Maximum Single-Wheel Rise And Fall	21.7 in

Hydraulic System

Hydraulic Cycle Time - Total	12.2 s
Hydraulic Cycle Time - Lower, Empty, Float Down	3.4 s
Hydraulic Cycle Time - Raise	6.8 s
Hydraulic Cycle Time - Dump	2 s

Operating Specifications

Static Tipping Load - Full Turn	40005 lb
Dump Clearance	10.8 ft in
Breakout Force	47277 lb

Top

Service Refill Capacities

Cooling System	20.9 gal
Crankcase	10.1 gal
Hydraulic Tank	33.1 gal
Hydraulic System - Including Tank	55 gal
Fuel Tank - Standard	124 gal
Transmission	16.4 gal
Differential - Final Drives - Front	23 gal
Differential - Final Drives - Rear	21.4 gal

Compare similar models

Manufacturer/Model	Bucket Capacity - Heaped	Gross Power	Operating Weight
Komatsu WA500-3L	--	315 hp	64970.2 lb
Michigan L190 Long Boom	5.3 yd3	322 hp	63411.6 lb
Case 1221EXR	5.7 yd3	335 hp	67020 lb

Compare

Find Caterpillar 980G Wheel Loader for Sale

2002 CATERPILLAR 980G Wheel Loader

0

TORONTO, ON

2002 CATERPILLAR 980G Series II Wheel Loader

26986

TORONTO, ON

Top

AZIMUTH 3000 LOW PROFILE PALLET WRAPPER

AZIMUTH-3000

Semi-Automatic Pallet Wrapping Machine

- Wraps to 20 loads per Hour, Up to 12 RPM
- Max SKID Size 50 x 50 x 85", Up to 4000 LBS
- PLC Control Panel (11 Wrapping Functions, 99 Wrapping Programs)
- Photo Sensor Height Detection System
- Manual Adjusts to 150% Stretch
- 115 volt, 15 amp.

Specifications

End Loading Capacity:
133% full scale at 30,000 lb

Warranty:
Weldment five years, load cells two years, all other components one-year limited warranty

Standard Features

- System includes two platforms with anchor brackets and four on/off ramps with anchor tabs (anchor bolts not included)

Scale

- (W x L x H): 32 x 84 x 6 in
- Axle capacity - tandem platforms - 60,000 lb (two scales 30,000 lb each)
- Includes (2) 3/4-10 NC eye bolts
- Contains four environmentally sealed, IP67 20,000 lb single-ended shear beam load cells per platform
- Treaded top plate with side access junction box
- JB4SS TuffSeal® signal trim junction box
- Top access foot adjustment holes
- Carbon steel captured ball feet
- 20 ft SURVIVOR® EL147HE cable
- Non-Legal for Trade

Ramps

- (W x L x H) 32 x 60 x 6 in
- Treaded top plate

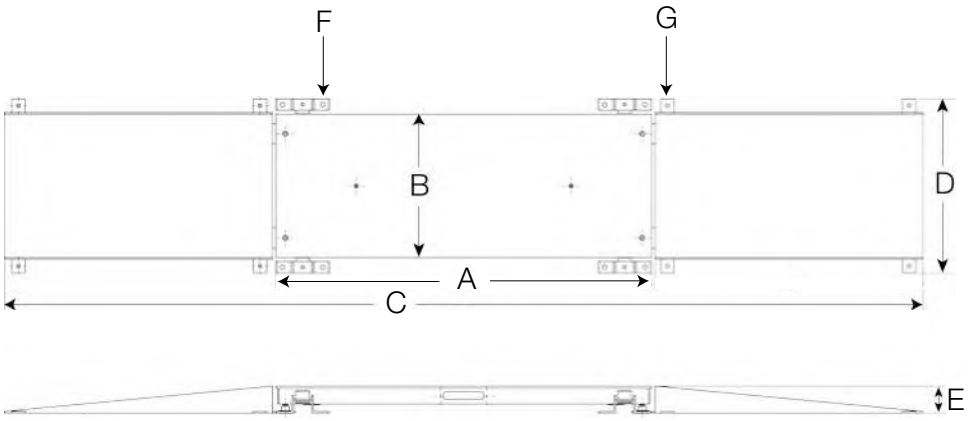
Part Number/Price

Part #	Description	Dimensions	Est. Weight	Price
107637	60,000 lb (30,000 lb each)	32 x 205.5 x 6 in	3,600 lb	Consult
RoughDeck AX Bundle Package				
153058	60,000 lb (30,000 lb each) includes 920i Universal 115 VAC with short axle program, 4 in LaserLight 2 with Stop/Go light, TM-U295 and RS-232 cable	32 x 205.5 x 6 in	3,700 lb	Consult

RoughDeck® AX

Axle Scale

Dimensions			
A	84.0 in (213.36 cm)	E	6.0 in (15.24 cm)
B	32.0 in (81.28 cm)	F	1.0 in (2.54 cm)
C	205.5 in (521.97 cm)	G	0.75 in (1.91 cm)
D	38.75 in (98.42 cm)		



Avery Weigh-Tronix Bridgemont-HD Truck Scale
Model BMS-HD 70x10

SECTION A- SCALE

Avery Weigh-Tronix BMS-HD 70x10-100T BridgeMont, Low-Profile Motor Truck Scale - Checkered Steel Deck-suited for above ground & pit installation

Capacity:	100 Tons
Platform Size:	70' x 10'
Platform Material:	Checkered Steel Deck Plate
Module Sizes:	(3) 23' x 10'
Concentrated Load Capacity(CLC)	45 Tons
Dual Tandem Axle Rating (DTA)	90,000#
"r" Factor	2.65
Weigh-Bridge Thickness	10-1/4"
Standard Profile *(top of pier to top of approach)*	16"

The Avery Weigh-Tronix BridgeMont is an outstanding truck scale design that incorporates advanced engineering and production technology to produce a high-quality truck weighing system. Finite Element Analysis (FEA) has been utilized in the design process to insure the highest weighbridge integrity possible. State of the art production standards, including computerized controlled welding and machining robotics, insure unsurpassed performance characteristics. Avery Weigh-Tronix has earned an enviable reputation for building the strongest weighbridge assemblies, the most dependable Weigh Bar weight sensors, and the most reliable digital instrumentation in the business. Prior to shipment, each scale is factory assembled and performance-tested to exacting NIST, NTEP, and ISO specifications.

CRITICAL DESIGN CHARACTERISTICS

The true test of a truck scale is its performance and the structural steel design of critical weighbridge components. Avery Weigh-Tronix products are designed to provide our customers the highest performance standards possible along with a low cost of ownership.

The Concentrated Load Capacity (CLC) and Dual Tandem Axle Capacity (DTA) should be the same on any given scale, as defined by NIST. The Concentrated Load Capacity (CLC) is a capacity rating of a vehicle or axle load scale specified by the manufacturer, defining the maximum axle load concentration *(for a group of 2 axles with a centerline spaced 4 feet apart and an axle width of 8 feet)* for which the weighbridge is designed. This capacity rating is for both use and test *(Handbook 44, 2008).*

Based on the Federal Bridge Gross Weight Formula *(Table B),* this is the maximum legal load that can be carried on a given number of axles in a given axle spacing. (For example: Two axles spaced between 4' and 8' can carry a maximum load of 34,000#. This provides an established standard.)

The "r" factor can be calculated by dividing the scales Dual Tandem Axle Capacity (DTA) by 34,000#. A truck scale that has been designed for no more than legal federal highway loads would have an "r" factor of 1.00. The Avery Weigh-Tronix BridgeMont BMS-HD has an "r" factor of 2.65, which is well above anticipated highway loads.

A very important consideration in the purchase of a truck scale is the structural integrity of the weighbridge. The Avery Weigh-Tronix BridgeMont is the best and this is why. Avery Weigh-Tronix uses only first quality steel components, carefully selected to optimize bending stresses and minimize deflection of steel members under load. The weighbridge is a “true sandwich” design, utilizing both a top and lower plate. The weighbridge consists of a checkered, steel deck top plate that is 100% welded the full length to the top of (11)-Ten inch I-Beams, which are positioned longitudinally. To the base of the I-Beam flanges are continuously welded heavy gauge steel plates, the entire length of the module. These bottom plates become important stress carrying members of the structure, insuring deflection of components is maintained within design parameters. Each flange of each beam is 100% welded, full-length to the deck plate above and the steel plates below. No matter where truck axles are positioned on the platform, they are fully supported by this integrated structure. Steel components are designed to bend when loaded and return to their original shape, as they are unloaded. If steel components are improperly sized and are loaded beyond their original design characteristics, fatigue will occur, affecting the accuracy, performance, and life of the scale. Many competitive weighbridges use steel members which are too light for the loads, resulting in steel fatigue and a costly premature failure of the weighbridge. The extraordinary design of the BridgeMont weighbridge provides the most rugged design in its class.

All weighbridge components are sand blasted to SPC standards prior to application of a 2-3 mil application of a two-part, high solids urethane primer, and final 2-3 mil coat of a high-quality, polyurethane top finish.

The Bridgemont-HD weighbridge consists of the following components:

WEIGH-BRIDGE COMPONENTS

checkered steel top plate
(11) 10” I-Beams
Continuously welded bottom steel plates
Continuously welded seam around perimeter
Heavy gauge steel end-plate sections
Guide rails on both sides of scale

The Bridgemont-HD is truly an exceptional product, and the superior weighbridge design makes the BMS series your best value in a steel deck truck scale. Compare the following standard features:

STANDARD Bridgemont-HD FEATURES/ADVANTAGES

Full 10-Year factory warranty on the weighbridge structure
Easy top access to Weigh Bars and junction boxes
Superior weighbridge design
Internal self-checking, no external check rods
Computer controlled robotics welded construction
Full electronic design
Conduit runs and rodent barriers for cabling
100% in house-construction
NIST and NTEP approval
Self-contained steel modules
184 Quality controlled check-points
Accurate and reliable
Factory assembled, no field welding

"r" Factor- 2.65
Surge voltage- standard
Low profile- 16" from pier to top of approach *(convenient base plate riser options for other elevations)*
No grouting
Simple installation
No hidden costs
Avery Weigh-Tronix commitment to quality
Lightning protection- standard

SECTION B – WEIGH BAR Weight Sensors

Virtually the heart of all Avery Weigh-Tronix scale systems are our precision engineered Weigh Bar sensors. Weigh Bars are gauged differentially to prevent problems with side loading, end-loading and torque loading. All Weigh Bars are manufactured from high quality aircraft alloy steel bar stock. Each Weigh Bar is heat-treated, quenched and tempered providing superior protection from corrosion and oxidation. This product design provides better repeatability and minimizes hysteresis which is prevalent with other materials such as stainless steel. Many competitive canister or shear beam type load cells cannot handle dynamic loading conditions frequently experienced on most truck scale applications. These types of sensors were designed to be loaded precisely vertical, and do not handle side loads efficiently.

STANDARD WEIGH BAR FEATURES

All Weigh Bars come complete with stainless steel jacketed cable
All Weigh Bars are connector-less, and are terminated with tinned leads to junction box terminal strips.
Overload safety factor 200%
All Weigh-bars are scientifically sealed to eliminate moisture, or corrosive elements.
Weigh Bar capacity 75,000# each
Lightning protection- standard
Conduit runs protect cabling between sensor and junction box
All junction boxes are stainless steel construction and Nema 4x
Summation boxes have corner potentiometers for easy calibration

SECTION C - INSTRUMENT

(1) Model ZM-305 Programmable Digital Weight Indicator housed in a rugged stainless steel, washdown enclosure with swing-away mounting base.

Instrument Graduated: 200,000# x 20#

The Avery Weigh-Tronix Model ZM-305 is a digital weight indicator that represents the best of digital weight indicator technology.

The ZM-305 provides the basic features and flexibility for simple weighing applications, and yet with its 16 Bit, 20 MHz Intel Microprocessor, has the capability, speed, and sophistication necessary for the most difficult weighing systems. The E1310 has its own built-in anti-obsolescence, with nearly limitless flexibility that will allow it to expand as your application changes.

Below we would like to outline some of the standard features that make the Avery Weigh-Tronix an excellent choice in today's market place.

Standard Instrument Features:

A. Display
Brilliant LED display 1" high x 4.3" wide (32 x 128 dot layout) characters from 1/4" to 1" high. Single or multi-line, alpha, numeric or graphic images.

B. Display Selection
Over 36 standard display configurations - unlimited custom

C. Front Panel Operational Keys with Audible and Tactile Feedback

1. Zero
2. Tare
3. Print
4. Units
5. Select
6. Enter
7. Escape
8. Clear
9. 0-9 Numerical
10. Decimal Point

D. Custom Soft Keys
(5) User defined soft keys (Display Indication)

E. Programming
Infinite custom programming capability

F. Enclosure
Stainless steel washdown enclosure (12 3/8" high x 10 3/4" wide x 5 1/4" deep)

G. Serial Ports
(2) Discrete Bi-directional serial ports
Port 1 - RS-232, RS-485/422
Port 2 - RS-232, 20 mA current loop
All parameters fully programmable

H. Set-Points
(2) I/O ports via internal OPTO 22 I/O modules (Expandable to 32 external)

I. A/D Rate
Analog/Digital conversion rate 60 times per second - selectable

J. Harmonizer Digital Filtering
Provides multiple levels of filtering for environmental noise or vibration

K. Noise Protection
RFI, EMI, and ESD protection

L. Units of Measures

1. Pounds
2. Kilograms
3. Grams
4. Ounces
5. Pounds/Ounces
6. (2) Custom Units

Displayed Indication

M. Automatic Zero Tracking
Programmable and in compliance with NTEP and OIML

N. Motion Detection
Programmable and in compliance with NTEP and OIML

O. **Excitation**
10 volt DC, or 10 volt AC square wave

P. **Front Panel Calibration**
Full front panel calibration capability

Q. **ISO Documentation**
Capable of recording scale calibration information for ISO audits

R. **Time and Date**
Battery protected

S. **Weight Sensors**
Will drive up to 16 weight sensors from internal power supply

T. **Approvals**

NIST Class III/IIIL	UL pending
Canada Consumer Affairs	CSA pending
OIML pending	FCC Class A

U. **Warranty**
2 Years

The prices above do not include Tax or shipping, which will be added to the invoice.

Typical shipping costs of wide load to Rockland County, NY is approx. $5,600.00 per scale.

Note: To keep the 10 Year Blue blanket warranty is force, Advance Scale must inspect the scales at least Twice per year at additional cost.

Model 375P-1000
Outdoor Monitoring System

Features

- Affordable Digital Controlle
- Weatherproof Encased-Shielded Plastic Scintillator Detectors
- User-Adjustable Alarms
- Networkable, Requires Ethernet or Webpage Option
- 24-Hour Battery Backup
- Configu able System with Numerous Options to Customize for Locations

Introduction

The Model 375P-1000 is a Digital Model 375 Controller coupled to two lead-shielded 7866 cm^3 (480 in^3) plastic scintillator detectors. The detectors are encased in weathertight enclosures suitable for the outdoor environment, while the 375 Controller is normally mounted to a wall indoors near an operator. This cost-effective solution offers a simple system that is easy to operate and maintain.

The controller supplies local alarms but may also connect to external alarms or be put onto an Ethernet network if desired. It additionally has a 24-hour battery backup to keep the system operational in the event power is lost.

Vehicle Radiation Monitor: The Model 357P-1000V (Part Number: 48-3782) is also available. This system includes vehicle presence sensors that prevent the unit from alarming unless a vehicle is being surveyed and the alarm threshold has been exceeded.

Specifications

Part Number: 48-3470

SYSTEM INCLUDES
1 ea. Model 375P electronics
2 ea. 7866 cm^3 (480 in^3) plastic scintillation detectors with 0.33 cm (0.13 in.) lead shielding in weather-tight housings

TYPICAL SENSITIVITY (^{137}Cs): 400 cps per µR/hr per detector
DISPLAY: 4-digit LED display with 2 cm (0.8 in.) digits
STATUS: (green light) instrument functioning properly
SIGMA ALARM: indicated by red ALARM light and audible tone (can be set at any point from 0.0 to 999 Sigma)
SUM ALARM: indicated by red ALARM light and audible tone can be set at any point from 0.0 to 9999 kcps)
Note: audible alarm annunciators can be configured as a single beep if desired
DET FAIL: red light & audible tone greater than 68 dB at 61 cm (24 in.) indicates no counts from detector or instrument failure
LOW BAT: (yellow) indicates less than 2 hours of battery power remaining
OVERRANGE: ("-OL-") indicates radiation field being measured exceeds counting range of instrument
RELAY OUTPUT: mains (120 or 240 Vac) output on alarm
DATA OUTPUT: 9-pin connector providing RS-232 output, signal ground connection, FAIL and ALARM signals (current sink), and direct connection to battery and ground
CALIBRATION CONTROLS: accessible from front of instrument (protective cover provided)
POWER: 95 to 135 Vac (178 to 240 Vac available), 50 to 60 Hz, 6-volt sealed lead-acid rechargeable battery (built-in)
BATTERY LIFE: typically 24 hours in non-alarm condition; 12 hours in alarm condition
BATTERY CHARGER: battery is continuously trickle-charged when instrument is connected to line power and turned on
CONSTRUCTION (ELECTRONICS): aluminum housing with ivory powder coat
TEMPERATURE RANGE: -15 to 50 °C (5 to 122 °F)
SIZE: electronics: 26.2 x 24.6 x 8.4 cm (10.3 x 9.7 x 3.3 in.) (H x W x D)
detectors (ea.): 20.3 cm x 183 cm (8 x 72 in.) (Dia x L)
WEIGHT: electronics: 4.2 kg (9.3 lb); detectors (ea.) 29.5 kg (65 lb)

Options

Various options are available for Model 375-Series systems, including enclosures, remote displays, alarm annunciators, signal output, and networking options. Visit our website to view the current list of available options.

Ludlum Measurements, Inc.

Ludlum Measurements, Inc. P.O. Box 810, Sweetwater, Texas 79556
Web: http://www.ludlums.com **Tel**: 800-622-0828 / 325-235-5494 / **Fax**: 325-235-4672 / **Email**: sales@ludlums.com
Note: specifications subject to change without notification. We are not responsible for errors or omissions.

Nov 2019

Ludlum Model 193-6 Survey Wand

The Ludlum 193-6 Survey Wand has four ranges from ***0 - 1,000 µR/hr***. A sensitive 6"x1" Plastic Gamma Scintillator is mounted at the end of the want. The meter is micro-processor based and its alarm setting is automatically adjusting.

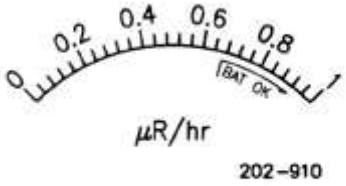
PART #:48-3063

INDICATED USE: General purpose survey with alarm capabilities
DETECTOR: 6”(15.2cm) diameter X 1”(2.5cm) thick plastic scintillation detector
SENSITIVITY: Typically 2000 cpm/µR/hr (^{137}Cs gamma)
METER DIAL: 0 - 1 µR/hr, BAT TEST (others available)
MULTIPLIERS: X1, X10, X100, X1000
LINEARITY: Reading within ±10% of true value
ALARM: The Model 193 has a dual action alarm.

1. A fixed alarm point can be set at any point from 10% of full scale to full scale, and is indicated by a constant audible tone, and the lamp turning on.
2. A quick deviation alarm that is based on background radiation levels. When the instrument is turned on, it takes an 8 second measurement of background radiation levels and determines a deviation alarm setting. If the radiation level exceeds this setting, the alarm audio will beep every 1/8 second, and the lamp will flash.

AUDIO: Built in unimorph speaker with ON/OFF switch (greater than 60 dB at 2 feet)
CALIBRATION CONTROLS: Accessible from front of instrument (protective cover provided)
RESPONSE: Toggle switch for FAST (4 seconds) or SLOW (22 seconds) from 10% to 90% of final reading
RESET: Pushbutton to zero the meter, and also re-accumulate background data and recalculate the alarm point.
POWER: 2 each “D” cell batteries (housed in sealed compartment that is externally accessible)
BATTERY LIFE: Typically 600 hours with alkaline batteries (battery condition can be checked on meter)
METER: 2.5" (6.4cm) arc, 1 mA analog type
CONSTRUCTION: Cast and drawn aluminum with beige polyurethane enamel paint
TEMPERATURE RANGE: -20°F(-29°C) to 140°F(60°C)
OVERALL LENGTH: 51"(129.5 cm)
WEIGHT: 8.5 lbs(3.9 kg) including batteries

Common Meter Dial



202-910
0 - 1 µR/hr

Accessories

Check Source
Headset

Replacement Parts

Meter Bezel
Meter Movement
Handle

Manual

[Nuclear Instrumentation](#) [Dosimetry](#) [Shielding](#) [Sources](#) [Specials](#)
[Hepa Vacuums](#) [NIST Calibrations](#) [Marinelli Beakers](#) [Fume Hoods](#) [Accessories](#)
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WB Johnson, *SE International*, *Spectech*, *Tech Associates*, *Automess*, *Ermes*, *Lap Laser*

...and more

Direct Scientific */ tel (310) 589 0601 /* **Email**

contact us: en español, auf Deutsch

<-- Back

Open 8:00 AM - 5:00 PM Pacific Standard Time
Follow us on twitter and youtube.

Check out our instrument demos.

Kalmar Ottawa T2
6x4 DOT/EPA Certified
Standard Specifications

KALMAR OTTAWA

Wheelbase: 146"

Frame / Chassis:
- 14" x 4.25" x 3.5" Steel 50,000 PSI 3/8" Formed C-Channel with L-reinforcements
- Modular Frame Design
- Reinforced Removable Bumper with 55° Taper Curbside
- 50-Gallon Rectangular “Step-Tank” Mounted on Driver Side, 10" Deep Step
- 5-Gallon DEF Tank
- Integral Front and Rear Tow Points
- Mud Flaps Rear Spring Loaded

Engine:
- Cummins B6.7-200 HP with OBD, Clean Idle Certified @ 2300 RPM, 520 lb./ft. Torque @ 1600 RPM
- Fleetguard Air Filter
- Air Restriction Indicator Mounted Under Hood

Transmission:
- Allison 3000RDS (6 Speed) Automatic Transmission with Fuel Sense 2.0 MaxiMizer
- Push-Button Shifter

Front Axle:
- Meritor FF-961 12,000 lb. Rated
- “S” Cam Type 16.5" x 5" Brakes

Rear Axle:
- Meritor MT-40-14X, 40,000 lb. Rated, 7.17:1 Ratio
- “S” Cam Type 16.5" x 7" Brakes

Suspension:
- Front—Parabolic 3-Leaf Spring, Lube Free, Shackle Free
- Rear—Hendrickson HN 522

Slack Adjusters:
- Automatic Front and Rear

Tires:
- 11R22.5 Radial Highway Treat Tires

Steel Disc Wheels:
- 8.25" x 22.5" 10 Bolt 285mm (11.25") BC
- Hub Piloted

Cab:
- Steel and Composite Cab with Aluminum Sliding Rear Door
- Certified Roll-Over Protection Structure (ROPS)
- High Roof Cab
- 3-Point Cab Mounting with Air Suspension
- Integral Heating/Ventilation System with (3) Vents for Driver; (4) Front and (2) Side Defrost Vents
- High Air Flow Heater/Defroster with Molded Air Ducts
- Tinted Glass All Windows
- Laminated Solar Grey Window in Rear Door
- Air Ride Seat with Isolator and 2-Point Retractable Seat Belt
- Digitally Driven Instrument Cluster: Air Pressure, Fuel Level, Hour Meter, Odometer, Speedometer, DEF and Critical Situation Indicators
- Mounting Plate and Power Connection Points for Yard Management System
- Electric Windshield Washer with Intermittent Pantograph Wipers
- Suspended Brake and Throttle Pedals
- Coat Hook Behind Driver Seat
- Cup Holder
- Cab Insulation for Thermal Protection and Noise Abatement
- Cab Tilt: 40° with 90° Tilt Capability
- West Coast 16" x 7" Mirrors
- See Through Sun Visor
- Cab Dome Lights
- ICC Light Package

Batteries:
- (2) 12 Volt Maintenance Free

Trailer Equipment:
- (2) Color-Coded, Coiled Air Lines with Glad Hand Receivers
- 7 Wire Female Receptacle at Rear of Cab
- 7 Wire Coiled Trailer Light Cord

Kalmar Ottawa T2
6x4 DOT/EPA Certified
Standard Specifications

KALMAR OTTAWA

Fifth Wheel:

- Holland FW35TT Fifth Wheel with 80,000 lb. Plate Rating

Hydraulic System:

- Upper and Lower Spherical Bearings
- 17" Lift
- 20 Gallon Tank with Sight Glass
- 10 GPM System
- Wet Spline PTO
- Constant Running PTO/Pump with Priority Steering Circuit

Pneumatic:

- 18.7 CFM Wabco Compressor with (3) Reservoir Tanks, Total Capacity 5444 cu. in.
- Color-Coded Air Lines, Complies to TMC Recommended Practices
- Split Air Brake System without ABS

Power Steering:

- Integral Gear Type with Mechanical Back-Up

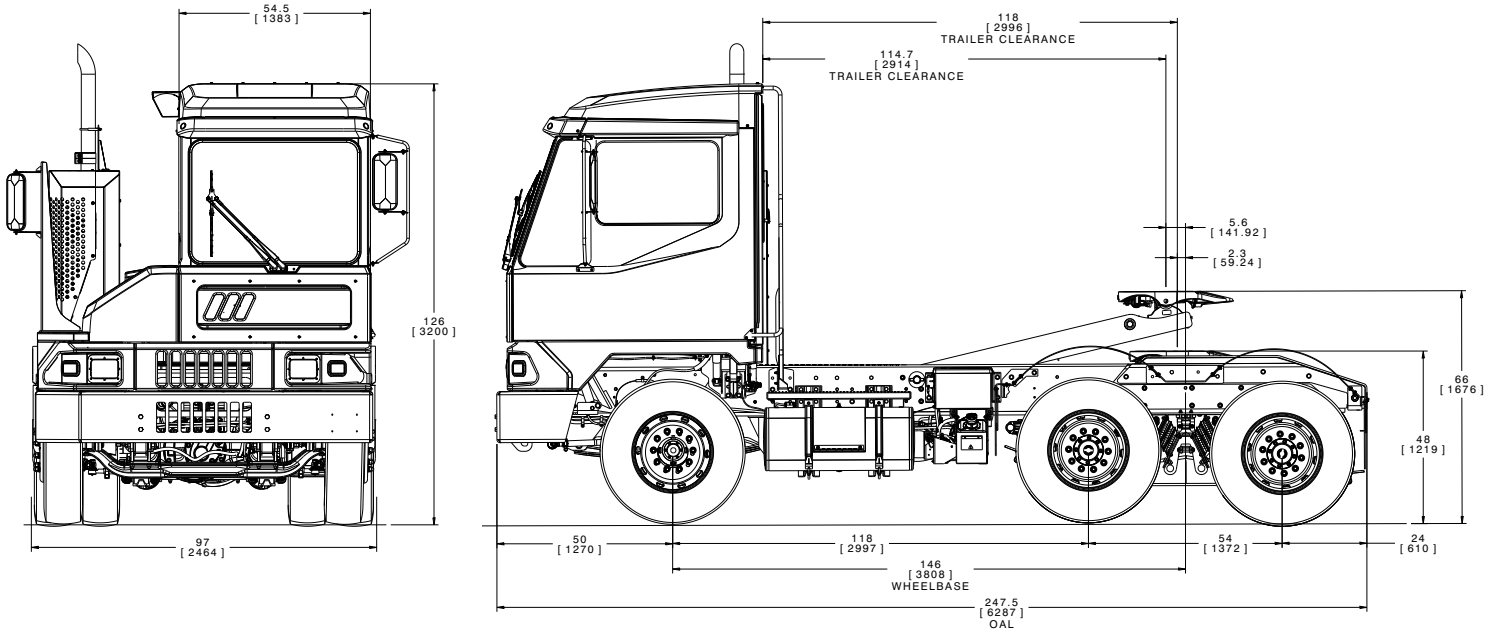
Electrical:

- 12 Volt Electrical System — Negative Ground
- Electric Cab Tilt System
- 130 Amp Alternator
- Electric Back-Up Alarm
- All Wires Color and Number Coded
- All Connectors External to Cab are Sealed

Paint:

- Cab
  - Metal Structure/Components — Full Immersion, Multi-Stage, “E” Coat with White Powder Top Coat
  - Composite Components — Color Impregnated
- Chassis — Black Powder Coat
- Wheels — White Powder Coat
- Grab Handles, Steps and Platforms — Yellow Powder Coat
- Rubberized Undercoating Under Cab

Max Road Speed 33 MPH
approx. weight: 18,000 lbs.



SEALED OPEN TOP ROLL-OFF CONTAINER

SPECIFICATIONS

Available in both Tub and Rectangular Design

FLOOR SHEET	3/16″ BUTT WELDED
CROSSMEMBERS	3″ STRUCTURAL CHANNEL 4.1 LBS/FT 16″ ON CENTERS
LONG RAILS	2″ X 6″ X 1/4″ TUBING
FRONT WHEELS	8″ DIAMETER X 6″ WIDE *WITH GREASE ZERK* *(FRONT WHEELS STANDARD ONLY ON CABLE)*
REAR WHEELS	8″ DIAMETER X 10″ WIDE *WITH GREASE ZERK*
SIDE SHEET	10 GAUGE
SIDE POSTS	3″ X 5″ FORMED 24″ ON CENTERS
TARP RAIL	5/8″ ROUND BAR
TOP RAILS	3″ X 4″ X 7 GAUGE TUBING
BULKHEAD SHEET	10 GAUGE
PUSH PLATE	26″ X 16″ X 3/16″
BULL NOSE	SOLID 1 1/4″ PLATE BURNOUT
NOSE ROLLERS	HEAVY DUTY MACHINED 4″ DIAMETER X 6″ *WITH GREASE ZERK*
HOOK PLATE	23″ X 15″ X 3/4″
TAIL GATE SHEET	10 GAUGE
TAIL GATE FRAME	3″ X 4″ X 7 GAUGE TUBING
REAR CORNER POST	3 1/2″ X 7″ X 3/16″ FORMED
HINGES	HEAVY DUTY SLIDER STYLE *WITH GREASE ZERK* *(THREE ON 54″ OR HIGHER SIDES)*
LATCHES	VERTICAL LIFT HANDLE WITH CHAIN AND BINDER
PAINT	INTERIOR/EXTERIOR SOLVENT BASED PRIME EXTERIOR SOLVENT BASED TOP COAT *(COMPLETE PAINT OPTION AVAILABLE)*

STANDARD PAINT COLORS *Custom colors may result in increased cost and lead times.*

BLACK

BUCKS'® RED

MACK GREEN

VALVOLINE BLUE

CONTAINER OPTIONS

Options may result in increased cost and lead times.

SEALED DUMP GATE

DEWATERING BASKET

SPLASH PLATES

ROOF *(MANY STYLES AVAILABLE)*

SIGN PLATES

SOLID UNIT, NO GATE

DUAL HOOK-UP

TARP *(MANY STYLES AVAILABLE)*

STANDARD DIMENSIONS

Containers can be manufactured to customer specifed dimensions and may result in increased costs and lead times.

Yardage	Floor Length	Inside Height	Width
10	12'	42"	96" Outside, 88" Inside
12	12'	48"	96" Outside, 88" Inside
15	14'	48"	96" Outside, 88" Inside
20	22'	42"	96" Outside, 88" Inside
25	22'	52"	96" Outside, 88" Inside
30	22'	62"	96" Outside, 88" Inside
35	22'	72"	96" Outside, 88" Inside
40	22'	82"	96" Outside, 88" Inside

Tub Style Inside Widths Differ

ROLL-OFFS THAT WORK AS HARD AS YOU DO.

STRONG BOX ROLL-OFF CONTAINER

SPECIFICATIONS

FLOOR SHEET	3/16″ BUTT WELDED
CROSSMEMBERS	3″ STRUCTURAL CHANNEL 4.1 LBS/FT 17.5″ ON CENTERS
LONG RAILS	2″ X 6″ X 1/4″ TUBING
FRONT WHEELS	8″ DIAMETER X 6″ WIDE *WITH GREASE ZERK* *(FRONT WHEELS STANDARD ONLY ON CABLE)*
REAR WHEELS	8″ DIAMETER X 10″ WIDE *WITH GREASE ZERK*
SIDE SHEET	12 GAUGE
SIDE POSTS	3″ X 5″ FORMED 24″ ON CENTERS
TARP RAIL	5/8″ ROUND BAR
TOP RAILS	3″ X 4″ X 7 GAUGE TUBING
BULKHEAD SHEET	10 GAUGE
PUSH PLATE	26″ X 16″ X 3/16″
BULL NOSE	SOLID 1 1/4″ PLATE BURNOUT
NOSE ROLLERS	HEAVY DUTY MACHINED 4″ DIAMETER X 6″ *WITH GREASE ZERK*
HOOK PLATE	23″ X 15″ X 3/4″
TAIL GATE SHEET	10 GAUGE
TAIL GATE FRAME	VERTICAL 3″ X 4″ X 7 GAUGE TUBING
REAR CORNER POST	3 1/2″ X 7″ X 3/16″ FORMED
HINGES	HEAVY DUTY *WITH GREASE ZERK* *(THREE ON 54″ OR HIGHER SIDES EXCEPT FOR BARN DOORS)*
LATCHES	VERTICAL LIFT HANDLE
PAINT	INTERIOR/EXTERIOR SOLVENT BASED PRIME EXTERIOR SOLVENT BASED TOP COAT *(COMPLETE PAINT OPTION AVAILABLE)*

STANDARD PAINT COLORS

Custom colors may result in increased cost and lead times.

BLACK

BUCKS'® RED

MACK GREEN

VALVOLINE BLUE

STRONG BOX Bucks

CONTAINER OPTIONS

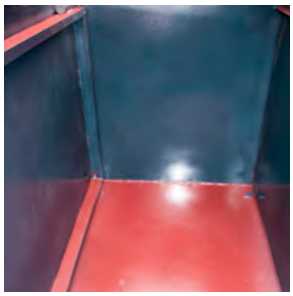
Options may result in increased cost and lead times.

DUMP GATE

DUMP/SIDE SWING GATE

SIDE DOOR

ROOF *(MANY STYLES AVAILABLE)*



INTERIOR DIVIDERS

SIGN PLATES

DUAL HOOK-UP

TARP *(MANY STYLES AVAILABLE)*

STANDARD DIMENSIONS

Containers can be manufactured to customer specifed dimensions and may result in increased costs and lead times.

Yardage	Floor Length	Inside Height	Width
10	12'	42"	96" Outside, 88" Inside
12	12'	48"	96" Outside, 88" Inside
15	14'	48"	96" Outside, 88" Inside
20	22'	42"	96" Outside, 88" Inside
25	22'	52"	96" Outside, 88" Inside
30	22'	62"	96" Outside, 88" Inside
35	22'	72"	96" Outside, 88" Inside
40	22'	82"	96" Outside, 88" Inside
45	22'	92"	96" Outside, 88" Inside
50	24'	96"	96" Outside, 88" Inside
55	26'	96"	96" Outside, 88" Inside
60	28'	96"	96" Outside, 88" Inside

ROLL-OFFS THAT WORK AS HARD AS YOU DO.

Attachment 4

EnSol, Inc.

ENGINEERING + ENVIRONMENTAL

Noise Evaluation

Noise Evaluation: NYSDEC Part 360 Noise Criteria
Proposed Dom-Mar Transfer and Recycling Facility
Town of Wawayanda, Orange County, NY

INTRODUCTION

DOM KAM LLC of Middletown, NY (DOM KAM) is the applicant for a proposed transfer station and recycling facility located at 1118 Dolsontown Road in Wawayanda, NY (Facility) which will be permitted with the New York State Department of Environmental Conservation (NYSDEC) as a Part 360-permitted solid waste management facility. This Noise Evaluation has been prepared to summarize detailed modeling of the projected noise levels produced by the Facility in comparison with the applicable NYSDEC regulations which are discussed in greater detail below. This evaluation has been completed via sound modeling using standard modeling techniques in general accordance with International Organization for Standardization standard ISO 9613-2 (Attenuation of Sound During Propagation Outdoors).

A depiction of the proposed facility is included as Attachment 1. It should be noted that this evaluation considers only operations of the proposed Facility, not construction of the Facility. The proposed operating hours of the Facility are 4am-7pm (Monday-Friday) and 5am-4pm (Saturday).

REGULATORY REQUIREMENTS – PART 360

Noise associated with the operation of the Facility will be governed by New York State under Title 6 of the Official Compilation of Codes, Rules and Regulations (6 NYCRR), Part 360: Solid Waste Management Facilities General Requirements. As related to noise, subdivision 360.19 (Operating Requirements), subdivision (j)(Noise), states,

> *The owner or operator of a facility must ensure that noise (other than that occurring during construction of the facility) resulting from equipment or operations at the facility does not exceed the following energy equivalent sound levels beyond the property line owned or controlled by the owner or operator of the facility at locations authorized for residential purposes:*

Community	***Leq Energy Equivalent Sound Levels***	
	7am - 10pm	***10pm - 7am***
Rural	*57 decibels (A)*	*47 decibels (A)*
Suburban	*62 decibels (A)*	*52 decibels (A)*
Urban	*67 decibels (A)*	*57 decibels (A)*

> *The L_{eq} is the equivalent steady-state sound level which contains the same acoustic energy as the time-varying sound level during a one-hour period. It is not necessary that the measurements be taken over a full one-hour time interval, but sufficient measurements must be available to allow for a valid extrapolation to a one-hour time interval.*

Currently published census data for zip code 10940 (of which, the Town is a part of) indicate a population density of 740 people per square mile. Therefore, per 6 NYCRR Part 360.2(b)(264), the Suburban Community standards of 52dB(A) at night (operating hours of 4am-7am) and 62dB(A) at day (operating hours of 7am-7pm) shall apply.

NOISE TERMINOLOGY

Sound results from traveling compression waves that move through the atmosphere. Sound from a single source can be schematically or graphically represented in the same manner as when an object is dropped into a still water body. The waves ripple outward and radiate away from the source or center in straight lines, decreasing in intensity as they travel outward. As sound waves pass through a point in the atmosphere, the waves result in an alternate compression and expansion of the air. Human perception of sound results from vibrations induced within the ear by these pressure waves.

The perceived loudness of a sound is directly proportional to the magnitude of the pressure fluctuations within a given sound wave. The larger the amplitude of the pressure fluctuation, the louder the sound is perceived by the human receptor. Sound pressure is measured in a unit called a Pascal (a measure of force per unit area of the air pressure wave). The human ear is sensitive to a very large range of sound pressures, from 0.00002 Pascals to 200 Pascals. In order to make the numbers more manageable, a logarithmic sound pressure scale known as the decibel scale is used. Each increase of 10 dB(A) is equivalent to 3.2 times greater sound pressure. Each increase of 20 dB(A) is equivalent to a ten-fold increase in sound pressure. The range of audible sound pressure levels that can be heard by the human ear is from 0 dB(A) to over 130 dB(A), which is the threshold of painful noise. The maximum achievable sound level is about 194 dB(A).

In contrast, the pitch of a sound is related to the frequency of the sound wave (the number of waves that pass any point in one second); high frequencies are associated with a high pitch and low frequencies are associated with a low pitch. In actuality, sound heard in everyday life generally consists of a range of frequencies and the perceived pitch reflects those frequencies that dominate in amplitude. The characterization of noise or sound therefore considers both its loudness, and frequency (pitch).

For analysis of environmental noise, the A-weighted decibel scale, or dB(A) scale, is generally used. This scale weighs different frequencies in a complex sound in proportion to the human ear's sensitivity and assigns one dB(A) value to the sound. The dB(A) scale provides a good measure of human perception of a sound's loudness, provides a good assessment of speech interference, and defines community disturbance conditions. This means the dB(A) scale is appropriate for measuring the impact of a new sound source on the existing audio environment. In addition to its recognition by the NYSDEC, the widely-gained acceptance and use of noise A-weighting is substantiated by the fact that the US EPA, Federal Aviation Administration (FAA), Department of Defense (DOD), and American Conference of Governmental Industrial Hygienists (ACGIH) have all adopted this measurement standard.

SITE LOCATION AND SURROUNDING AREA

The Facility is situated in a mixed residential/commercial environment, and surrounding property uses are depicted on Figure 1 and are also summarized as follows:

- North: Dolsontown Road then Residential and undeveloped commercial lots
- East: Commercial (tire & vehicle sales / self-storage)
- South: Interstate 84
- West: Undeveloped commercial lot

Topography of the Facility and surrounding area generally slopes in a southerly direction toward Monhagen Brook, which is located approximately 600 feet south of the Facility.

PRIMARY RECEPTORS

The primary noise receptors of concern in the vicinity of the Facility are three residential areas as follows:

- A residence located immediately north of the Facility across Dolsontown Road (lot 6-1-3.1 on Figure 1)
- A residence located approximately 1,300 feet northeast of the Facility (lot 1-1-3.221 on Figure 1)
- A residence located approximately 1,000 feet northwest of the Facility (lot 6-1-1 on Figure 1)

To determine compliance with NYSDEC regulatory guidance summarized above, noise levels were calculated at the property lines at each of these primary receptors (receiver numbers 1-3 in the model results discussed below).

FACILITY NOISE MODELING

A detailed model was developed to predict noise levels generated by operations at the Facility. All sound modeling was completed using the SoundPlan Essential software provided by Navcon Engineering Network. Assumptions regarding traffic and equipment operating on the site were developed based on projected Facility operations.

Noise generated at the Facility will fall into two categories: vehicular traffic and operations of site-related equipment as described below.

Modeling Scenarios

As described further below, the modeled day and night scenarios predicted the potential maximum equipment and traffic noise levels at the points of compliance using very conservative assumptions. It should also be noted that the primary noise sources at the Facility will be either on-site traffic (trucks and automobiles) or the operation of heavy equipment which is associated with material unloading, handling, and consolidation/loading to outbound tractor-trailers. Details of the heavy equipment and traffic modeling scenarios are described further below.

Model Inputs – Traffic

Noise resulting from predicted site vehicular traffic was modeled within the SoundPlan Essential software in accordance with the United States Department of Transportation Federal Highway Administration Traffic Noise Model TNM 3.0. There will be two distinct traffic patterns at the Facility as follows:

- The passenger car pattern which will be combined automobile traffic for Facility employees as well as customers using the residential drop off area.
- The primary trucking pattern which will be combined medium and heavy truck traffic for inbound and outbound materials as well as on-site traffic between the building and recyclables storage area
- The secondary trucking pattern which will consist only of heavy trucks that are loaded at the facility loading bays (located on the north wall of the recycling side of the building) and then must travel around the site perimeter in order to scale-out prior to leaving the site.

For the purpose of conservative modeling, the combined peak-hour traffic volumes were used for all

traffic types in both the night (4am-7am) and day (7am-7pm) scenarios. A detailed breakdown of those peak-hour volumes is presented below as Table 1. Modeling also assumed a maximum on-site vehicular traffic speed of 22 miles per hour (35 km/h) for all vehicle types.

Table 1
Summary of Modeled On-Site Peak Hour Traffic Volumes

Traffic Pattern	Vehicle Type	Night Volume (4am-7am)	Day Volume (7am-7pm)
Passenger Car	Automobiles (employees/users)	10	22
Primary Trucking	Medium Trucks (inbound)	5	12
	Heavy Trucks (outbound)	2	9*
Secondary Trucking	Heavy Trucks (outbound)	0	1

(*) includes combination of 6 trucks/hr for outbound loads and 3 trucks/hr for onsite transfers to recyclables storage area

Model Inputs – Industry

The transfer station is designed so that initial material deliveries are brought into the building via seven large overhead doors located on the south side of the building (facing away from Dolsontown Road and the residential receptor across the road). Outbound tractor-trailers will be loaded within the building and then exit the building through two large overhead doors on the north side of the building once loaded. To minimize noise emanating out of the front of the building, the outbound doors will only be opened to allow outbound vehicles to exit and will remain closed at all other times. This model assumes simultaneous and continuous operation of heavy equipment at representative locations within the building with all inbound (south wall) doors open as a conservative scenario. The Night scenario models the operation of two pieces of equipment, an excavator and front-end loader, on the waste side of the building (east side) only and the Day scenario includes the same equipment plus the addition of a second front-end loader and a wood chipper on the recycling side of the building (west side). Operations on the recycling side of the building will not be conducted prior to 7am to reduce noise generated by the facility prior to 7am.

Noise resulting from industrial sources (Facility equipment and machinery) was modeled in accordance with International Organization for Standardization standard ISO 9613-2 (Attenuation of Sound During Propagation Outdoors) (Attachment 2).

Noise generated from the excavator and front-end loaders, at a distance of 50 feet from the noise source, was assumed at levels of 85dB(A) and 80dB(A) respectively. These assumed values are based on Table 9.1 (Default Noise Emission Reference Levels and Usage Factors) of the Construction Noise Handbook published by the Federal Highway Administration which is included as Attachment 3. Noise generated from the wood chipper, at a distance of 50 feet from the noise source, was assumed at a level of 85dB(A) based on various published values for similar equipment.

The multiple sources are calculated within the model in consideration of the Additive Effects of Multiple Sound Sources theory which states that the total sound pressure created by multiple sound sources does not create a mathematical additive effect. For instance, two proximal noise sources that are 70dB(A) each do not have a combined noise level of 140dB(A). In this case the combined noise level is 73dB(A).

Model Inputs – Buildings

The SoundPlan modeling software considers the entire three-dimensional environment of the modeled

area, rather than completing just simple two-dimensional distance attenuation calculations. One of the four buildings currently existing on the property will remain in addition to the proposed Facility buildings as depicted in Attachment 1. All site buildings that will be present at the completion of the development were included in the model as well as the residential building located across Dolsontown Road. Buildings meet the definition of a screening barrier as discussed in section 7.4 of ISO 9613-2 and, to account for their anticipated effect on sound propagation, were incorporated into the model at assumed heights of six meters (existing residence and site building to remain) and twelve meters (proposed Facility buildings).

Model Inputs – Topography

As an additional consideration of the three-dimensional environment of the modeled area, SoundPlan uses ground elevation data published by Google Earth® as the base of the model, and all resulting model calculations consider the topography of the model area.

Model Attenuation Calculations – Distance Attenuation

The primary attenuation calculation is sound level reduction over distance. As defined in DEP-00-1, sound pressure levels (SPL) change in inverse proportion to the square of the distance from the sound source. At distances greater than 50 feet from a sound source, every doubling of the distance produces a 6dB reduction in the sound.

Model Attenuation Calculations – Landscape Buffer Zones

Existing heavily-vegetated areas consisting mainly of mature trees are present to the south and west of the proposed Facility. These buffer zones were incorporated in the model to include predictions of additional sound attenuation associated with vegetative buffer zones. All vegetative buffer zones were modeled at an assumed height of ten meters (mature trees). This model only includes vegetated areas that are currently present. The final site design includes planting of additional vegetative buffer areas which were not considered by the model and, once grown to mature height, will provide for additional attenuation.

Model Attenuation Calculations – Atmospheric Absorption

Additional noise attenuation via atmospheric absorption is also considered in the model in general accordance with section 7.2 of ISO 9613. The primary variables that affect atmospheric absorption are temperature, humidity, and pressure. As defined in Part 360.19(j)(5), noise assessments are allowed to utilize average annual conditions when calculating atmospheric absorption. This model was prepared based upon atmospheric conditions of a temperature of 48 degrees (F), humidity of 75%, and air pressure of 1,013mbar.

Model Attenuation Calculations – Ground Effect

The final attenuation effect included in the model calculation is the ground effect as defined in section 7.3 of ISO 9613. In summary, the ground effect applies additional attenuation of noise over soft (non-reflective) ground surfaces. The ground effect factor ranges from 0 (hard surfaces) to 1 (soft surfaces). A ground effect of 0 assumes complete reflectivity of the surface and therefore no additional ground effect attenuation would be applied to any ground surface defined with an effect factor of 0. For purposes of this model, the entire combined development footprint was assigned a ground effect factor of 0 and remaining undeveloped/vegetated areas within the model area were assigned a ground effect factor of 1.

Conservative Modeling Scenario

Using the inputs described above, "worst-case" operation scenarios were analyzed in this modeling effort consisting of the following variables:

- *Maximum potential on-site traffic loads.* The actual average traffic loads during typical Facility

day and night operations are lower; however, the maximum potential day and night hourly loads were used for modeling.

- *Simultaneous operation of equipment.* The model assumes simultaneous, and continuous, operation of the pieces of equipment described above (one excavator and one front-end loader during the night and one excavator, two loaders, and a wood chipper during the day). Simultaneous and continuous operation of these pieces of equipment is a condition that will rarely occur during actual Facility operations as the equipment will more typically be operated individually and on an intermittent basis. It should be noted that although there are others pieces of equipment that will be operated within the building (such as a pallet wrapper, baler, etc.) the modeled scenario is considered the "worst-case" scenario for simultaneous operations of equipment as operational constraints would not allow for simultaneous operations of all individual pieces of equipment within the facility.
- *Ground Effects.* As discussed above, a ground effect of 0 (hard surfaces) was applied to the entire development area. The development footprint contains multiple interior landscaped areas (soft surfaces). However the model considers the entire footprint as a hard surface for both conservative purposes and model simplicity.
- *Additional Vegetative Screening.* As indicated in Attachment 1, the final facility design may also include additional plantings along the western and northern facility boundaries. The primary purpose of these plantings will be for visual screening but, as they mature, they will also act as additional vegetative attenuation areas. However, for conservative modeling purposes, these areas were not included in this modeling effort.

Model Results

Using all modeling inputs and attenuation factors described above, the model was run and the final results are presented on Figures 2, 3, and 4 (attached). All model results are presented as 1-hour Leq values representing the scenarios defined above. Figure 2 displays the final predicted noise levels (from Facility operations only) at each of the receptor locations. Figures 3 and 4 respectively display color-coded heat maps of the predicted noise levels during proposed day and night Facility operations.

As indicated on Figure 2, the predicted noise levels at the NYSDEC Part 360.19 receptor receivers (residential property lines) range from 38.8 to 55.0dB(A). These values are also summarized in Table 2 below.

Table 2
Summary of Model Results – NYSDEC Part 360 Receivers

		Night Results (4am-7am)		Day Results (7am-7pm)	
#	Description	Regulatory Limit dB(A)	Receiver Result dB(A)	Regulatory Limit dB(A)	Receiver Result dB(A)
1	Residential P.L. (Lot # 6-1-3.1)	52	50.7	62	55.0
2	Residential P.L. (Lot # 6-1-1)	52	40.2	62	43.6
3	Residential P.L. (Lot # 1-1-3.221)	52	38.8	62	42.0

Note that the model displays only noise generated by the previously-described inputs.

CONCLUSIONS

Based upon the modeling effort, predicted noise levels at all residential property line receivers are lower than the respective Part 360 day and night suburban standards of 62dB(A) and 52dB(A). Also, as noted above, the "worst case" model scenario considers maximum operating conditions for conservative modeling purposes. The actual average noise output of the Facility is anticipated to be less than what is represented by this modeling scenario.

Figures
Figure 1 – Adjacent Properties
Figure 2 – Point Receiver Results
Figure 3 – Noise Map – Day
Figure 4 – Noise Map – Night

Attachments
Attachment 1 – Proposed Facility Site Plan
Attachment 2 – International Standard ISO 9613-2: Attenuation of Sound During Propagation Outdoors
Attachment 3 – FHWA Construction Noise Handbook, Chapter 9

Figures

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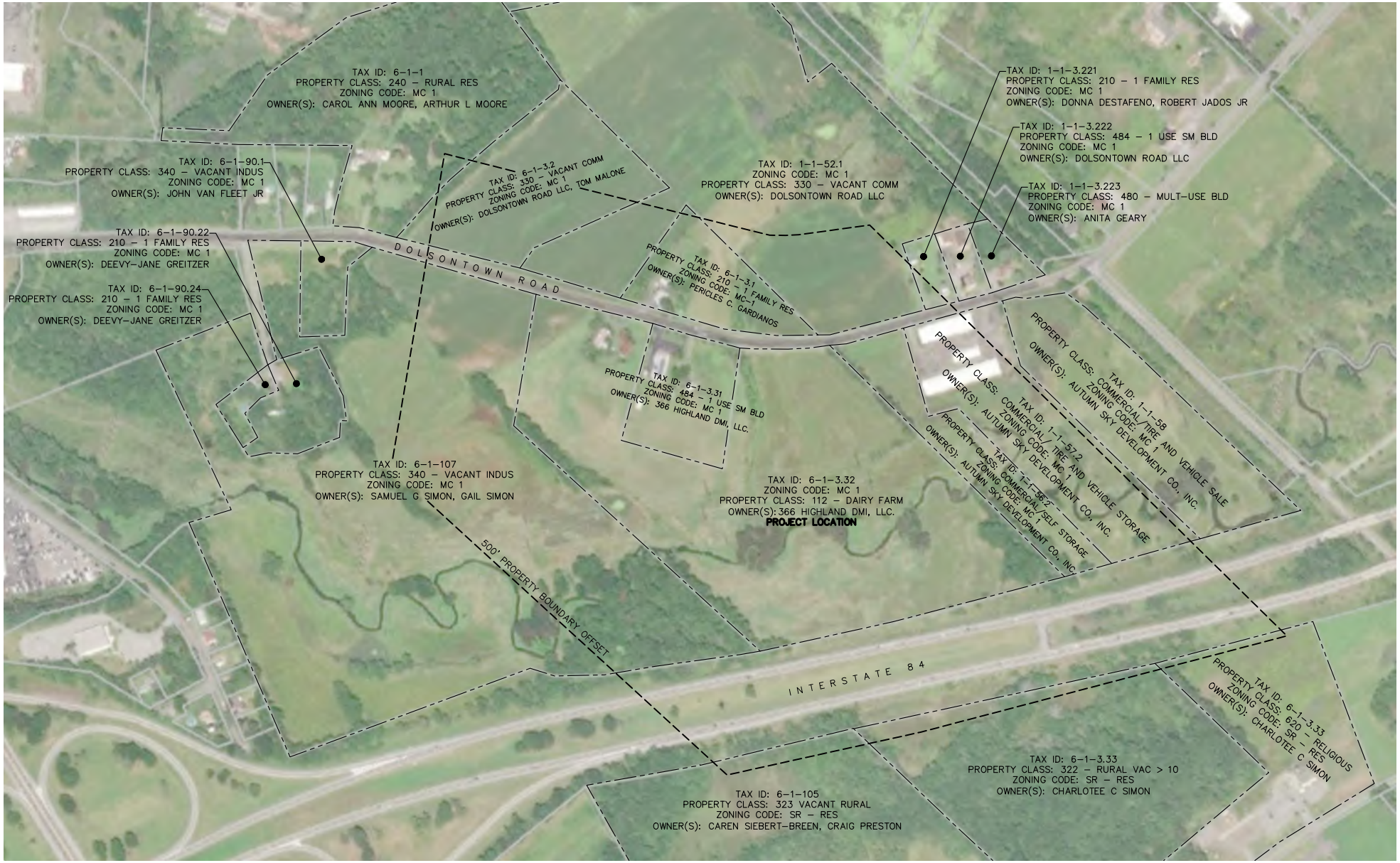

NOTES:

1. BASE MAP OBTAINED FROM THE ORANGE COUNTY GIS PARCEL VIEWER, ACCESSED ON 12/4/2020

N

SCALE: 300' 0' 300' 600'

ADJACENT PROPERTIES MAP

DOM-MAR TRANSFER AND RECYCLING FACILITY

DOM KAM LLC

EnSol
661 Main St.
Niagara Falls, NY 14301
716.285.3920

TOWN OF WAWAYANDA
COUNTY OF ORANGE
STATE OF NEW YORK

MARCH 2022

PN: 029-A0001

FIGURE 1

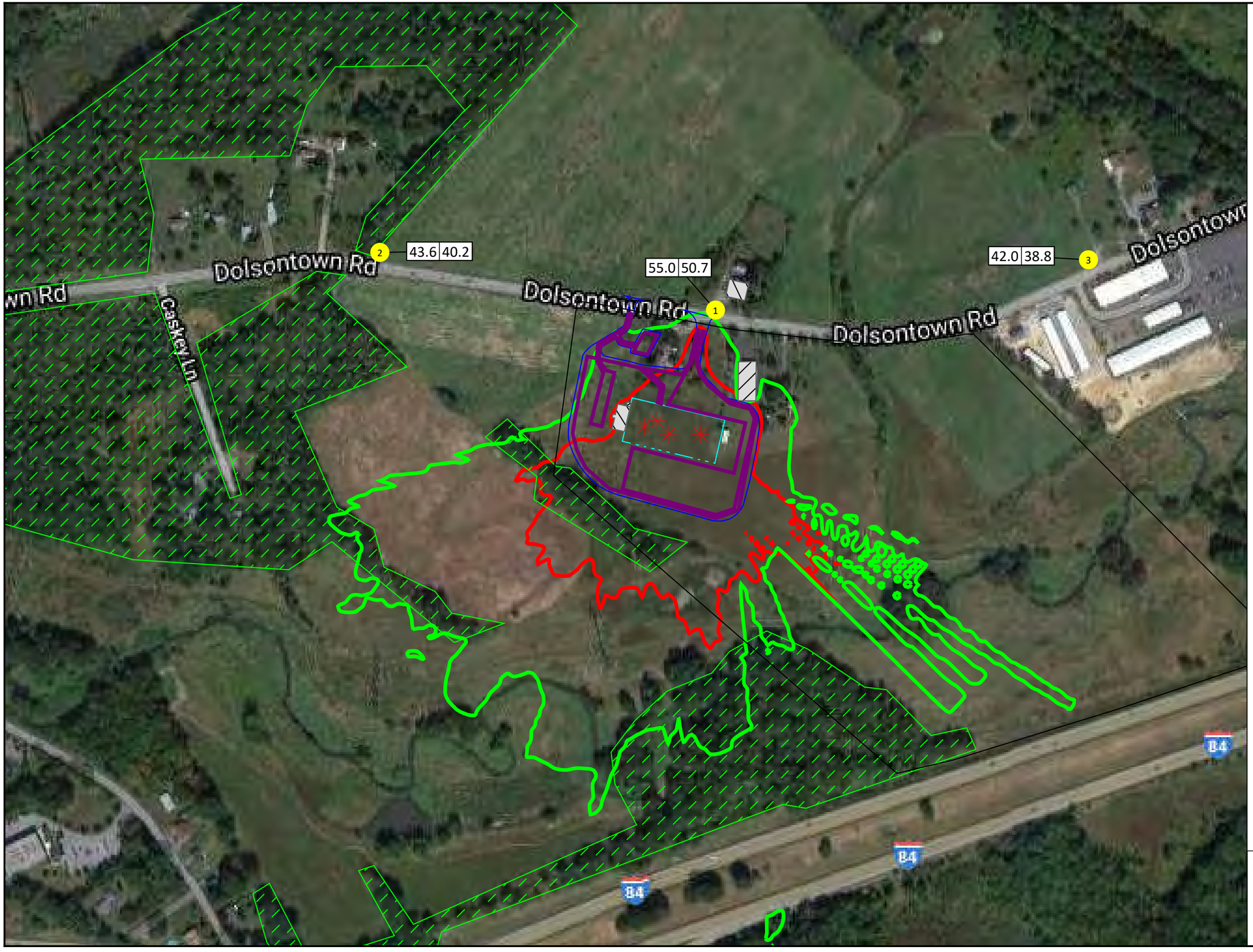

Figure 2
Point Reciever Results
Dom-Mar Transfer & Recycling Facility
Noise Evaluation

Red line = 62dB during the Day
four pieces of equipment running
and full traffic load (22 trucks & 22 cars/hr)

Green line = 52dB during the Night
three pieces of equipment running
and full traffic load (8 trucks & 10 cars/hr)

Recievers 1-3 located at closest property lines of nearby residences for NYSDEC 360 evaluation.

Predicted noise levels (dB(A)) at
Reciver locations:
Data box left cell = day results (7am-7pm)
Data box right cell = night results (4am-7am)

Ground atttenuation of entire
proposed development (blue line)
set at 0.0 (hard surface) for conservative
modeling purposes

Vegetative attenuation areas set at default height of 10 meters

Modeled Atmospheric Conditions:
Temperature = 48 F, Humidity = 75%
Air Pressure = 1,013 mbar

Noise modeling completed with SoundPlan Essential ver. 5.1 modeling software

Signs and symbols

- Property Line
- Ground effects
- Volume attenuation areas
- Wall
- Receiver
- Traffic Noise Emission Line
- Point source (site equipment)
- Limit line Day: 62 dB(A)
- Limit line Night: 52 dB(A)

N

0 50 100 200 300 400 feet

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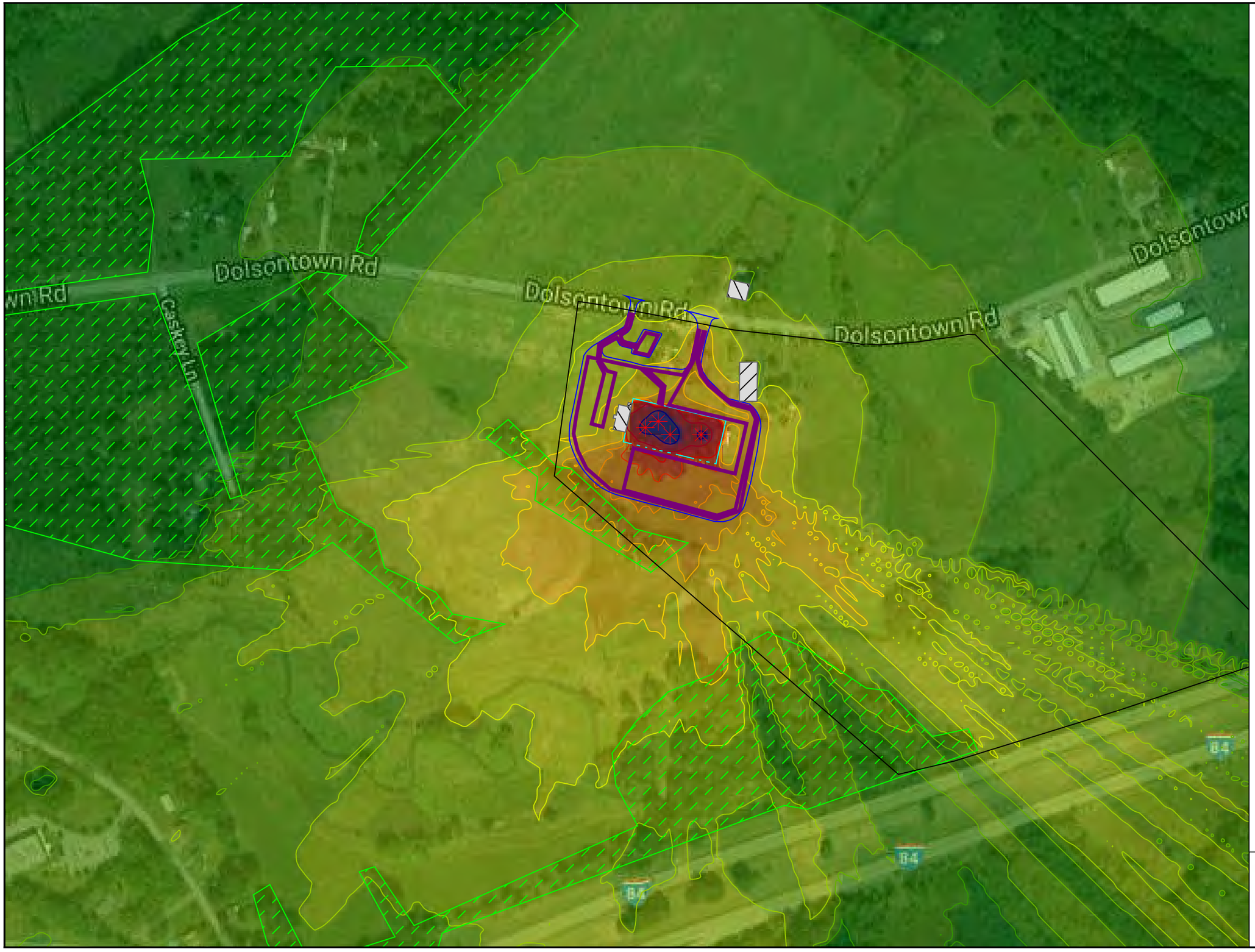

Figure 3
Noise Map - Day
Dom-Mar Transfer & Recycling Facility
Noise Evaluation

Day Time Operating Assumptions

1) Day operation hours:
   7am - 7pm (M-F)
   7am - 4pm (Sat)

2) Equipment
   One Excavator @ 85dB (at 50')
   Two Loaders @ 80dB (at 50')
   One Wood Grinder @ 85dB (at 50')

3) Simultaneous operation of all four pieces of equipment is a conservative modeling scenario as typical operations will likely include only simultaneous operation of one to two pieces of equipment.

4) Maximum anticipated hourly traffic volume of:
   22 cars (passenger car pattern)
   12 medium trucks (primary trucking pattern)
   9 heavy trucks (primary trucking pattern)
   1 heavy truck (secondary trucking pattern)

Signs and symbols

- Property Line
- Ground effects
- Volume attenuation areas
- Wall
- Traffic Noise Emission Line
- Point source (site equipment)

Levels in dB(A)

< 40
40 - 45
45 - 50
50 - 55
55 - 60
60 - 65
65 - 70
70 - 75
75 - 80
80 - 85
85 - 90
>= 90

N

0 50 100 200 300 400 feet

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Figure 4
Noise Map - Night
Dom-Mar Transfer & Recycling Facility Noise Evaluation

Night Time Operating Assumptions

1) Night operation hours:
   4am - 7am (M-F)
   5am - 7am (Sat)

2) Equipment
   One Excavator @ 85dB (at 50')*
   One Loader @ 80dB (at 50')*
   * - per FHWA Table 9.1

3) Simultaneous operation of both pieces of equipment is a conservative modeling scenario as typical operations will likely include operation of one piece of equipment.

4) Maximum anticipated hourly traffic volume of:
   10 cars (passenger car pattern)
   5 medium trucks (primary trucking pattern)
   2 heavy trucks (primary trucking pattern)

Signs and symbols

- Property Line
- Ground effects
- Volume attenuation areas
- Wall
- Traffic Noise Emission Line
- Point source (site equipment)

Levels in dB(A)

< 40
40 - 45
45 - 50
50 - 55
55 - 60
60 - 65
65 - 70
70 - 75
75 - 80
80 - 85
85 - 90
>= 90

N

0 50 100 200 300 400 feet

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Attachment 1

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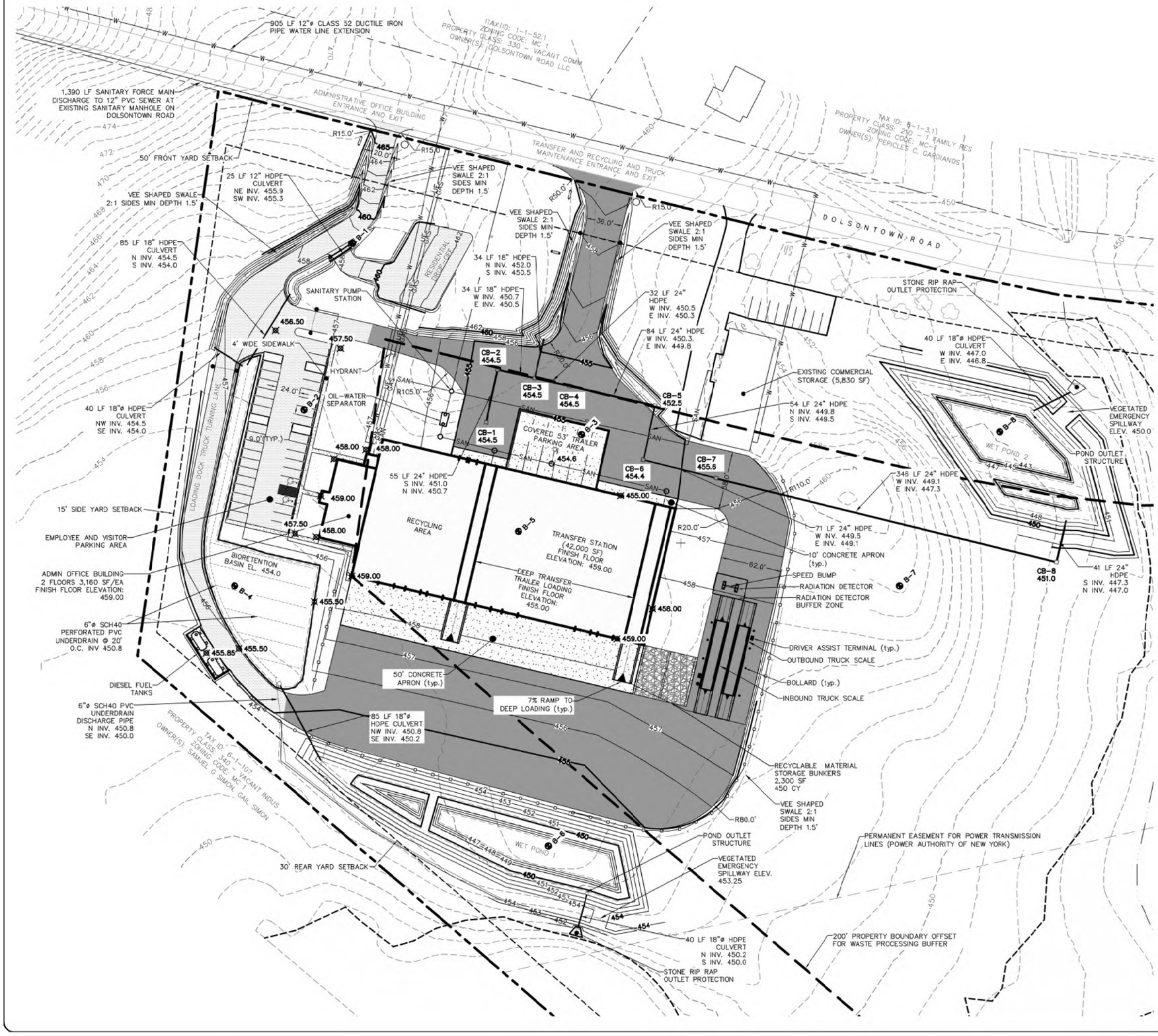
Proposed Facility Site Plan



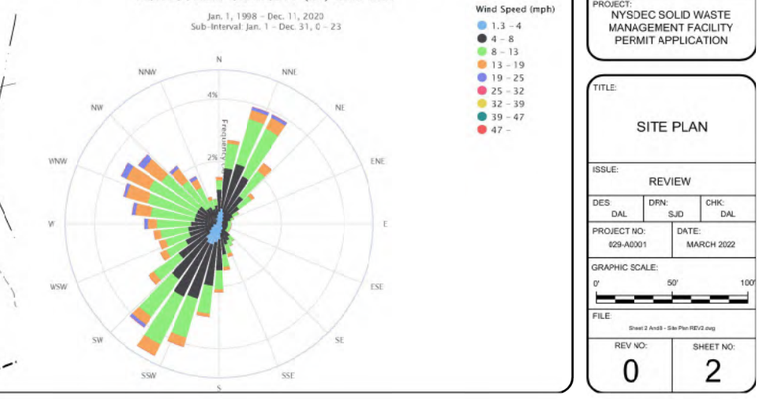
LEGEND:

- EXISTING GROUND MAJOR CONTOUR
- EXISTING GROUND MINOR CONTOUR
- PROPOSED GRADING MAJOR CONTOUR
- PROPOSED GRADING MINOR CONTOUR
- PROPERTY BOUNDARY
- PROPERTY BOUNDARY SETBACK
- EXISTING BUILDING
- JURISDICTIONAL FEDERAL WETLAND
- OUTDOOR SIGNAGE
- STANDARD DUTY PAVEMENT
- HEAVY DUTY PAVEMENT
- CONCRETE
- GRAVEL
- LITTER FENCE
- SANITARY SEWER
- WATER LINE
- UNDERGROUND ELECTRIC
- NATURAL GAS LINE
- PROPOSED SWALE
- PROPOSED STORM SEWER
- CB-1 454.50 — 3'X3' CATCH BASIN ID AND RIM ELEVATION
- LOCKING GATE
- B-3 — BOREHOLE LOCATION

NOTES:

1. EXISTING PROPERTY LINE, BUILDINGS AND TOPOGRAPHY FROM A SURVEY PREPARED FOR MIKE MARANGI, DATED NOVEMBER 16, 2020, BY LANC & TULLY ENGINEERING AND SURVEYING, P.C.
2. ELEVATIONS BASED ON NAVD88 DATUM, HORIZONTAL DATUM IS NEW YORK STATE PLANE EAST.
2. WETLAND BOUNDARIES AND THE FEDERAL JURISDICTION ARE FROM THE WETLAND DELINEATION REPORT FOR DOLSONTOWN ROAD PREPARED BY ENSOL, INC. DATED DECEMBER 2020. FEDERAL JURISDICTION WAS CONFIRMED THROUGH A JURISDICTIONAL DETERMINATION FROM THE UNITED STATES ARMY CORPS OF ENGINEERS DATED JANUARY 5, 2022 (APPLICATION NUMBER NAN-2021-00721-WOR). WETLAND FLAGS AND BOUNDARY LOCATION ARE FROM THE SURVEY PREPARED FOR MIKE MARANGI DATED NOVEMBER 16, 2020, PREPARED BY LANC & TULLEY ENGINEERING AND SURVEYING, P.C.
3. EACH RESIDENTIAL, INDUSTRIAL, COMMERCIAL SUBDIVISION OR SITE PLANS SHALL CONTRIBUTE RECREATIONAL FEES CALCULATED ON THE BASIS OF GROSS FLOOR AREA FOR ALL NEW CONSTRUCTION.
4. THE EXISTING COMMERCIAL STORAGE BUILDING WATER LINE SHALL BE DISCONNECTED FROM THE EXISTING WATER WELL AND CONNECTED TO THE EXTENDED WATER LINE ALONG DOLSONTOWN ROAD. THE SANITARY LINE SHALL BE DISCONNECTED FROM THE EXISTING SEPTIC SYSTEM AND DRAIN TO THE SANITARY PUMP STATION TO BE DISCHARGED TO THE EXISTING SEWER LINE ON DOLSONTOWN ROAD VIA A FORCE MAIN.
5. BASED ON THE NEW YORK STATE HISTORIC PRESERVATION OFFICE (SHPO) LETTER DATED JUNE 15TH 2021 AND THE PHASE 1 ARCHAEOLOGICAL INVESTIGATION FOR THE DOM-MAR TRANSFER AND RECYCLING CENTER, TOWN OF WAWAYANDA, ORANGE COUNTY, NEW YORK, PERFORMED BY TRACKER ARCHAEOLOGY OF MONROE, NEW YORK, NO EVIDENCE OF ARCHEOLOGICAL SITES WERE FOUND WITHIN THE PROJECT'S AREA OF POTENTIAL EFFECTS. THE APPROXIMATE LOCATION OF A NEW YORK STATE MUSEUM-RECORDED ARCHAEOLOGICAL SITE NYSM 6169 DESCRIBED AS "CEMETERY" IS MAPPED IN THE PROJECT AREA. THE SHPO HUMAN REMAINS DISCOVERY PROTOCOL DATED JANUARY 2021 SHALL BE IMPLEMENTED SHOULD ANY EVIDENCE OF HUMAN REMAINS OR POSSIBLE BURIAL GROUNDS BE ENCOUNTERED DURING CONSTRUCTION.

MONTGOMERY ORANGE AP (NY) Wind Rose



IT IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW, ARTICLE 145 SECTION 7209, FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER OR LAND SURVEYOR TO ALTER AN ITEM IN ANY WAY.

NO.	REVISION	BY	DATE

EnSol
661 Main St.
Niagara Falls, NY 14301
716.285.3920

DAVIDA. LENOX, P.E.
NYSPE LICENSE NO. 093384

CLIENT: DOM KAM LLC

SITE: DOM-MAR TRANSFER AND RECYCLING FACILITY
TOWN OF WAWAYANDA
COUNTY OF ORANGE
STATE OF NEW YORK

PROJECT: NYSDEC SOLID WASTE MANAGEMENT FACILITY PERMIT APPLICATION

TITLE: SITE PLAN

ISSUE: REVIEW

DES	DRN:	CHK:
DAL	SJD	DAL

PROJECT NO: 029-A0001
DATE: MARCH 2022

GRAPHIC SCALE: 0' 50' 100'

FILE: Sheet 2 And 8 - Site Plan REV2.dwg

REV NO: 0
SHEET NO: 2

X:\AA\pj\Marangi Disposal\029-A0001 TS Permit Application\Drawings\1. NYSDEC Part 360 Application Drawings\NYSDEC Part 360 Permit Drawings\Sheet 2 and 8 - Site Plan REV2.dwg, 3/3/2022 9:20:28 AM

Attachment 2

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International Standard ISO 9613-2: Attenuation of Sound During Propagation Outdoors

INTERNATIONAL STANDARD

ISO 9613-2

First edition
1996-12-15

Reproduced By GLOBAL
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Under Royalty Agreement

Acoustics — Attenuation of sound during propagation outdoors —

Part 2:
General method of calculation

Acoustique — Atténuation du son lors de sa propagation à l'air libre —
Partie 2: Méthode générale de calcul

Reference number
ISO 9613-2:1996(E)

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 9613-2 was prepared by Technical Committee ISO/TC 43, *Acoustics*, Subcommittee SC 1, *Noise*.

ISO 9613 consists of the following parts, under the general title *Acoustics — Attenuation of sound during propagation outdoors:*

— *Part 1: Calculation of the absorption of sound by the atmosphere*

— *Part 2: General method of calculation*

Part 1 is a detailed treatment restricted to the attenuation by atmospheric absorption processes. Part 2 is a more approximate and empirical treatment of a wider subject — the attenuation by all physical mechanisms.

Annexes A and B of this part of ISO 9613 are for information only.

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International Organization for Standardization
Case Postale 56 • CH-1211 Genève 20 • Switzerland

Printed in Switzerland

Introduction

The ISO 1996 series of standards specifies methods for the description of noise outdoors in community environments. Other standards, on the other hand, specify methods for determining the sound power levels emitted by various noise sources, such as machinery and specified equipment (ISO 3740 series), or industrial plants (ISO 8297). This part of ISO 9613 is intended to bridge the gap between these two types of standard, to enable noise levels in the community to be predicted from sources of known sound emission. The method described in this part of ISO 9613 is general in the sense that it may be applied to a wide variety of noise sources, and covers most of the major mechanisms of attenuation. There are, however, constraints on its use, which arise principally from the description of environmental noise in the ISO 1996 series of standards.

Acoustics — Attenuation of sound during propagation outdoors —

Part 2:
General method of calculation

1 Scope

This part of ISO 9613 specifies an engineering method for calculating the attenuation of sound during propagation outdoors in order to predict the levels of environmental noise at a distance from a variety of sources. The method predicts the equivalent continuous A-weighted sound pressure level (as described in parts 1 to 3 of ISO 1996) under meteorological conditions favourable to propagation from sources of known sound emission.

These conditions are for downwind propagation, as specified in 5.4.3.3 of ISO 1996-2:1987 or, equivalently, propagation under a well-developed moderate ground-based temperature inversion, such as commonly occurs at night. Inversion conditions over water surfaces are not covered and may result in higher sound pressure levels than predicted from this part of ISO 9613.

The method also predicts a long-term average A-weighted sound pressure level as specified in ISO 1996-1 and ISO 1996-2. The long-term average A-weighted sound pressure level encompasses levels for a wide variety of meteorological conditions.

The method specified in this part of ISO 9613 consists specifically of octave-band algorithms (with nominal midband frequencies from 63 Hz to 8 kHz) for calculating the attenuation of sound which originates from a point sound source, or an assembly of point sources. The source (or sources) may be moving or stationary. Specific terms are provided in the algorithms for the following physical effects:

— geometrical divergence;
— atmospheric absorption;
— ground effect;
— reflection from surfaces;
— screening by obstacles.

Additional information concerning propagation through housing, foliage and industrial sites is given in annex A.

This method is applicable in practice to a great variety of noise sources and environments. It is applicable, directly or indirectly, to most situations concerning road or rail traffic, industrial noise sources, construction activities, and many other ground-based noise sources. It does not apply to sound from aircraft in flight, or to blast waves from mining, military or similar operations.

To apply the method of this part of ISO 9613, several parameters need to be known with respect to the geometry of the source and of the environment, the ground surface characteristics, and the source strength in terms of octave-band sound power levels for directions relevant to the propagation.

NOTE 1 If only A-weighted sound power levels of the sources are known, the attenuation terms for 500 Hz may be used to estimate the resulting attenuation.

The accuracy of the method and the limitations to its use in practice are described in clause 9.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 9613. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 9613 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 1996-1:1982, *Acoustics — Description and measurement of environmental noise — Part 1: Basic quantities and procedures.*

ISO 1996-2:1987, *Acoustics — Description and measurement of environmental noise — Part 2: Acquisition of data pertinent to land use.*

ISO 1996-3:1987, *Acoustics — Description and measurement of environmental noise — Part 3: Application to noise limits.*

ISO 9613-1:1993, *Acoustics — Attenuation of sound during propagation outdoors — Part 1: Calculation of the absorption of sound by the atmosphere.*

IEC 651:1979, *Sound level meters,* and Amendment 1:1993.

3 Definitions

For the purposes of this part of ISO 9613, the definitions given in ISO 1996-1 and the following definitions apply. (See table 1 for symbols and units.)

3.1 equivalent continuous A-weighted sound pressure level, L_{AT}: Sound pressure level, in decibels, defined by equation (1):

$$L_{AT} = 10 \lg \left\{ \left[(1/T) \int_0^T p_A^2(t)\, dt \right] \Big/ p_0^2 \right\} \quad \text{dB} \qquad \ldots (1)$$

where

$p_A(t)$ is the instantaneous A-weighted sound pressure, in pascals;

p_0 is the reference sound pressure ($= 20 \times 10^{-6}$ Pa);

T is a specified time interval, in seconds.

The A-frequency weighting is that specified for sound level meters in IEC 651.

NOTE 2 The time interval T should be long enough to average the effects of varying meteorological parameters. Two different situations are considered in this part of ISO 9613, namely short-term downwind and long-term overall averages.

Table 1 — Symbols and units

Symbol	Definition	Unit
A	octave-band attenuation	dB
C_{met}	meteorological correction	dB
d	distance from point source to receiver (see figure 3)	m
d_p	distance from point source to receiver projected onto the ground plane (see figure 1)	m
$d_{s,o}$	distance between source and point of reflection on the reflecting obstacle (see figure 8)	m
$d_{o,r}$	distance between point of reflection on the reflecting obstacle and receiver (see figure 8)	m
d_{ss}	distance from source to (first) diffraction edge (see figures 6 and 7)	m
d_{sr}	distance from (second) diffraction edge to receiver (see figures 6 and 7)	m
D_I	directivity index of the point sound source	—
D_z	screening attenuation	—
e	distance between the first and second diffraction edge (see figure 7)	m
G	ground factor	—
h	mean height of source and receiver	m
h_s	height of point source above ground (see figure 1)	m
h_r	height of receiver above ground (see figure 1)	m
h_m	mean height of the propagation path above the ground (see figure 3)	m
H_{max}	largest dimension of the sources	m
l_{min}	minimum dimension (length or height) of the reflecting plane (see figure 8)	m
L	sound pressure level	dB
α	atmospheric attenuation coefficient	dB/km
β	angle of incidence	rad
ρ	sound reflection coefficient	—

3.2 equivalent continuous downwind octave-band sound pressure level, L_{fT}(DW)**:** Sound pressure level, in decibels, defined by equation (2):

$$L_{fT}(\mathrm{DW}) = 10 \lg \left\{ \left[(1/T) \int_0^T p_f^2(t)\, \mathrm{d}t \right] \Big/ p_0^2 \right\} \quad \mathrm{dB} \qquad \ldots (2)$$

where $p_f(t)$ is the instantaneous octave-band sound pressure downwind, in pascals, and the subscript f represents a nominal midband frequency of an octave-band filter.

NOTE 3 The electrical characteristics of the octave-band filters should comply at least with the class 2 requirements of IEC 1260.

3.3 insertion loss (of a barrier)**:** Difference, in decibels, between the sound pressure levels at a receiver in a specified position under two conditions:

a) with the barrier removed, and

b) with the barrier present (inserted),

and no other significant changes that affect the propagation of sound.

4 Source description

The equations to be used are for the attenuation of sound from point sources. Extended noise sources, therefore, such as road and rail traffic or an industrial site (which may include several installations or plants, together with traffic moving on the site) shall be represented by a set of sections (cells), each having a certain sound power and directivity. Attenuation calculated for sound from a representative point within a section is used to represent the attenuation of sound from the entire section. A line source may be divided into line sections, an area source into area sections, each represented by a point source at its centre.

However, a group of point sources may be described by an equivalent point sound source situated in the middle of the group, in particular if

a) the sources have approximately the same strength and height above the local ground plane,

b) the same propagation conditions exist from the sources to the point of reception, and

c) the distance d from the single equivalent point source to the receiver exceeds twice the largest dimension H_{max} of the sources ($d > 2H_{max}$).

If the distance d is smaller ($d \leqslant 2H_{max}$), or if the propagation conditions for the component point sources are different (e.g. due to screening), the total sound source shall be divided into its component point sources.

NOTE 4 In addition to the real sources described above, image sources will be introduced to describe the reflection of sound from walls and ceilings (but not by the ground), as described in 7.5.

5 Meteorological conditions

Downwind propagation conditions for the method specified in this part of ISO 9613 are as specified in 5.4.3.3 of ISO 1996-2:1987, namely

— wind direction within an angle of ± 45° of the direction connecting the centre of the dominant sound source and the centre of the specified receiver region, with the wind blowing from source to receiver, and

— wind speed between approximately 1 m/s and 5 m/s, measured at a height of 3 m to 11 m above the ground.

The equations for calculating the average downwind sound pressure level L_{AT}(DW) in this part of ISO 9613, including the equations for attenuation given in clause 7, are the average for meteorological conditions within these limits. The term average here means the average over a short time interval, as defined in 3.1.

These equations also hold, equivalently, for average propagation under a well-developed moderate ground-based temperature inversion, such as commonly occurs on clear, calm nights.

6 Basic equations

The equivalent continuous downwind octave-band sound pressure level at a receiver location, L_{fT}(DW), shall be calculated for each point source, and its image sources, and for the eight octave bands with nominal midband frequencies from 63 Hz to 8 kHz, from equation (3):

$$L_{fT}(\mathrm{DW}) = L_W + D_c - A \qquad \ldots (3)$$

where

L_W is the octave-band sound power level, in decibels, produced by the point sound source relative to a reference sound power of one picowatt (1 pW);

D_c is the directivity correction, in decibels, that describes the extent by which the equivalent continuous sound pressure level from the point sound source deviates in a specified direction from the level of an omnidirectional point sound source producing sound power level L_W; D_c equals the directivity index D_I of the point sound source plus an index D_Ω that accounts for sound propagation into solid angles less than 4π steradians; for an omnidirectional point sound source radiating into free space, D_c = 0 dB;

A is the octave-band attenuation, in decibels, that occurs during propagation from the point sound source to the receiver.

NOTES

5 The letter symbol A (in italic type) signifies attenuation in this part of ISO 9613 except in subscripts, where it designates the A-frequency weighting (in roman type).

6 Sound power levels in equation (3) may be determined from measurements, for example as described in the ISO 3740 series (for machinery) or in ISO 8297 (for industrial plants).

The attenuation term A in equation (3) is given by equation (4):

$$A = A_{div} + A_{atm} + A_{gr} + A_{bar} + A_{misc} \quad \ldots (4)$$

where

A_{div} is the attenuation due to geometrical divergence (see 7.1);

A_{atm} is the attenuation due to atmospheric absorption (see 7.2);

A_{gr} is the attenuation due to the ground effect (see 7.3);

A_{bar} is the attenuation due to a barrier (see 7.4);

A_{misc} is the attenuation due to miscellaneous other effects (see annex A).

General methods for calculating the first four terms in equation (4) are specified in this part of ISO 9613. Information on three contributions to the last term, A_{misc} (the attenuation due to propagation through foliage, industrial sites and areas of houses), is given in annex A.

The equivalent continuous A-weighted downwind sound pressure level shall be obtained by summing the contributing time-mean-square sound pressures calculated according to equations (3) and (4) for each point sound source, for each of their image sources, and for each octave band, as specified by equation (5):

$$L_{AT}(DW) = 10 \lg \left\{ \sum_{i=1}^{n} \left[\sum_{j=1}^{8} 10^{0,1\left[L_{ft}(ij) + A_f(j)\right]} \right] \right\} \text{ dB} \quad \ldots (5)$$

where

n is the number of contributions i (sources and paths);

j is an index indicating the eight standard octave-band midband frequencies from 63 Hz to 8 kHz;

A_f denotes the standard A-weighting (see IEC 651).

The long-term average A-weighted sound pressure level L_{AT}(LT) shall be calculated according to

$$L_{AT}(LT) = L_{AT}(DW) - C_{met} \quad \ldots (6)$$

where C_{met} is the meteorological correction described in clause 8.

The calculation and significance of the various terms in equations (1) to (6) are explained in the following clauses. For a more detailed treatment of the attenuation terms, see the literature references given in annex B.

7 Calculation of the attenuation terms

7.1 Geometrical divergence (A_{div})

The geometrical divergence accounts for spherical spreading in the free field from a point sound source, making the attenuation, in decibels, equal to

$$A_{div} = \left[20 \lg(d/d_0) + 11\right] \text{ dB} \quad \ldots (7)$$

where

d is the distance from the source to receiver, in metres;

d_0 is the reference distance (= 1 m).

NOTE 7 The constant in equation (7) relates the sound power level to the sound pressure level at a reference distance d_0 which is 1 m from an omnidirectional point sound source.

7.2 Atmospheric absorption (A_{atm})

The attenuation due to atmospheric absorption A_{atm}, in decibels, during propagation through a distance d, in metres, is given by equation (8):

$$A_{atm} = \alpha d/1\,000 \quad \ldots (8)$$

where α is the atmospheric attenuation coefficient, in decibels per kilometre, for each octave band at the midband frequency (see table 2).

For values of α at atmospheric conditions not covered in table 2, see ISO 9613-1.

NOTES

8 The atmospheric attenuation coefficient depends strongly on the frequency of the sound, the ambient temperature and relative humidity of the air, but only weakly on the ambient pressure.

9 For calculation of environmental noise levels, the atmospheric attenuation coefficient should be based on average values determined by the range of ambient weather which is relevant to the locality.

7.3 Ground effect (A_{gr})

7.3.1 General method of calculation

Ground attenuation, A_{gr}, is mainly the result of sound reflected by the ground surface interfering with the sound propagating directly from source to receiver. The downward-curving propagation path (downwind) ensures that this attenuation is determined primarily by the ground surfaces near the source and near the receiver. This method of calculating the ground effect is applicable only to ground which is approximately flat, either horizontally or with a constant slope. Three distinct regions for ground attenuation are specified (see figure 1):

a) the source region, stretching over a distance from the source towards the receiver of $30h_s$, with a maximum distance of d_p (h_s is the source height, and d_p the distance from source to receiver, as projected on the ground plane);

b) the receiver region, stretching over a distance from the receiver back towards the source of $30h_r$, with a maximum distance of d_p (h_r is the receiver height);

c) a middle region, stretching over the distance between the source and receiver regions. If $d_p < (30h_s + 30h_r)$, the source and receiver regions will overlap, and there is no middle region.

According to this scheme, the ground attenuation does not increase with the size of the middle region, but is mostly dependent on the properties of source and receiver regions.

The acoustical properties of each ground region are taken into account through a ground factor G. Three categories of reflecting surface are specified as follows.

Table 2 — Atmospheric attenuation coefficient α for octave bands of noise

Temperature	Relative humidity	Atmospheric attenuation coefficient α, dB/km							
		Nominal midband frequency, Hz							
°C	%	63	125	250	500	1 000	2 000	4 000	8 000
10	70	0,1	0,4	1,0	1,9	3,7	9,7	32,8	117
20	70	0,1	0,3	1,1	2,8	5,0	9,0	22,9	76,6
30	70	0,1	0,3	1,0	3,1	7,4	12,7	23,1	59,3
15	20	0,3	0,6	1,2	2,7	8,2	28,2	88,8	202
15	50	0,1	0,5	1,2	2,2	4,2	10,8	36,2	129
15	80	0,1	0,3	1,1	2,4	4,1	8,3	23,7	82,8

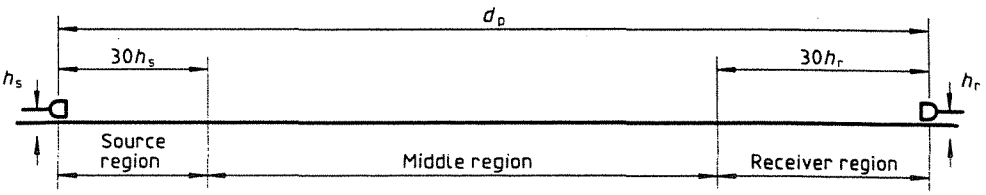


Figure 1 — Three distinct regions for determination of ground attenuation

a) **Hard ground,** which includes paving, water, ice, concrete and all other ground surfaces having a low porosity. Tamped ground, for example, as often occurs around industrial sites, can be considered hard. For hard ground $G = 0$.

NOTE 10 It should be recalled that inversion conditions over water are not covered by this part of ISO 9613.

b) **Porous ground,** which includes ground covered by grass, trees or other vegetation, and all other ground surfaces suitable for the growth of vegetation, such as farming land. For porous ground $G = 1$.

c) **Mixed ground:** if the surface consists of both hard and porous ground, then G takes on values ranging from 0 to 1, the value being the fraction of the region that is porous.

To calculate the ground attenuation for a specific octave band, first calculate the component attenuations A_s for the source region specified by the ground factor G_s (for that region), A_r for the receiver region specified by the ground factor G_r, and A_m for the middle region specified by the ground factor G_m, using the expressions in table 3. (Alternatively, the functions a', b', c' and d' in table 3 may be obtained directly from the curves in figure 2.) The total ground attenuation for that octave band shall be obtained from equation (9):

$$A_{gr} = A_s + A_r + A_m \quad \ldots (9)$$

NOTE 11 In regions with buildings, the influence of the ground on sound propagation may be changed (see A.3).

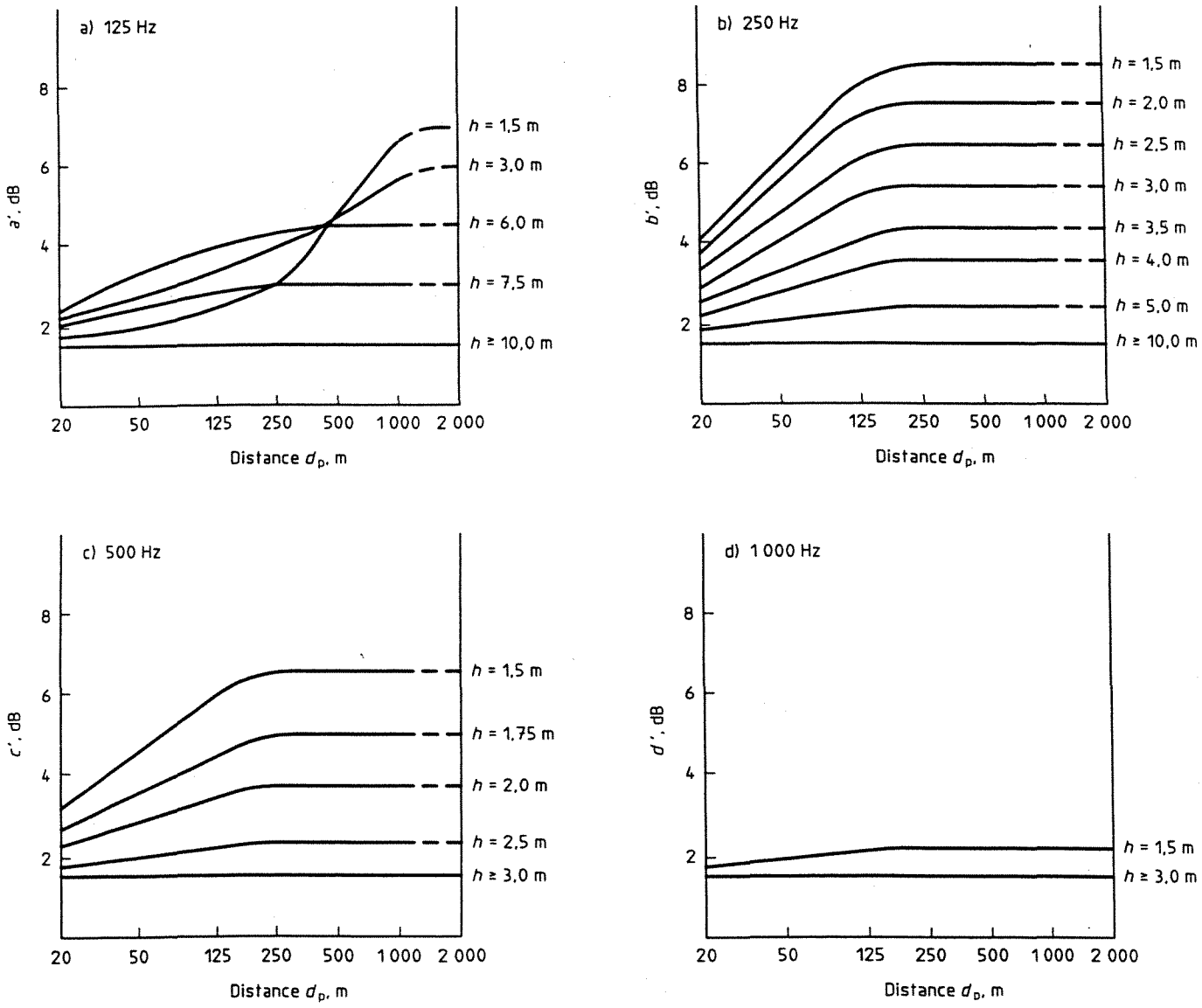


Figure 2 — Functions a', b', c' and d' representing the influence of the source-to-receiver distance d_p and the source or receiver height h, respectively, on the ground attenuation A_s (computed from equations in table 3)

Table 3 — Expressions to be used for calculating ground attenuation contributions A_s, A_r and A_m in octave bands

Nominal midband frequency Hz	A_s or A_r [1] dB	A_m dB
63	$-1,5$	$-3q$ [2]
125	$-1,5 + G \times a'(h)$	$-3q(1 - G_m)$
250	$-1,5 + G \times b'(h)$	
500	$-1,5 + G \times c'(h)$	
1 000	$-1,5 + G \times d(h)$	
2 000	$-1,5(1 - G)$	
4 000	$-1,5(1 - G)$	
8 000	$-1,5(1 - G)$	

NOTES

$$a'(h) = 1,5 + 3,0 \times e^{-0,12(h-5)^2}\left(1 - e^{-d_p/50}\right) + 5,7 \times e^{-0,09h^2}\left(1 - e^{-2,8 \times 10^{-6} \times d_p^2}\right)$$

$$b'(h) = 1,5 + 8,6 \times e^{-0,09h^2}\left(1 - e^{-d_p/50}\right)$$

$$c'(h) = 1,5 + 14,0 \times e^{-0,46h^2}\left(1 - e^{-d_p/50}\right)$$

$$d'(h) = 1,5 + 5,0 \times e^{-0,9h^2}\left(1 - e^{-d_p/50}\right)$$

1) For calculating A_s, take $G = G_s$ and $h = h_s$. For calculating A_r, take $G = G_r$ and $h = h_r$. See 7.3.1 for values of G for various ground surfaces.

2) $q = 0$ when $d_p \leqslant 30(h_s + h_r)$

$$q = 1 - \frac{30(h_s + h_r)}{d_p} \quad \text{when } d_p > 30(h_s + h_r)$$

where d_p is the source-to-receiver distance, in metres, projected onto the ground planes.

7.3.2 Alternative method of calculation for A-weighted sound pressure levels

Under the following specific conditions

— only the A-weighted sound pressure level at the receiver position is of interest,

— the sound propagation occurs over porous ground or mixed ground most of which is porous (see 7.3.1),

— the sound is not a pure tone,

and for ground surfaces of any shape, the ground attenuation may be calculated from equation (10):

$$A_{gr} = 4,8 - (2h_m/d)\left[17 + (300/d)\right] \geqslant 0 \text{ dB} \quad \ldots (10)$$

where

h_m is the mean height of the propagation path above the ground, in metres;

d is the distance from the source to receiver, in metres.

The mean height h_m may be evaluated by the method shown in figure 3. Negative values for A_{gr} from equation (10) shall be replaced by zeros.

NOTE 12 For short distances d, equation (10) predicts no attenuation and equation (9) may be more accurate.

When the ground attenuation is calculated using equation (10), the directivity correction D_c in equation (3) shall include a term D_Ω, in decibels, to account for the apparent increase in sound power level of the source due to reflections from the ground near the source.

$$D_\Omega = 10 \lg\left\{1 + \left[d_p^2 + (h_s - h_r)^2\right] \Big/ \left[d_p^2 + (h_s + h_r)^2\right]\right\} \text{ dB} \quad \ldots (11)$$

where

h_s is the height of the source above the ground, in metres;

h_r is the height of the receiver above the ground, in metres;

d_p is the source-to-receiver distance projected onto the ground plane, in metres.

7.4 Screening (A_{bar})

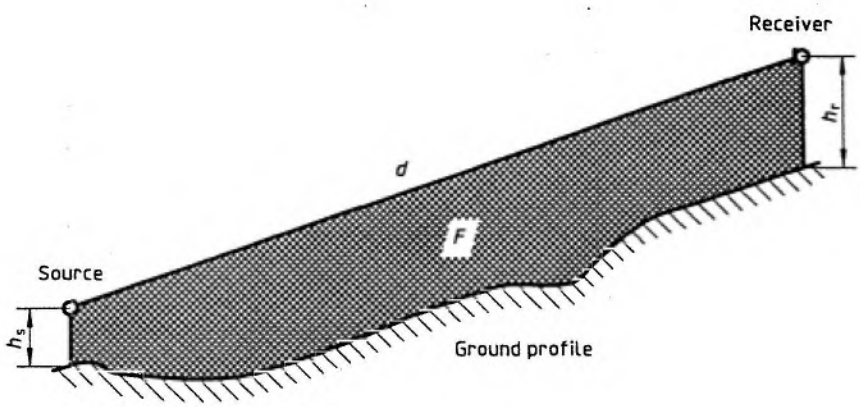
An object shall be taken into account as a screening obstacle (often called a barrier) if it meets the following requirements:

— the surface density is at least 10 kg/m^2;

— the object has a closed surface without large cracks or gaps (consequently process installations in chemical plants, for example, are ignored);

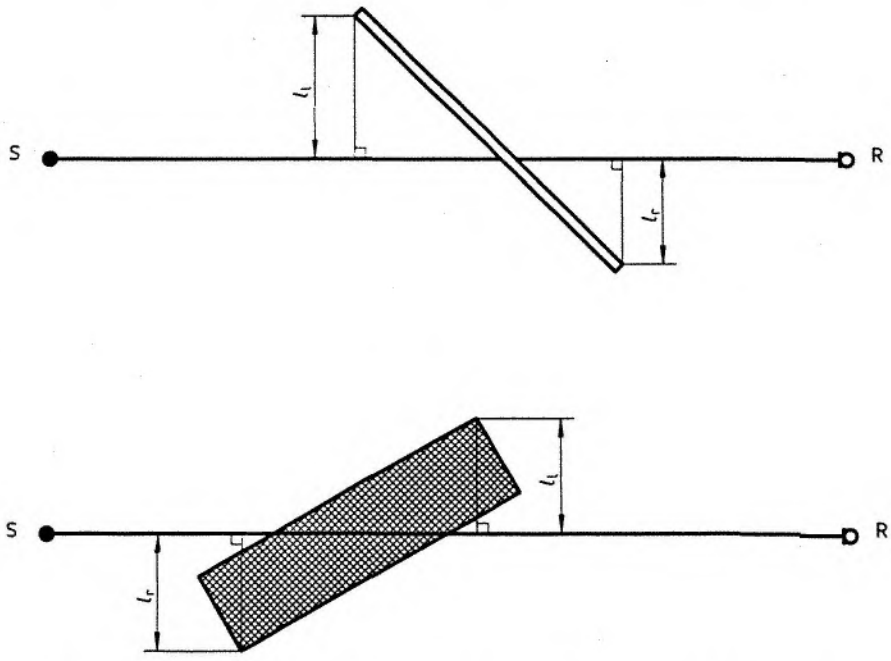
— the horizontal dimension of the object normal to the source-receiver line is larger than the acoustic wavelength λ at the nominal midband frequency for the octave band of interest; in other words $l_l + l_r > \lambda$ (see figure 4).

Each object that fulfils these requirements shall be represented by a barrier with vertical edges. The top edge of the barrier is a straight line that may be sloping.



$h_m = F/d$, where F is the area

Figure 3 — Method for evaluating the mean height h_m



NOTE — An object is only considered to be a screening obstacle when its horizontal dimension perpendicular to the source-receiver line SR is larger than the wavelength: $(l_l + l_r) > \lambda$

Figure 4 — Plan view of two obstacles between the source (S) and the receiver (R)

For the purposes of this part of ISO 9613, the attenuation by a barrier, A_{bar}, shall be given by the insertion loss. Diffraction over the top edge and around a vertical edge of a barrier may both be important. (See figure 5.) For downwind sound propagation, the effect of diffraction (in decibels) over the top edge shall be calculated by

$$A_{bar} = D_z - A_{gr} > 0 \quad \ldots (12)$$

and for diffraction around a vertical edge by

$$A_{bar} = D_z > 0 \quad \ldots (13)$$

where

D_z is the barrier attenuation for each octave band [see equation (14)];

A_{gr} is the ground attenuation **in the absence of the barrier** (i.e. with the screening obstacle removed) (see 7.3).

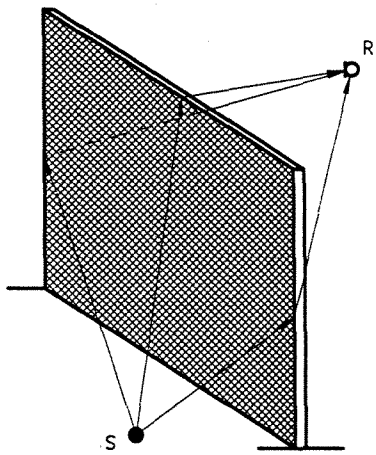


Figure 5 — Different sound propagation paths at a barrier

NOTES

13 When A_{bar} as defined by equation (12) is substituted in equation (4) to find the total attenuation A, the two A_{gr} terms in equation (4) will cancel. The barrier attenuation D_z in equation (12) then includes the effect of the ground in the presence of the barrier.

14 For large distances and high barriers, the insertion loss calculated by equation (12) is not sufficiently confirmed by measurements.

15 In calculation of the insertion loss for multisource industrial plants by high buildings (more than 10 m above the ground), and also for high-noise sources within the plant, equation (13) should be used in both cases for determining the long-term average sound pressure level [using equation (6)].

16 For sound from a depressed highway, there may be attenuation in addition to that indicated by equation (12) along a ground surface outside the depression, due to that ground surface.

To calculate the barrier attenuation D_z, assume that only one significant sound-propagation path exists from the sound source to the receiver. If this assumption is not valid, separate calculations are required for other propagation paths (as illustrated in figure 5) and the contributions from the various paths to the squared sound pressure at the receiver are summed.

The barrier attenuation D_z, in decibels, shall be calculated for this path by equation (14):

$$D_z = 10 \lg \left[3 + \left(C_2/\lambda\right) C_3 z K_{met}\right] \text{ dB} \quad \ldots (14)$$

where

C_2 is equal to 20, and includes the effect of ground reflections; if in special cases ground reflections are taken into account separately by image sources, $C_2 = 40$;

C_3 is equal to 1 for single diffraction (see figure 6);

$$C_3 = \left[1 + (5\lambda/e)^2\right] \Big/ \left[(1/3) + (5\lambda/e)^2\right] \quad \ldots (15)$$

for double diffraction (see figure 7);

λ is the wavelength of sound at the nominal midband frequency of the octave band, in metres;

z is the difference between the pathlengths of diffracted and direct sound, as calculated by equations (16) and (17), in metres;

K_{met} is the correction factor for meteorological effects, given by equation (18);

e is the distance between the two diffraction edges in the case of double diffraction (see figure 7).

For single diffraction, as shown in figure 6, the pathlength difference z shall be calculated by means of equation (16):

$$z = \left[\left(d_{ss} + d_{sr}\right)^2 + a^2\right]^{1/2} - d \quad \ldots (16)$$

where

d_{ss} is the distance from the source to the (first) diffraction edge, in metres;

d_{sr} is the distance from the (second) diffraction edge to the receiver, in metres;

a is the component distance parallel to the barrier edge between source and receiver, in metres.

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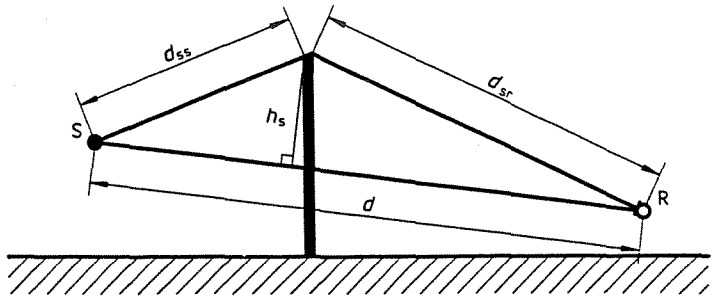
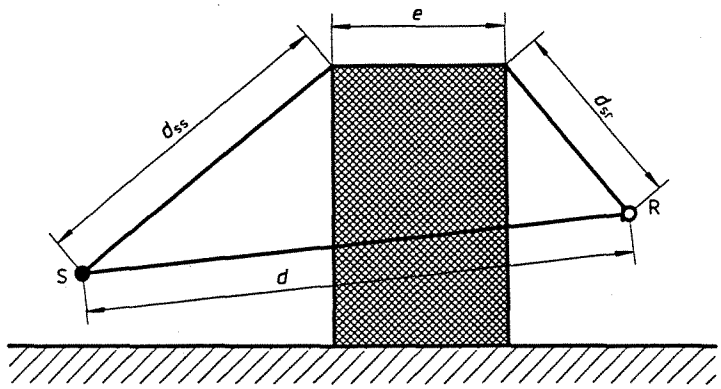


Figure 6 — Geometrical quantities for determining the pathlength difference for single diffraction



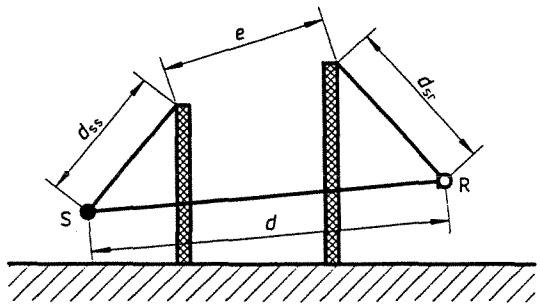


Figure 7 — Geometrical quantities for determining the pathlength difference for double diffraction

If the line of sight between the source S and receiver R passes above the top edge of the barrier, z is given a negative sign.

For double diffraction, as shown in figure 7, the pathlength difference z shall be calculated by

$$z = \left[\left(d_{ss} + d_{sr} + e \right)^2 + a^2 \right]^{1/2} - d \qquad \ldots (17)$$

The correction factor K_{met} for meteorological conditions in equation (14) shall be calculated using equation (18):

$$K_{met} = \exp\left[-(1/2000)\sqrt{d_{ss} d_{sr} d/(2z)} \right] \quad \text{for } z > 0 \qquad \ldots (18)$$

$$K_{met} = 1 \quad \text{for } z \leq 0$$

For lateral diffraction around obstacles, it shall be assumed that $K_{met} = 1$ (see figure 5).

NOTES

17 For source-to-receiver distances less than 100 m, the calculation using equation (14) shows that K_{met} may be assumed equal to 1, to an accuracy of 1 dB.

18 Equation (15) provides a continuous transition from the case of single diffraction ($e = 0$) where $C_3 = 1$, to that of a well-separated double diffraction ($e \gg \lambda$) where $C_3 = 3$.

19 A barrier may be less effective than calculated by equations (12) to (18) as a result of reflections from other acoustically hard surfaces near the sound path from the source to the receiver or by multiple reflections between an acoustically hard barrier and the source.

The barrier attenuation D_z, in any octave band, should not be taken to be greater than 20 dB in the case of single diffraction (i.e. thin barriers) and 25 dB in the case of double diffraction (i.e. thick barriers).

The barrier attenuation for two barriers is calculated using equation (14) for double diffraction, as indicated in the lower part of figure 7. The barrier attenuation for more than two barriers may also be calculated approximately using equation (14), by choosing the two most effective barriers, neglecting the effects of the others.

7.5 Reflections

Reflections are considered here in terms of image sources. These reflections are from outdoor ceilings and more or less vertical surfaces, such as the façades of buildings, which can increase the sound pressure levels at the receiver. The effect of reflections from the ground are not included because they enter into the calculation of A_{gr}.

The reflections from an obstacle shall be calculated for all octave bands for which all the following requirements are met:

— a specular reflection can be constructed, as shown in figure 8;

— the magnitude of the sound reflection coefficient for the surface of the obstacle is greater than 0,2;

— the surface is large enough for the nominal midband wavelength λ (in metres) for the octave band under consideration to obey the relationship

$$1/\lambda > \left[2/(l_{min}\cos\beta)^2\right]\left[d_{s,o}d_{o,r}/(d_{s,o}+d_{o,r})\right] \quad \ldots (19)$$

where

λ is the wavelength of sound (in metres) at the nominal midband frequency f (in hertz) of the octave band $\left(\lambda = \frac{340\ \text{m/s}}{f}\right)$;

$d_{s,o}$ is the distance between the source and the point of reflection on the obstacle;

$d_{o,r}$ is the distance between the point of reflection on the obstacle and the receiver;

β is the angle of incidence, in radians (see figure 8);

l_{min} is the minimum dimension (length or height) of the reflecting surface (see figure 8).

If any of these conditions is not met for a given octave band, then reflections shall be neglected.

The real source and source image are handled separately. The sound power level of the source image $L_{W,im}$ shall be calculated from

$$L_{W,im} = L_W + 10\lg(\rho)\,\text{dB} + D_{Ir} \quad \ldots (20)$$

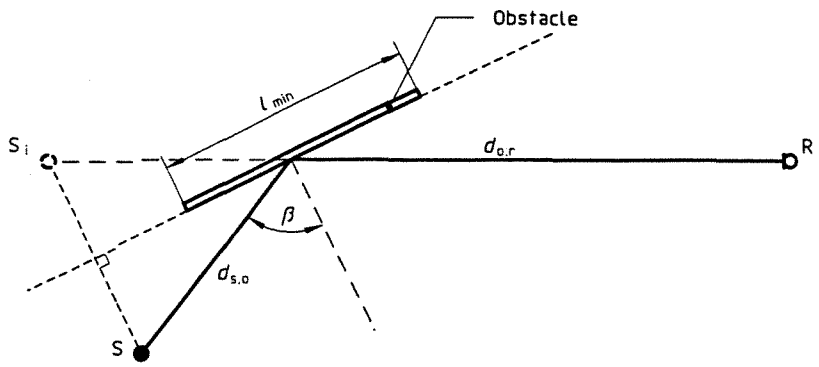
where

ρ is the sound reflection coefficient at angle β on the surface of the obstacle ($\geqslant 0{,}2$) (see figure 8);

D_{Ir} is the directivity index of the source in the direction of the receiver image.

If specific data for the sound reflection coefficient are not available, the value may be estimated using table 4.

For the sound source image, the attenuation terms of equation (4), as well as ρ and D_{Ir} in equation (20), shall be determined according to the propagation path of the reflected sound.



NOTE — A path $d_{s,o} + d_{o,r}$ connecting the source S and receiver R by reflection from the obstacle exists in which β, the angle of incidence, is equal to the angle of reflection. The reflected sound appears to come from the source image S_i.

Figure 8 — Specular reflection from an obstacle

Table 4 — Estimates of the sound reflection coefficient ρ

Object	ρ
Flat hard walls	1
Walls of building with windows and small additions or bay	0,8
Factory walls with 50 % of the surface consisting of openings, installations or pipes	0,4
Cylinders with hard surfaces (tanks, silos)	$\frac{D \sin(\phi/2)}{2d_{sc}}$ *) where D is the diameter of the cylinder; d_{sc} is the distance from the source to the centre C of the cylinder; ϕ is the supplement of the angle between lines SC and CR.
Open installations (pipes, towers, etc.)	0

*) This expression applies only if the distance d_{sc} from the source S to cylinder C is much smaller than the distance d_{cr} from the cylinder to receiver; see figure 9.

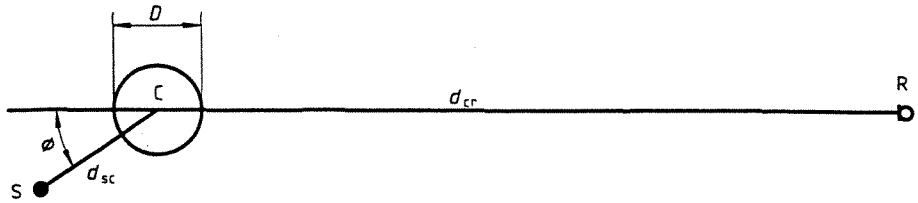


Figure 9 — Estimation of sound reflection coefficient for a cylinder

8 Meteorological correction (C_{met})

Use of equation (3) leads directly to an equivalent continuous A-weighted sound pressure level L_{AT} at the receiver for meteorological conditions which are favourable for propagation from the sound source to that receiver, as described in clause 5. This may be the appropriate condition for meeting a specific community noise limit, i.e. a level which is seldom exceeded (see ISO 1996-3). Often, however, a long-term average A-weighted sound pressure level L_{AT}(LT) is required, where the time interval T is several months or a year. Such a period will normally include a variety of meteorological conditions, both favourable and unfavourable to propagation. A value for L_{AT}(LT) may be obtained in this situation from that calculated for L_{AT}(DW) via equation (3), by using the meteorological correction C_{met} in equation (6).

A value (in decibels) for C_{met} in equation (6) may be calculated using equations (21) and (22) for the case of a point sound source with an output which is effectively constant with time:

$$C_{met} = 0 \qquad \ldots (21)$$

if $d_p \leq 10(h_s + h_r)$

$$C_{met} = C_0 \left[1 - 10(h_s + h_r)/d_p\right] \qquad \ldots (22)$$

if $d_p > 10(h_s + h_r)$

where

h_s is the source height, in metres;

h_r is the receiver height, in metres;

d_p is the distance between the source and receiver projected to the horizontal ground plane, in metres;

C_0 is a factor, in decibels, which depends on local meteorological statistics for wind speed and direction, and temperature gradients.

The effects of meteorological conditions on sound propagation are small for short distances d_p, and for longer distances at greater source and receiver heights. Equations (21) and (22) account approxi-

Values in metres

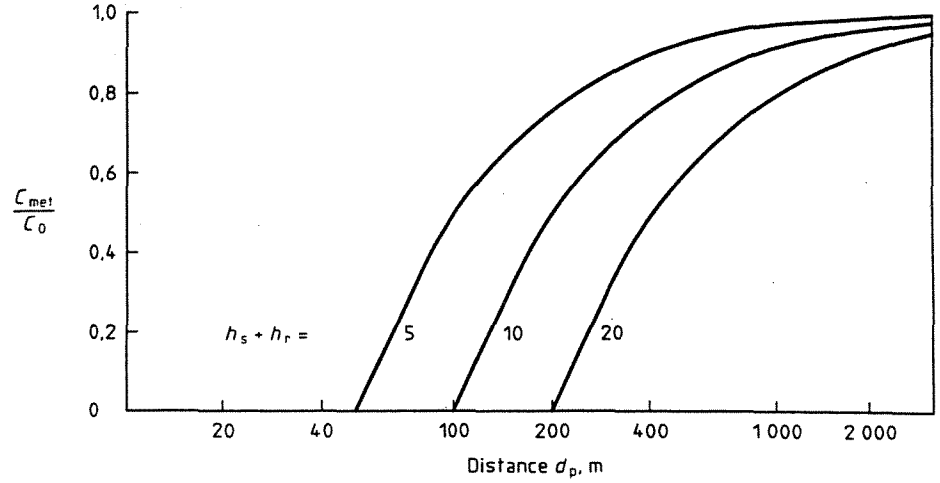


Figure 10 — Meteorological correction C_{met}

NOTES

20 A value for C_0 in equations (21) and (22) may be estimated from an elementary analysis of the local meteorological statistics. For example, if the meteorological conditions favourable to propagation described in clause 5 are found to occur for 50 % of the time period of interest, and the attenuation during the other 50 % is higher by 10 dB or more, then the sound energy which arrives for meteorological conditions unfavourable to propagation may be neglected, and C_0 will be approximately + 3 dB.

21 The meteorological conditions for evaluating C_0 may be established by the local authorities.

22 Experience indicates that values of C_0 in practice are limited to the range from zero to approximately + 5 dB, and values in excess of 2 dB are exceptional. Thus only very elementary statistics of the local meteorology are needed for a ± 1 dB accuracy in C_0.

For a source that is composed of several component point sources, h_s in equations (21) and (22) represents the predominant source height, and d_p the distance from the centre of that source to the receiver.

9 Accuracy and limitations of the method

The attenuation of sound propagating outdoors between a fixed source and receiver fluctuates due to variations in the meteorological conditions along the propagation path. Restricting attention to moderate downwind conditions of propagation, as specified in clause 5, limits the effect of variable meteorological conditions on attenuation to reasonable values.

There is information to support the method of calculation given in clauses 4 to 8 (see annex B) for broad-band noise sources. The agreement between calculated and measured values of the average A-weighted sound pressure level for downwind propagation, L_{AT}(DW), supports the estimated accuracy of calculation shown in table 5. These estimates of accuracy are restricted to the range of conditions specified for the validity of the equations in clauses 3 to 8 and are independent of uncertainties in sound power determination.

NOTE 24 The estimates of accuracy in table 5 are for downwind conditions averaged over independent situations (as specified in clause 5). They should not necessarily be expected to agree with the variation in measurements made at a given site on a given day. The latter can be expected to be considerably larger than the values in table 5.

The estimated errors in calculating the average downwind octave-band sound pressure levels, as well as pure-tone sound pressure levels, under the same conditions, may be somewhat larger than the estimated errors given for A-weighted sound pressure levels of broad-band sources in table 5.

In table 5, an estimate of accuracy is not provided in this part of ISO 9613 for distances d greater than the 1 000 m upper limit.

Throughout this part of ISO 9613 the meteorological conditions under consideration are limited to only two cases:

a) moderate downwind conditions of propagation, or their equivalent, as defined in clause 5;

b) a variety of meteorological conditions as they exist over months or years.

The use of equations (1) to (5) and (7) to (20) (and therefore also table 5) is limited to case a): meteorological conditions only. Case b) is relevant only to the use of equations (6), (21) and (22). There are also a substantial number of limitations (non-meteorological) in the use of individual equations. Equation (9) is, for example, limited to approximately flat terrain. These specific limitations are described in the text accompanying the relevant equation.

Table 5 — Estimated accuracy for broadband noise of L_{AT}(DW) calculated using equations (1) to (10)

Height, h *)	**Distance,** d *)	
	$0 < d < 100$ m	$100 \text{ m} < d < 1\,000$ m
$0 < h < 5$ m	± 3 dB	± 3 dB
$5 \text{ m} < h < 30$ m	± 1 dB	± 3 dB
*) h is the mean height of the source and receiver. d is the distance between the source and receiver.		
NOTE — These estimates have been made from situations where there are no effects due to reflection or attenuation due to screening.		

Annex A
(informative)

Additional types of attenuation (A_{misc})

The term A_{misc} in equation (4) covers contributions to the attenuation from miscellaneous effects not accessible by the general methods of calculating the attenuation specified in clause 7. These contributions include

— A_{fol}, the attenuation of sound during propagation through foliage,

— A_{site}, the attenuation during propagation through an industrial site, and

— A_{hous}, the attenuation during propagation through a built-up region of houses,

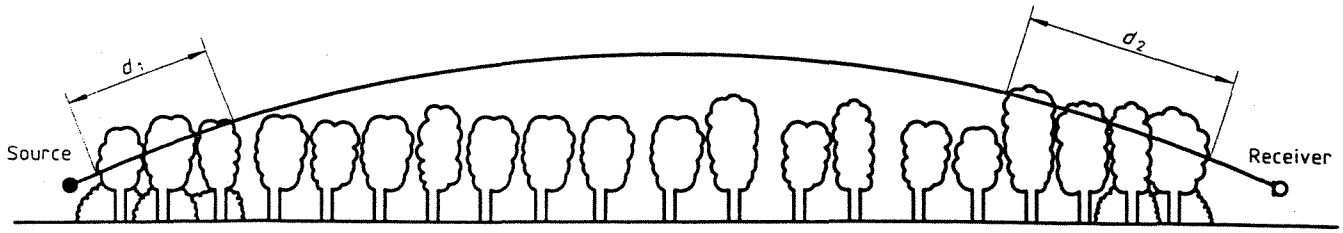
which are all considered in this annex.

For calculating these additional contributions to the attenuation, the curved downwind propagation path may be approximated by an arc of a circle of radius 5 km, as shown in figure A.1.

A.1 Foliage (A_{fol})

The foliage of trees and shrubs provides a small amount of attenuation, but only if it is sufficiently dense to completely block the view along the propagation path, i.e. when it is impossible to see a short distance through the foliage. The attenuation may be by vegetation close to the source, or close to the receiver, or by both situations, as illustrated in figure A.1. Alternatively, the path for the distances d_1 and d_2 may be taken as falling along lines at propagation angles of 15° to the ground.

The first line in table A.1 gives the attenuation to be expected from dense foliage if the total path length through the foliage is between 10 m and 20 m, and the second line if it is between 20 m and 200 m. For path lengths greater than 200 m through dense foliage, the attenuation for 200 m should be used.



NOTE — $d_f = d_1 + d_2$

For calculating d_1 and d_2, the curved path radius may be assumed to be 5 km.

Figure A.1 — Attenuation due to propagation through foliage increases linearly with propagation distance d_f through the foliage

Table A.1 — Attenuation of an octave band of noise due to propagation a distance d_f through dense foliage

Propagation distance d_f	Nominal midband frequency							
	Hz							
m	63	125	250	500	1 000	2 000	4 000	8 000
	Attenuation, dB:							
$10 \leq d_f \leq 20$	0	0	1	1	1	1	2	3
	Attenuation, dB/m:							
$20 \leq d_f \leq 200$	0,02	0,03	0,04	0,05	0,06	0,08	0,09	0,12

A.2 Industrial sites (A_{site})

At industrial sites, an attenuation can occur due to scattering from installations (and other objects), which may be described as A_{site}, unless accounted for under A_{bar}, or the sound source radiation specification. The term installations includes miscellaneous pipes, valves, boxes, structural elements, etc.

As the value of A_{site} depends strongly on the type of site, it is recommended that it is determined by measurements. However, for an estimate of this attenuation, the values in table A.2 may be used. The attenuation increases linearly with the length of the curved path d_s through the installations (see figure A.2), with a maximum of 10 dB.

A.3 Housing (A_{hous})

A.3.1 When either the source or receiver, or both are situated in a built-up region of houses, an attenuation will occur due to screening by the houses. However, this effect may largely be compensated by propagation between houses and by reflections from other houses in the vicinity. This combined effect of screening and reflections that constitutes A_{hous} can be calculated for a specific situation, at least in principle, by applying the procedures for both A_{bar} and reflections described in 7.4 and 7.5. Because the value of A_{hous} is very situation-dependent, such a calculation may be justified in practice. A more useful alternative, particularly for the case of multiple reflections where the accuracy of calculation suffers, may be to measure the effect, either in the field or by modelling.

A.3.2 An approximate value for the A-weighted attenuation A_{hous}, which should not exceed 10 dB, may also be estimated as follows. There are two separate contributions

$$A_{hous} = A_{hous,1} + A_{hous,2} \quad \ldots (A.1)$$

A.3.3 An average value for $A_{hous,1}$ (in decibels) may be calculated using the equation

$$A_{hous,1} = 0,1 B d_b \quad \text{dB} \quad \ldots (A.2)$$

where

B is the density of the buildings along that path, given by the total plan area of the houses divided by the total ground area (including that covered by the houses);

d_b is the length of the sound path, in metres, through the built-up region of houses, determined by a procedure analogous to that shown in figure A.1.

The path length d_b may include a portion d_1 near the source and a portion d_2 near the receiver, as indicated in figure A.1.

The value of A_{hous} shall be set equal to zero in the case of a small source with a direct, unobstructed line of sight to the receiver down a corridor gap between housing structures.

NOTE 25 The A-weighted sound pressure level at specific individual positions in a region of houses may differ by up to 10 dB from the average value predicted using equations (A.1) and (A.2).

Table A.2 — Attenuation coefficient of an octave band of noise during propagation through installations at industrial plants

Nominal midband frequency, Hz	63	125	250	500	1 000	2 000	4 000	8 000
A_{site}, dB/m	0	0,015	0,025	0,025	0,02	0,02	0,015	0,015

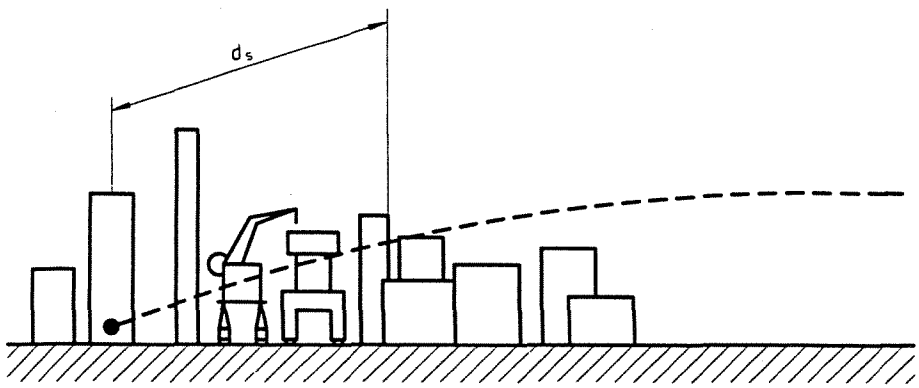


Figure A.2 — The attenuation A_{site} increases linearly with the propagation distance d_s through the installations at industrial plants

A.3.4 If there are well-defined rows of buildings near a road, a railway, or a similar corridor, an additional term $A_{hous,2}$ may be included (provided this term is less than the insertion loss of a barrier at the same position with the mean height of the buildings):

$$A_{hous,2} = -10 \lg[1 - (p/100)] \text{ dB} \quad \ldots \text{(A.3)}$$

where p (the percentage of the length of the façades relative to the total length of the road or railway in the vicinity) is ≤ 90 %.

A.3.5 In a built-up region of houses, the value of $A_{hous,1}$ [as calculated by equation (A.2)] interacts as follows with the value for A_{gr}, the attenuation due to the ground [as calculated by equation (9) or equation (10)].

Let $A_{gr,b}$ be the ground attenuation in the built-up region, and $A_{gr,0}$ be the ground attenuation if the houses were removed [i.e. as calculated by equation (9) or equation (10)]. For propagation through the built-up region in general, $A_{gr,b}$ is assumed to be zero in equation (4). If, however, the value of $A_{gr,0}$ is greater than that of A_{hous}, then the influence of A_{hous} is ignored and only the value of $A_{gr,0}$ is included in equation (4).

The interaction above is essentially to allow for a range of housing density B. For low-density housing, the value of A_{gr} is dominant, while for high-density housing A_{hous} dominates.

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Annex B
(informative)

Bibliography

[1] ISO 266:— [1], *Acoustics — Preferred frequencies.*

[2] ISO 2204:1979, *Acoustics — Guide to International Standards on the measurement of airborne acoustical noise and evaluation of its effect on human beings.*

[3] ISO 3740:1980, *Acoustics — Determination of sound power levels of noise sources — Guidelines for the use of basic standards and for the preparation of noise test codes.*

[4] ISO 3744:1994, *Acoustics — Determination of sound power levels of noise sources using sound pressure — Engineering method in an essentially free field over a reflecting plane.*

[5] ISO 8297:1994, *Acoustics — Determination of sound power levels of multisource industrial plants for the evaluation of sound-pressure levels in the environment — Engineering method.*

[6] IEC 804:1985, *Integrating averaging sound level meters,* and Amendment 1:1989 and Amendment 2:1993.

[7] IEC 1260:1995, *Electroacoustics — Octave-band and fractional-octave-band filters.*

[8] ANSI S1.26:1978, *Method for the calculation of the absorption of sound by the atmosphere.* (American national standard)

[9] BRACKENHOFF H.E.A. et al. *Guidelines for the measurement and prediction of environmental noise from industry.* Interdepartmental Commission on Health, Report HR-IL-13-01, Delft, April 1981. (In Dutch)

[10] KRAGH J. et al. *Environmental Noise from Industrial Plants: General Prediction Method.* Danish Acoustical Institute Report No. 32, Lyngby, 1982. (In English)

[11] VDI 2714:1988, *Guidelines: Sound propagation outdoors.* Verein Deutscher Ingenieure. (In German)

[12] VDI 2720-1:1996, *Guidelines: Outdoor noise control by means of screening.* Verein Deutscher Ingenieure. (In German)

[13] Engineering Equipment Material Users Association, *Publication 140,* London, 1985.

1) To be published. (Revision of ISO 266:1975)

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ICS 17.140.01

Descriptors: acoustics, noise (sound), airborne sound, wave propagation, attenuation, rules of calculation.

Price based on 18 pages

Attachment 3

EnSol, Inc.

ENGINEERING + ENVIRONMENTAL

FHWA Construction Noise Handbook, Chapter 9

Construction Noise Handbook

9.0 Construction Equipment Noise Levels and Ranges

9.1 Equipment Type Inventory and Related Emission Levels

Noise levels generated by individual pieces of construction equipment and specific construction operations form the basis for the prediction of construction-related noise levels. A variety of information exists related to sound emissions related to such equipment and operations. This data transcends the period beginning in the 1970s thru 2006. This information exists for both stationary and mobile sources and for steady, intermittent, and impulse type generators of noise.

9.1.1 Stationary Equipment

Stationary equipment consists of equipment that generates noise from one general area and includes items such as pumps, generators, compressors, etc. These types of equipment operate at a constant noise level under normal operation and are classified as non-impact equipment. Other types of stationary equipment such as pile drivers, jackhammers, pavement breakers, blasting operations, etc., produce variable and sporadic noise levels and often produce impact-type noises. Impact equipment is equipment that generates impulsive noise, where impulsive noise is defined as noise of short duration (generally less than one second), high intensity, abrupt onset, rapid decay, and often rapidly changing spectral composition. For impact equipment, the noise is produced by the impact of a mass on a surface, typically repeating over time.

9.1.2 Mobile Equipment

Mobile equipment such as dozers, scrapers, graders, etc., may operate in a cyclic fashion in which a period of full power is followed by a period of reduced power. Other equipment such as compressors, although generally considered to be stationary when operating, can be readily relocated to another location for the next operation.

9.2 Sources of Information

Construction-related equipment and operation noise level data may be provided by numerous sources, including suppliers, manufacturers, agencies, organizations, etc. Some information is included in this document, and many web-based links are given for equipment manufacturers.

9.3 Specifics of Construction Equipment and Operation Noise Inventories

Details included in each specific inventory of construction equipment and operation noise emission levels are often variable in terms of how data is represented. Some inventories include ranges of noise levels while others present single numbers for each equipment type. Others provide levels for specific models of each type of construction equipment. Often, different noise descriptors are used, such as L_{Aeq}, L_{max}, L_{10}, sound power level, etc. As such, the array of data does not readily lend itself to being combined into a single table or easily compared. As such, this Handbook attempts to summarize a variety of such inventories and provide links to each, thereby providing the reader with a variety of sources from which to choose the appropriate levels for use in his or her respective analysis.

9.4 Summaries of Referenced Inventories

Included below are examples of several inventories of construction-related noise emission values. These and additional inventories are included on the companion CD-ROM.

9.4.1 RCNM Inventory

Equipment and operation noise levels in this inventory are expressed in terms of L_{max} noise levels and are accompanied by a usage factor value. They have been recently updated and are based on extensive measurements taken in conjunction with the Central Artery/Tunnel (CA/T) Project. Table 9.1 summarizes the equipment noise emissions database used by the CA/T Project. While these values represent the "default" values for use in the RCNM, user-defined equipment and corresponding noise levels can be added.

Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors.

Equipment Description	Impact Device?	Acoustical Usage Factor (%)	Spec. 721.560 L_{max} @ 50 feet (dBA, slow)	Actual Measured L_{max} @ 50 feet (dBA, slow) (Samples Averaged)	Number of Actual Data Samples (Count)
All Other Equipment > 5	No	50	85	N/A	0

HP					
Auger Drill Rig	No	20	85	84	36
Backhoe	No	40	80	78	372
Bar Bender	No	20	80	N/A	0
Blasting	Yes	N/A	94	N/A	0
Boring Jack Power Unit	No	50	80	83	1
Chain Saw	No	20	85	84	46
Clam Shovel (dropping)	Yes	20	93	87	4
Compactor (ground)	No	20	80	83	57
Compressor (air)	No	40	80	78	18
Concrete Batch Plant	No	15	83	N/A	0
Concrete Mixer Truck	No	40	85	79	40
Concrete Pump Truck	No	20	82	81	30
Concrete Saw	No	20	90	90	55
Crane	No	16	85	81	405
Dozer	No	40	85	82	55
Drill Rig Truck	No	20	84	79	22
Drum Mixer	No	50	80	80	1
Dump Truck	No	40	84	76	31
Excavator	No	40	85	81	170
Flat Bed Truck	No	40	84	74	4
Front End Loader	No	40	80	79	96
Generator	No	50	82	81	19
Generator (<25KVA, VMS Signs)	No	50	70	73	74
Gradall	No	40	85	83	70
Grader	No	40	85	N/A	0
Grapple (on backhoe)	No	40	85	87	1
Horizontal Boring Hydraulic Jack	No	25	80	82	6
Hydra Break Ram	Yes	10	90	N/A	0
Impact Pile Driver	Yes	20	95	101	11
Jackhammer	Yes	20	85	89	133
Man Lift	No	20	85	75	23
Mounted Impact Hammer (hoe ram)	Yes	20	90	90	212
Pavement Scarifier	No	20	85	90	2

Paver	No	50	85	77	9
Pickup Truck	No	40	55	75	1
Pneumatic Tools	No	50	85	85	90
Pumps	No	50	77	81	17
Refrigerator Unit	No	100	82	73	3
Rivit Buster/Chipping Gun	Yes	20	85	79	19
Rock Drill	No	20	85	81	3
Roller	No	20	85	80	16
Sand Blasting (single nozzle)	No	20	85	96	9
Scraper	No	40	85	84	12
Sheers (on backhoe)	No	40	85	96	5
Slurry Plant	No	100	78	78	1
Slurry Trenching Machine	No	50	82	80	75
Soil Mix Drill Rig	No	50	80	N/A	0
Tractor	No	40	84	N/A	0
Vacuum Excavator (Vac-Truck)	No	40	85	85	149
Vacuum Street Sweeper	No	10	80	82	19
Ventilation Fan	No	100	85	79	13
Vibrating Hopper	No	50	85	87	1
Vibratory Concrete Mixer	No	20	80	80	1
Vibratory Pile Driver	No	20	95	101	44
Warning Horn	No	5	85	83	12
Welder/Torch	No	40	73	74	5

For each generic type of equipment listed in Table 9.1, the following information is provided:

- an indication as to whether or not the equipment is an impact device;
- the acoustical usage factor to assume for modeling purposes;
- the specification "Spec" limit for each piece of equipment expressed as an L_{max} level in dBA "slow" at a reference distance of 50 foot from the loudest side of the equipment;
- the measured "Actual" emission level at 50 feet for each piece of equipment based on hundreds of emission measurements performed on CA/T work sites; and
- the number of samples that were averaged together to compute the "Actual" emission level.

A comparison of the "Spec" emission limits against the "Actual" emission levels reveals that the Spec limits were set, in general, to realistically obtainable noise levels based on the equipment used by contractors on the CA/T Project. When measured in the field, some equipment such as pile drivers, sand blasting, demolition shears, and pumps tended to exceed their applicable emission limit. As such, these noisy devices needed to have some form of noise mitigation in place in order to comply with the Spec emission limits. Other equipment, such as clamshell shovels, concrete mixer trucks, truck-mounted drill rigs, man-lifts, chipping guns, ventilation fans, pavers, dump trucks, and flatbed trucks, easily complied. Therefore, the Spec emission limits for these devices could have been reduced somewhat further. It is recommended that the user review the RCNM User's Guide contained in Appendix A for detailed guidance regarding application of values contained in Table 9.1.

9.4.2 FHWA Special Report Inventories

Appendix A of the 1977 Handbook provides tables of construction equipment noise levels and ranges. The majority of the data were provided by the American Road Builders Association. These data were taken during a 1973 survey in which member contractors were asked to secure readings of noise exposure to operators of various types of equipment. Additionally, the contractors were asked to take readings at 50 feet from the machinery. These 50-foot peak readings are provided in Tables 9.2 through 9.8. Though the data were produced under varying conditions and degrees of expertise, the values are relatively consistent.

Table 9.2 Construction Equipment Noise Levels Based on Limited Data Samples - Cranes.

Manufacturer	Type or Model	Peak Noise Level (dBA)	Remarks
Northwestern	80D	77	Within 15m 1958 mod
Northwestern	8	84	Within 15m 1940 mod
Northwestern	6	72	Within 15m 1965 mod
American	7260	82	Within 15m 1967 mod
American	599	76	Within 15m 1969 mod
American	5299	70	Within 15m 1972 mod
American	4210	82	Within 15m 1968 mod
Buck Eye	45C	79	Within 15m 1972 mod
Buck Eye	308	74	Within 15m 1968 mod
Buck Eye	30B	73	Within 15m 1965 mod
Buck Eye	30B	70	Within 15m 1959 mod
Link Belt	LS98	76	Within 15m 1956 mod
Manitowoc	4000	94	Within 15m 1956 mod
Grove	RF59	82	Within 15m 1973 mod
Koehr	605	76	Within 15m 1967 mod
Koehr	435	86	Within 15m 1969 mod
Koehr	405	84	Within 15m 1969 mod

Table 9.3 Construction Equipment Noise Levels Based on Limited Data Samples - Backhoes.

Manufacturer	Type or Model	Peak Noise Level (dBA)	Remarks
Link Belt	4000	92	Within 15m 1971 mod
John Deere	609A	85	Within 15m 1971 mod
Case	680C	74	Within 15m 1973 mod
Drott	40 yr.	82	Within 15m 1971 mod
Koehr	1066	81 & 84	Within 15m 2 tested

Table 9.4 Construction Equipment Noise Levels Based on Limited Data Samples - Front Loaders.

Manufacturer	Type or Model	Peak Noise Level (dBA)	Remarks
Caterpillar	980	84	Within 15m 1972 mod
Caterpillar	977K	79	Within 15m 1969 mod
Caterpillar	977	87	Within 15m 1971 mod
Caterpillar	977	94	Within 15m 1967 mod
Caterpillar	966C	84	Within 15m 1973 mod
Caterpillar	966C	85	Within 15m 1972 mod
Caterpillar	966	81	Within 15m 1972 mod
Caterpillar	966	77	Within 15m 1972 mod
Caterpillar	966	85	Within 15m 1966 mod

Caterpillar	955L	90	Within 15m ;1973 mod
Caterpillar	955K	79	Within 15m 1969 mod
Caterpillar	955H	94	Within 15m 1963 mod
Caterpillar	950	78 & 80	Within 15m 1972 mod
Caterpillar	950	75	Within 15m 1968 mod
Caterpillar	950	88	Within 15m 1967 mod
Caterpillar	950	86	Within 15m 1965 mod
Caterpillar	944A	80	Within 15m 1965 mod
Caterpillar	850	82	Within 15m 1968 mod
Michigan	75B	90	Within 15m 1969 mod
Michigan	475A	96	Within 15m 1967 mod
Michigan	275	85	Within 15m 1971 mod
Michigan	125	87	Within 15m 1967 mod
Hough	65	82	Within 15m 1971 mod
Hough	60	91	Within 15m 1961 mod
Hough	400B	94	Within 15m 1961 mod
Hough	H90	86	Within 15m 1961 mod
Trojan	3000	85	Within 15m 1956 mod
Trojan	RT	82	Within 15m 1965 mod
Payloader	H50	85	Within 15m 1963 mod

Table 9.5 Construction Equipment Noise Levels Based on Limited Data Samples - Dozers.

Manufacturer	Type or Model	Peak Noise Level (dBA)	Remarks
Caterpillar	D5	83	Within 15m 1967 mod
Caterpillar	D6	85	Within 15m 1967 mod
Caterpillar	D6	86	Within 15m 1964 mod
Caterpillar	D6	81	Within 15m 1967 mod
Caterpillar	D6B	83	Within 15m 1967 mod
Caterpillar	D6C	82	Within 15m 1962 mod
Caterpillar	D7	85	Within 15m 1956 mod
Caterpillar	D7	86	Within 15m 1969 mod
Caterpillar	D7	84	Within 15m 1969 mod
Caterpillar	D7	78	Within 15m 1970 mod
Caterpillar	D7	78	Within 15m 1972 mod
Caterpillar	D7E	86	Within 15m 1965 mod
Caterpillar	D7E	78	Within 15m 1970 mod
Caterpillar	D7E	84	Within 15m 1973 mod
Caterpillar	D7F	80	Within 15m 1972 mod
Caterpillar	D8	92	Within 15m 1954 mod
Caterpillar	D8	95	Within 15m 1968 mod
Caterpillar	D8	86	Within 15m 1972 mod
Caterpillar	D8H	88	Within 15m 1966 mod
Caterpillar	D8H	82	Within 15m 1972 mod
Caterpillar	D9	85	Within 15m 1972 mod

Caterpillar	D9	94	Within 15m 1972 mod
Caterpillar	D9	90	Within 15m 1963 mod
Caterpillar	D9	87	Within 15m 1965 mod
Caterpillar	D9	90	Within 15m 1965 mod
Caterpillar	D9	88	Within 15m 1968 mod
Caterpillar	D9	92	Within 15m 1972 mod
Caterpillar	D9G	85	Within 15m 1965 mod
Allis Chambers	HD41	93	Within 15m 1970 mod
International	TD15	79	Within 15m 1970 mod
International	TD20	87	Within 15m 1970 mod
International	TD25	90	Within 15m 1972 mod
International	TD8	83	Within 15m 1970 mod
Case	1150	82	Within 15m 1972 mod
John Deer	350B	77	Within 15m 1971 mod
John Deer	450B	65	Within 15m 1972 mod
Terex	8230	70	Within 15m 1972 mod
Terex	8240	93	Within 15m 1969 mod
Michigan	280	85	Within 15m 1961 mod
Michigan	280	90	Within 15m 1962 mod
Caterpillar	824	90	Within 15m 1968 mod

Table 9.6 Construction Equipment Noise Levels Based on Limited Data Samples - Graders.

Manufacturer	Type or Model	Peak Noise Level (dBA)	Remarks
Caterpillar	16	91	Within 15m 1969 mod
Caterpillar	16	86	Within 15m 1968 mod
Caterpillar	140	83	Within 15m 1970 mod
Caterpillar	14E	84	Within 15m 1972 mod
Caterpillar	14E	85	Within 15m 1971 mod
Caterpillar	14C	85	Within 15m 1971 mod
Caterpillar	14B	84	Within 15m 1967 mod
Caterpillar	12F	82	Within 15m 1961-72 mod
Caterpillar	12F	72-92	Within 15m 1961-72 mod
Caterpillar	12E	81.3	Within 15m 1959-67 mod
Caterpillar	12E	80-83	Within 15m 1959-67 mod
Caterpillar	12	84.7	Within 15m 1960-67 mod
Caterpillar	12	82-88	Within 15m 1960-67 mod
Gallon	T500	84	Within 15m 1964 mod
Allis Chambers		87	Within 15m 1964 mod

Table 9.7 Construction Equipment Noise Levels Based on Limited Data Samples - Scrapers.

Manufacturer	Type or Model	Peak Noise Level (dBA)	Remarks
Caterpillar	660	92	Within 15m
Caterpillar	641B	85	Within 15m 1972 mod
Caterpillar	641B	86	Within 15m 1972 mod

Caterpillar	641	80 & 84	Within 15m 1972 mod
Caterpillar	641	83 & 89	Within 15m 1965 mod
Caterpillar	637	87	Within 15m 1971 mod
Caterpillar	633	87	Within 15m 1972 mod
Caterpillar	631C	89	Within 15m 1973 mod
Caterpillar	631C	83	Within 15m 1972 mod
Caterpillar	631B	94	Within 15m 1969 mod
Caterpillar	631B	84-87	Within 15m 1968 mod
Caterpillar		85 avg.	Within 15m 1968 mod
Caterpillar	621	90	Within 15m 1970 mod
Caterpillar	621	86	Within 15m 1967 mod
Caterpillar	613	76	Within 15m 1972 mod
Terex	TS24	87	Within 15m 1972 mod
Terex	TS24	84-91	
Terex	TS24	82	Within 15m 1971 mod
Terex	TS24	81-83	Within 15m 1971 mod
Terex	TS24	94	Within 15m 1966 mod
Terex	TS24	92-98	Within 15m 1966 mod
Terex	TS24	94.7	Within 15m 1963 mod
Terex	TS24	94-95	Within 15m 1963 mod
Terex	TS14	82	Within 15m 1969 mod
Terex	S35E	84	Within 15m 1971 mod

Table 9.8 Noise Levels of Standard Compressors.

Manufacturer	Model	Silenced or Standard	Type Eng.	Type Comp.	Test Avg. Cond. (cfm.psi)	Avg. Cond. Noise Lev. (cfm.psi) (dBA) at 7m*
Atlas	ST-48	Standard	Diesel	Reciprocal	160,100	83.6
Atlas	ST-95	Standard	Diesel	Reciprocal	330,105	80.2
Atlas	VSS-170Dd	Silenced	Diesel	Reciprocal	170,850	70.2
Atlas	VT-85M	Standard	Gas	Reciprocal	85,100	81.4
Atlas	VS-85Dd	Silenced	Gas	Reciprocal	85,100	75.5
Atlas	VSS-125Dd	Silenced	Diesel	Reciprocal	125,100	70.1
Atlas	STS-35Dd	Silenced	Diesel	Reciprocal	125,100	73.5
Atlas	VSS-170Dd	Silenced	Diesel	Reciprocal	170,100	
Gardner-Denver	SPWDA/2	Silenced	Diesel	Rotary-Screw	1200,000	73.3
Gardner-Denver	SPQDA/2	Silenced	Diesel	Rotary-Screw	750,000	78.2
Gardner-Denver	SPHGC	Silenced	Gas	Rotary-Screw	185,000	77.1
Ingersoll-Rand	DXL 1200	Standard	Diesel	Rotary-Screw	1200,125	92.6
Ingersoll-Rand	DXL 1200 (doors open)	Standard	Diesel	Rotary-Screw	1200,125	
Ingersoll-Rand	DXL 900S	Silenced	Diesel	Rotary-Screw	900,125	76.0
Ingersoll-Rand	DXL 900S	Silenced	Diesel	Rotary-	900,125	75.1

				Screw		
Ingersoll-Rand	DXLCU1050	Standard	Diesel	Rotary-Screw	1050,125	90.2
Ingersoll-Rand	DXL 900S	Silenced	Diesel	Rotary-Screw	900,125	75.3
Ingersoll-Rand	DXL 900S	Silenced	Diesel	Rotary-Screw	900,125	75.0
Ingersoll-Rand	DXL 900	Standard	Diesel	Rotary-Screw	900,125	89.9
Ingersoll-Rand	DXL 750	Standard	Diesel	Rotary-Screw	750,125	87.7
Jaeger	A	Standard	Gas	Rotary-Screw	175,100	88.2
Jaeger	A(doors open)	Standard	Gas	Rotary-Screw	175,100	
Jaeger	E	Standard	Gas	Vane	85,100	81.5
Jaeger	E(doors open)	Standard	Gas	Vane	85,100	
Worthington	60 G/2Qt	Silenced	Gas	Vane	160,100	74.2
Worthington	750-QTEX	Silenced	Diesel	Rotary-Screw	750,100	74.7

*Data taken from EPA Report - EPA 550/9-76-004.

9.4.3 FTA Noise and Vibration Assessment Procedure

Chapter 12 of the FTA Transit Noise and Vibration Guidance Handbook discusses construction noise evaluation methodology and contains the noise emission levels for construction equipment displayed in Table 9.9.

Table 9.9 FTA Construction Equipment Noise Emission Levels.

Equipment	Typical Noise Level (dBA) 50 ft from Source*
Air Compressor	81
Backhoe	80
Ballast Equalizer	82
Ballast Tamper	83
Compactor	82
Concrete Mixer	85
Concrete Pump	82
Concrete Vibrator	76
Crane Derrick	88
Crane Mobile	83
Dozer	85
Generator	81
Grader	85
Impact Wrench	85
Jack Hammer	88
Loader	85
Paver	89
Pile Driver (Impact)	101
Pile Driver (Sonic)	96
Pneumatic Tool	85

Pump	76
Rail Saw	90
Rock Drill	98
Roller	74
Saw	76
Scarifier	83
Scraper	89
Shovel	82
Spike Driver	77
Tie Cutter	84
Tie Handler	80
Tie Inserter	85
Truck	88

*Table based on EPA Report, measured data from railroad construction equipment taken during Northeast Corridor improvement project and other measured data.

9.5 Links to Equipment Manufacturers

Table 9.10 contains web-based links to manufacturers of construction equipment. While few of these links contain noise-related data associated with the equipment, they provide descriptions and/or specifications related to the equipment, as well as sources for possibly obtaining additional information related to the equipment. Information in this table is by no means all-inclusive and does not represent any type of endorsement of the manufacturers, suppliers, or equipment. Users are hereby advised that the referenced websites may have certain restrictions, copyrights, etc., associated with any use of data contained therein.

Table 9.10 Equipment Manufacturers and Websites.

Equipment	Manufacturer	Website Address
Arrow Boards		
	North Star	http://northstar-traffic.com/index.cfm?SC=14&PT=1
	Trafcom	http://www.trafcon.com
	Allmand	http://www.allmand.com/MB%20AB%20page.htm
Articulated Trucks		
	Case	http://www.casece.com/products/products.asp?RL=NAE&id=196
	Hitachi	http://www.hitachi-c-m.com/global/products/articulate/index.html
	Terex	http://www.terex.com/main.php
	Caterpillar	http://www.cat.com/cda/layout?m=37840&x=7
	Volvo	http://www.volvo.com/constructionequipment/na/en-us/products/articulatedhaulers/
Asphalt Saws		
	Allied	http://www.alliedcp.com/products/rotocut.asp
Augers - See Drills / Augers		
Backhoes - See Loaders/Backhoes		
Boring Equipment - See Pile Drivers/Boring Equipment		
Compaction Equipment		
	Allied	http://www.alliedcp.com/products/compactor.asp
Compressors		
	Sullair	http://www.sullair.com/corp/details/0,10294,CLI1_DIV61_ETI5714,00.html
	Compair	http://www.compair.com/Products/Portable_Compressors.aspx
Concrete and Asphalt Batch/Mixing Plants and Equipment		

	Con-E-Co	http://www.con-e-co.com/products.cfm
	Terex	http://www.terex.com/main.php
	Gunter & Zimmerman	http://www.guntert.com/concrete_mobilebatching.asp
	Rex Con	http://www.rexcon.com
Concrete Breakers/ Hydraulic Hammers/Hydraulic Breakers		
	Drillman	http://www.drillmanindia.com/concrete-breaker.html
	Hydro Khan	http:/www.sangi.co.kr/english/e_product1_2.php
	Stanley	http://www.stanley-hydraulic-tools.com/Hand%20Held/NoAmbreakers.htm
	Lynx	http://www.stanley-hydraulic-tools.com/Lynx/breakers.htm
Concrete Chain Saws		
	Lynx	http://www.stanley-hydraulic-tools.com/Lynx/concrete-saws.htm
Concrete Core Drilling Machines		
	Multiquip	http://www.multiquip.com/multiquip/318_ENU_HTML.htm
Concrete Cutters		
	Vermeer	http://www.vermeermfg.com/vcom/TrenchingEquipment/Line.jsp?PrdlnID=3618
Concrete/Material Pumps		
	Multiquip	http://www.multiquip.com/multiquip/309_ENU_HTML.htm
	Reed	http://www.reedpumps.com/
Concrete Mixer Trucks		
	Oshkosh	http://www.oshkoshtruck.com/concrete/products~overview~home.cfm
	London	http://www.lmi.ca/mixers.cfm
	Terex/Advance	http://www.advancemixer.com
Concrete Saws		
	Multiquip	http://www.multiquip.com/multiquip/315_ENU_HTML.htm
	Diamond Core Cut	http://www.diamondproducts.com/dp_home.htm
Concrete Screeds		
	Multiquip	http://www.multiquip.com/multiquip/317_ENU_HTML.htm
Concrete Vibrators		
	Multiquip	http://www.multiquip.com/multiquip/313_ENU_HTML.htm
	Sullair	http://www.sullair.com/corp/details/0,10294,CLI1_DIV61_ETI5722,00.html
Cranes		
	Malcolm Drilling	www.malcolmdrilling.com
	Link-Belt	http://www.linkbelt.com/lit/products/frameproducthome.htm
	Casagrande	http://www.casagrandegroup.com
	Liebherr	http://www.liebherr.com/em/en/35381.asp
	Terex	http://www.terex.com/main.php
Crawler Tractors - See Dozers/Crawler Tractors		
Crushing and Screening Equipment		
	Cedarapids	http://www.cedarapids.com/crushscr.htm
	Hitachi	http://www.hitachi-c-m.com/
	Komatsu	http://www.komatsu.com/ce/products/mobile_crushers.html
	Terex	http://www.terex.com/main.php
Crushers/Pulverizers		
	Hydro Khan	http://www.sangi.co.kr/english/e_product3.php

Cutoff Saws		
	Multiquip	http://www.multiquip.com/multiquip/309_ENU_HTML.htm
	Lynx	http://www.stanley-hydraulic-tools.com/Lynx/cutoff%20saw.htm
Dozers/CrawlerTractors		
	John Deere	http://www.deere.com/en_US/cfd/construction/deere_const/crawlers/deere_dozer_selection.html
	Caterpillar	http://www.cat.com/cda/layout?m=37840&x=7
	Case	http://www.casece.com/products/products.asp?RL=NAE&id=2
	Komatsu	http://www.komatsu.com/ce/products/crawler_dozers.html
Dewatering Pumps		
	Multiquip	http://www.multiquip.com/multiquip/371_ENU_HTML.htm
Drills / Augers		
	Malcolm Drilling	www.malcolmdrilling.com
	Casagrande	www.casagrandegroup.com
	Soilmec	http://www.soilmec.com/_vti_g1_techno.aspx?rpstry=4_
	Terex	http://www.terex.com/main.php
Excavators		
	Hitachi	http://www.hitachi-c-m.com/global/products/excavator/index.html
	Caterpiller	http://www.cat.com/cda/layout?m=37840&x=7
	Volvo	http://www.volvo.com/constructionequipment/na/en-us/products/compactexcavators/
		http://www.volvo.com/constructionequipment/na/en-us/products/wheeledexcavators/
		http://www.volvo.com/constructionequipment/na/en-us/products/crawlerexcavators/
	John Deere	http://www.deere.com/en_US/cfd/construction/deere_const/excavators/deere_excavator_selection.html
	Liebherr	http://www.liebherr.com/em/en/18891.asp
	Soilmec	http://www.soilmec.com/_vti_g1_t02.aspx?rpstry=29_
	Gehl	http://www.gehl.com
	Case	http://www.casece.com/products/products.asp?RL=NAE&id=216
	Komatsu	http://www.komatsu.com/ce/products/crawler_excavators.html
		http://www.komatsu.com/ce/products/wheel_excavators.html
	Terex	http://www.terex.com/main.php
	Link-Belt	http://www.lbxco.com/lx_series.asp
	Gradall	http://www.gradall.com/
	Badger Daylighting	http://www.badgerinc.com/
Fork Lifts - See Lifts / Variable Reach Fork Lifts/ Material Handlers		
Generators		
	Terex	http://www.terex.com/main.php
	Multiquip	http://www.multiquip.com/multiquip/212_ENU_HTML.htm
	Sullair	http://www.sullair.com/corp/details/0,10294,CLI1_DIV61_ETI5714,00.html
	Baldor	http://www.baldor.com/products/generators/ts.asp
Graders		
	Case	http://www.casece.com/products/products.asp?RL=NAE&id=190
	Volvo	http://www.volvo.com/constructionequipment/na/en-us/products/MotorGraders/
	Komatsu	http://www.komatsu.com/ce/products/motor_graders.html
	Terex	http://www.terex.com/main.php

Hand Compaction Equipment		
	Terex	http://www.terex.com/main.php
	Multiquip	http://www.multiquip.com/multiquip/56_ENU_HTML.htm
Hydraulic Hammers/Hydraulic Breakers - See Concrete Breakers/ Hydraulic Hammers/Hydraulic Breakers		
Jackhammers - See Rock Drilling Equipment/Jackhammers		
Lifts / Variable Reach Fork Lifts/ Material Handlers		
	Genie Lift	www.genielift.com
	Sky Track	www.kirby-smith.com/
	Ingersol-Rand	www.ingersollrand.com
	Terex	http://www.terex.com/main.php
	Roadtec	http://www.roadtec.com/www/docs/102/mtv-material-transfer-vehicle/
Light Towers		
	Baldor	http://www.baldor.com/products/generators/mlt.asp
	Multiquip	http://www.multiquip.com/multiquip/293_ENU_HTML.htm
	Allmand	http://www.allmand.com/Night%20Lite%20Pro%20page.htm
Loaders/Backhoes		
	Case	http://www.casece.com/products/products.asp?RL=NAE&id=54
	Caterpillar	http://www.cat.com/cda/layout?m=37840&x=7
	Volvo	http://www.volvo.com/constructionequipment/na/en-us/products/backhoeloaders/
	John Deere	http://www.deere.com/en_US/cfd/construction/deere_const/backhoes/deere_backhoe_selection.html
	Komatsu	http://www.komatsu.com/ce/products/backhoe_loaders.html
Material Handlers - See Lifts / Variable Reach Fork Lifts/ Material Handlers		
Milling Machines		
	Wirtgen	http://www.wirtgenamerica.com/en-us/
Mining Trucks - See Rigid Dump Trucks/Mining Trucks		
Pans - See Scrapers/Pans		
Pavers/Paving Equipment		
	Caterpillar/ Barber Greene	http://www.cat.com/cda/layout?m=37840&x=7
	Rosco	http://www.leeboy.com/rosco/
	Bomag	http://www.bomag.com/americas/index.aspx?&Lang=478
	Gehl	http://www.gehl.com/const/prodpg_ap.html
	Leeboy	http://www.leeboy.com/leeboy/
	Terex	http://www.terex.com/main.php
	Ingersoll-Rand	http://www.road-development.irco.com/Default.aspx?MenuItemID=12
	Vogele	http://www.vogeleamerica.com/noflash.html
	GOMACO	http://www.gomaco.com/index.html
	Roadtec	http://www.roadtec.com
Pile Drivers/Boring Equipment		
	Soilmec	http://www.soilmec.com/_vti_g1_t09.aspx?rpstry=29_
	Leffer	http://www.leffer.com/hme.html
	Bauer	http://www.bauer.de/en/maschinenbau/produkte/drehbohrgeraete/bg_reihe/usbg15h.htm
Pipelayers/Trenchers		

	Liebherr	http://www.liebherr.com/em/en/18908.asp
	Caterpillar	http://www.cat.com/cda/layout?m=37840&x=7
	Case	http://www.casece.com/products/products.asp?RL=NAE&id=28&archived=1
	Vermeer	http://www.vermeermfg.com/vcom/TrenchingEquipment/trenching-equipment.htm
	Ditchwitch	http://www.ditchwitch.com/dwcom/Product/ProductView/115
	Eagle	http://www.guntert.com/trenchers_home.asp
Profilers - See Roadway Planers/Profilers		
Rammers		
	Multiquip	http://www.multiquip.com/multiquip/56_ENU_HTML.htm
Rebar Benders/Cutters		
	Multiquip	http://www.multiquip.com/multiquip/1316_ENU_HTML.htm
Recyclers - See Stabilizers/Recyclers		
Rigid Dump Trucks/Mining Trucks		
	Hitachi	http://www.hitachi-c-m.com/global/products/rigid/index.html
	Caterpillar	http://www.cat.com/cda/layout?m=37840&x=7
	Liebherr	http://www.liebherr.com/em/en/18898.asp
	Komatsu	http://www.komatsu.com/ce/products/dump_trucks.html
	Terex	http://www.terex.com/main.php
Roadway Planers/Profilers		
	Terex	http://www.terex.com/main.php
	Roadtec	http://www.roadtec.com/products/cold_planers/default.htm
Rock Drilling Equipment/Jackhammers		
	Drillman	http://www.drillmanindia.com/rock-drilling-machine.html
	Whaker	http://www.wackergroup.com/webapp/wcs/stores/servlet/
	Sullair	http://www.sullair.com/corp/details/0,10294,CLI1_DIV61_ETI5721,00.html
	Allied	http://www.alliedcp.com/products/hammers.asp
Rollers - See Tampers/Rollers		
Scrapers/Pans		
	Terex	http://www.terex.com/main.php
Screening Equipment - See Crushing and Screening Equipment		
Slabbuster		
	Allied	http://www.alliedcp.com/products/slabbuster.asp
Slip Form Pavers		
	Huron	http://www.huronmanufacturing.com/
	Guntert & Zimmerman	http://www.guntert.com/concreteSlipformPavers.asp
Stabilizers/Recyclers		
	Bomag	http://www.bomag.com/americas/index.aspx?&Lang=478
	Komatsu	http://www.komatsu.com/ce/products/mobile_crushers.html
	Terex	http://www.terex.com/main.php
	Wirtgen	http://www.wirtgenamerica.com/en-us/
	Roadtec	http://www.roadtec.com
Sweepers		
	Elgin	http://www.elginsweeper.com
	Johnston	http://www.johnstonsweepers.com/

Tampers/ Rollers		
	Bomag	http://www.bomag.com/americas/index.aspx?&Lang=478
	Komatsu	http://www.komatsu.com/ce/products/vibratory_rollers.html
	Whaker	http://www.wackergroup.com/webapp/wcs/stores/servlet/
	Lynx	http://www.stanley-hydraulic-tools.com/Lynx/tamper.htm
	Multiquip	http://www.multiquip.com/multiquip/181_ENU_HTML.htm
	Ingersoll-Rand	http://www.road-development.irco.com/Default.aspx?MenuItemID=15
Trenchers - See Pipelayers/Trenchers		
Trucks - See Articulated Trucks, Concrete Mixer Trucks, Rigid Dump Trucks/Mining Trucks		
Vacuum Units		
	Advanced Recycling Systems	www.arsrecycling.com/
	Vacmasters	http://www.vacmasters.com/airsystm.htm
	Vector	http://www.vector-vacuums.com/
Variable Message Signs		
	Allmand	http://www.allmand.com/MB%20only%20page.htm
	North Star	http://northstar-traffic.com/index.cfm?SC=13&PT=1
	Trafcom	http://www.trafcon.com
	Daktronics	http://www.daktronics.com/vms_prod/dak_vms_products.cfm
Vibratory Rammers		
	Whaker	http://www.wackergroup.com/webapp/wcs/stores/servlet/
Welders/Welding Equipment		
	Airgas	www.airgas.com
	Multiquip	http://www.multiquip.com/multiquip/408_ENU_HTML.htm
	Miller	http://www.millerwelds.com/products/
	Lincoln	http://www.mylincolnelectric.com/Catalog/equipmentseries.asp?browse=101|400|
Wheel Loaders		
	Hitachi	http://www.hitachi-c-m.com/global/products/loader/index.html
	Case	http://www.casece.com/products/products.asp?RL=NAE&id=30
	Caterpillar	http://www.cat.com/cda/layout?m=37840&x=7
	Volvo	http://www.volvo.com/constructionequipment/na/en-us/products/wheelloaders/
	Terex	http://www.terex.com/main.php
	Komatsu	http://www.komatsu.com/ce/products/wheel_loaders.html
	TCM	http://www.tcmglobal.net/products/main02.html

Attachment 5

EnSol, Inc.

ENGINEERING + ENVIRONMENTAL

Water Line Extension Hydrant Data and Water CAD Analysis

SULLIVAN FIRE PROTECTION CORP.

P.O. BOX 2021, 16 RAILROAD PLAZA, SOUTH FALLSBURG, NEW YORK 12779
845-434-4030

November 11, 2020

RUN #1

Maser Consulting P.A.
555 Hudson Valley Rd.
New Windsor, NY 12553
Attn: Connor McCormack

Re: 1081 Dolsontown Rd.
Town of Wawayanda

On 11/9/2020 at 8:25 am, Matt Waldman of our firm performed a flow test of the hydrant at 100'east of 1081 Dolsontown Rd. control hydrant at 1073 Dolsontown Rd. (front yard) Witness to the flow testing procedure and operating the hydrants was Cory Robinson of Maser and Dakota of JCO.

The pressure readings on the control hydrants were obtained using a 2 ½" hydrant cap with a ¼" water pressure gauge. The pitot pressure and gpm readings were obtained using a 2 ½" pitot gauge mounted on the threads of the hydrant with an oil dampened pre-calibrated gauge showing both Pitot psi and gpm. The residual pressure was read at the same time that the gpm flow was being taken.

The results of the **test** are:

Static Pressure: 68 psi
Residual Pressure: 54psi
Flow: 920 gpm

Very truly yours,
SULLIVAN FIRE PROTECTION CORP

Debbie Haupt, Manager

SULLIVAN FIRE PROTECTION CORP.

P.O. BOX 2021, 16 RAILROAD PLAZA, SOUTH FALLSBURG, NEW YORK 12779
845-434-4030

November 11, 2020

RUN #2

Maser Consulting P.A.
555 Hudson Valley Rd.
New Windsor, NY 12553
Attn: Connor McCormack

Re: 1081 Dolsontown Rd.
Town of Wawayanda

On 11/9/2020 at 8:45 am, Matt Waldman of our firm performed a flow test of the hydrant at 1073 Dolsontown Rd. (front yard) control hydrant at 100'east of 1081 Dolsontown Rd. Witness to the flow testing procedure and operating the hydrants was Cory Robinson of Maser and Dakota of JCO.

The pressure readings on the control hydrants were obtained using a 2 ½" hydrant cap with a ¼" water pressure gauge. The pitot pressure and gpm readings were obtained using a 2 ½" pitot gauge mounted on the threads of the hydrant with an oil dampened pre-calibrated gauge showing both Pitot psi and gpm. The residual pressure was read at the same time that the gpm flow was being taken.

The results of the **test** are:

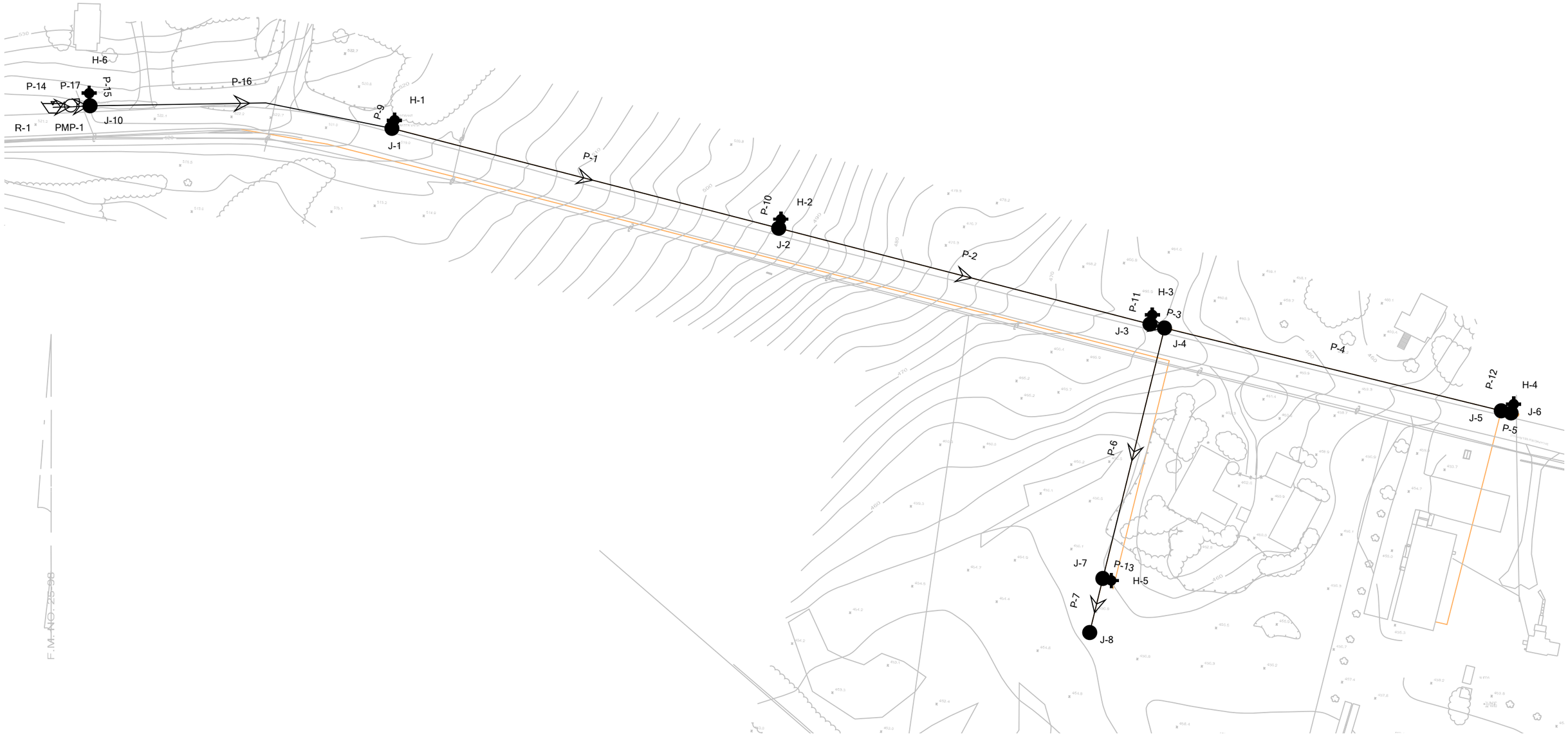
Static Pressure: 69 psi
Residual Pressure: 60psi
Flow: 760 gpm

Very truly yours,
SULLIVAN FIRE PROTECTION CORP

Debbie Haupt, Manager


1073 Dolsontown Rd,
Middletown, NY 10940
Dolsontown Rd
Dolsontown Rd
Dolsontown Rd
Dolsontown Rd
Dolsontown Rd
Dolsontown Rd
Dolsontown Rd
RUN #1:
FLOW HYDRANT
FLOW= 920 gpm
RUN #2:
CONTROL HYDRANT
STATIC PRESSURE= 69 psi
RESIDUAL PRESSURE= 60 psi
RUN #1:
CONTROL HYDRANT
STATIC PRESSURE= 68 psi
RESIDUAL PRESSURE= 54 psi
RUN #2:
FLOW HYDRANT
FLOW= 760 gpm

Scenario: Base



Flex Table: Pipe Table												
Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Has Check Valve?	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)	Has User Defined Length?	Length (User Defined) (ft)
P-1	456	J-1	J-2	12	Ductile Iron	120	FALSE	7	0.02	0	FALSE	0
P-2	438	J-2	J-3	12	Ductile Iron	120	FALSE	7	0.02	0	FALSE	0
P-3	17	J-3	J-4	12	Ductile Iron	120	FALSE	7	0.02	0	FALSE	0
P-4	396	J-4	J-5	12	Ductile Iron	120	FALSE	0	0	0	FALSE	0
P-5	12	J-5	J-6	12	Ductile Iron	120	FALSE	0	0	0	FALSE	0
P-6	294	J-4	J-7	6	Ductile Iron	120	FALSE	7	0.08	0	FALSE	0
P-7	64	J-7	J-8	6	Ductile Iron	120	FALSE	7	0.08	0	FALSE	0
P-9	10	J-1	H-1	6	Ductile Iron	100	FALSE	0	0	0	FALSE	0
P-10	11	J-2	H-2	6	Ductile Iron	120	FALSE	0	0	0	FALSE	0
P-11	11	J-3	H-3	6	Ductile Iron	120	FALSE	0	0	0	FALSE	0
P-12	10	J-6	H-4	6	Ductile Iron	120	FALSE	0	0	0	FALSE	0
P-13	10	J-7	H-5	6	Ductile Iron	120	FALSE	0	0	0	FALSE	0
P-14	22	R-1	PMP-1	24	Ductile Iron	100	FALSE	7	0	0	TRUE	1
P-15	14	J-10	H-6	6	Ductile Iron	100	FALSE	0	0	0	FALSE	0
P-16	347	J-10	J-1	12	Ductile Iron	100	FALSE	7	0.02	0	FALSE	0
P-17	21	PMP-1	J-10	24	Ductile Iron	100	FALSE	7	0	0	TRUE	1

Flex Table: Junction Table				
Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-1	519.61	0	678.81	69
J-2	493.53	0	678.81	80
J-3	466.1	0	678.81	92
J-4	465.13	0	678.81	92
J-5	452.83	0	678.81	98
J-6	452.67	0	678.81	98
J-7	457.77	0	678.81	96
J-8	456.41	7	678.81	96
J-10	521.82	0	678.81	68

Flex Table: Hydrant Table							
Label	Hydrant Status	Include Hydrant Lateral Loss?	Length (Hydrant Lateral)	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
H-1	Closed	FALSE	20	520	0	678.81	69
H-2	Closed	FALSE	20	493.94	0	678.81	80
H-3	Closed	FALSE	20	466.53	0	678.81	92
H-4	Closed	FALSE	20	452.03	0	678.81	98
H-5	Closed	FALSE	20	458.04	0	678.81	96
H-6	Closed	FALSE	20	523.09	0	678.81	67

Fire Flow Report											
Label	Fire Flow Iterations	Satisfies Fire Flow Constraints?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Pressure (Zone Lower Limit) (psi)	Pressure (Calculated Zone Lower Limit) (psi)	Junction w/Minimum Pressure (Zone)
H-1	3	TRUE	0	1,732	0	1,732	20	20	20	22	J-1
H-2	5	TRUE	0	1,760	0	1,760	20	28	20	20	H-1
H-3	5	TRUE	0	1,760	0	1,760	20	39	20	20	H-1
H-4	5	TRUE	0	1,760	0	1,760	20	43	20	20	H-1
H-5	3	TRUE	0	1,655	0	1,655	20	20	20	21	J-7
H-6	3	TRUE	0	1,726	0	1,726	20	20	20	23	J-10
J-4	5	TRUE	0	1,760	0	1,760	20	40	20	20	H-1
J-5	5	TRUE	0	1,760	0	1,760	20	44	20	20	H-1
J-8	3	TRUE	0	1,605	7	1,612	20	20	20	25	H-5
J-1	20	TRUE	0	1,759	0	1,759	20	20	20	20	H-1
J-2	5	TRUE	0	1,760	0	1,760	20	30	20	20	H-1
J-3	5	TRUE	0	1,760	0	1,760	20	40	20	20	H-1
J-6	5	TRUE	0	1,760	0	1,760	20	44	20	20	H-1
J-7	20	TRUE	0	1,666	0	1,666	20	20	20	20	H-5
J-10	20	TRUE	0	1,768	0	1,768	20	21	20	20	H-6

Fire Flow Report			
Label	Pressure (Calculated System Lower Limit) (psi)	Junction w/Minimum Pressure (System)	Is Fire Flow Run Balanced?
H-1	22	J-1	TRUE
H-2	20	H-1	TRUE
H-3	20	H-1	TRUE
H-4	20	H-1	TRUE
H-5	21	J-7	TRUE
H-6	23	J-10	TRUE
J-4	20	H-1	TRUE
J-5	20	H-1	TRUE
J-8	25	H-5	TRUE
J-1	20	H-1	TRUE
J-2	20	H-1	TRUE
J-3	20	H-1	TRUE
J-6	20	H-1	TRUE
J-7	20	H-5	TRUE
J-10	20	H-6	TRUE

Attachment 6

EnSol, Inc.

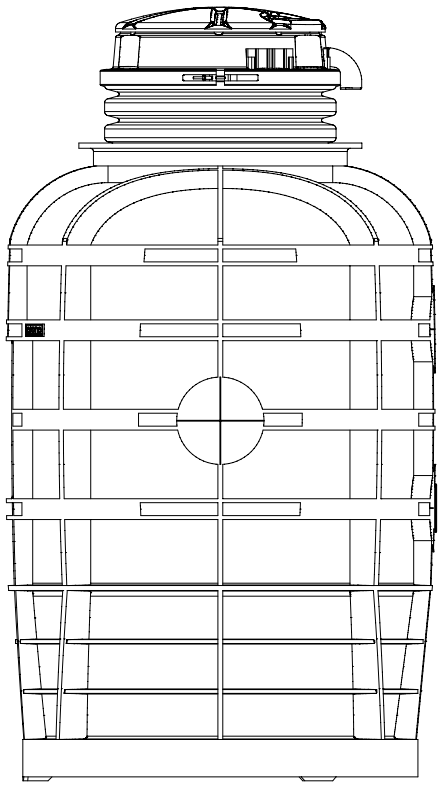
ENGINEERING + ENVIRONMENTAL

Sanitary Pump Station Operating Point Analysis and Pump Station Specification

E/ONE EXTREME SERIES

WH472/WR472

Duplex Grinder Pump Station



Patent Numbers: 5,752,315 5,562,254 5,439,180

* Discharge data includes loss through check valve, which is minimal.

NA0223P01 Rev B

Features

The WH472 or WR472 is a complete unit that includes: two grinder pumps with check valves, polyethylene tank and controls.

The WH472 is the “hardwired,” or “wired,” model where a cable connects the motor controls to the level controls through watertight penetrations.

The WR472 is the “radio frequency identification” (RFID), or “wireless,” model that uses wireless technology to communicate between the level controls and the motor controls.

All solids are ground into fine particles, allowing them to pass easily through the pumps, check valves, and small diameter pipe lines. Even objects that are not normally found in sewage, such as plastic, rubber, fibe , wood, etc. are ground into fine particles.

The 1-1/4” inch discharge connection is adaptable to any piping materials, thereby allowing us to meet your local code requirements.

The tank is made of tough corrosion-resistant polyethylene. Designed specifically for higher-flo applications where local codes dictate higher storage requirements, the WH472/WR472 has a tank capacity of 476 gallons (1802 liters), providing ample user storage. The lower portion of the tank has a smaller diameter tapered down to a dish shaped bottom. The tank access opening is ideally sized for smaller diameter, low-profile covers for minimal “footprint.” This model can handle flows of 3500 GPD (13,249 LPD)

The internal check valve assemblies, located in the grinder pumps, are custom designed for non-clog, trouble-free operation.

The grinder pumps are automatically activated and run infrequently for very short periods.

Operational Information

Motors

1 HP, 1,725 RPM, high torque, capacitor start, thermally protected, 120 or 240 V / 60 Hz, one phase

Inlet Connections

4-inch inlet grommet standard for DWV pipe. Other inlet configuration available from the factory.

Discharge Connections

Pump discharge terminates in 1-1/4” female NPT. Can easily be adapted to 42 mm PVC pipe or any other material required by local codes.

*Discharge (per pump)**

15 gpm at 0 psig (.75 lps at 0 m TDH)

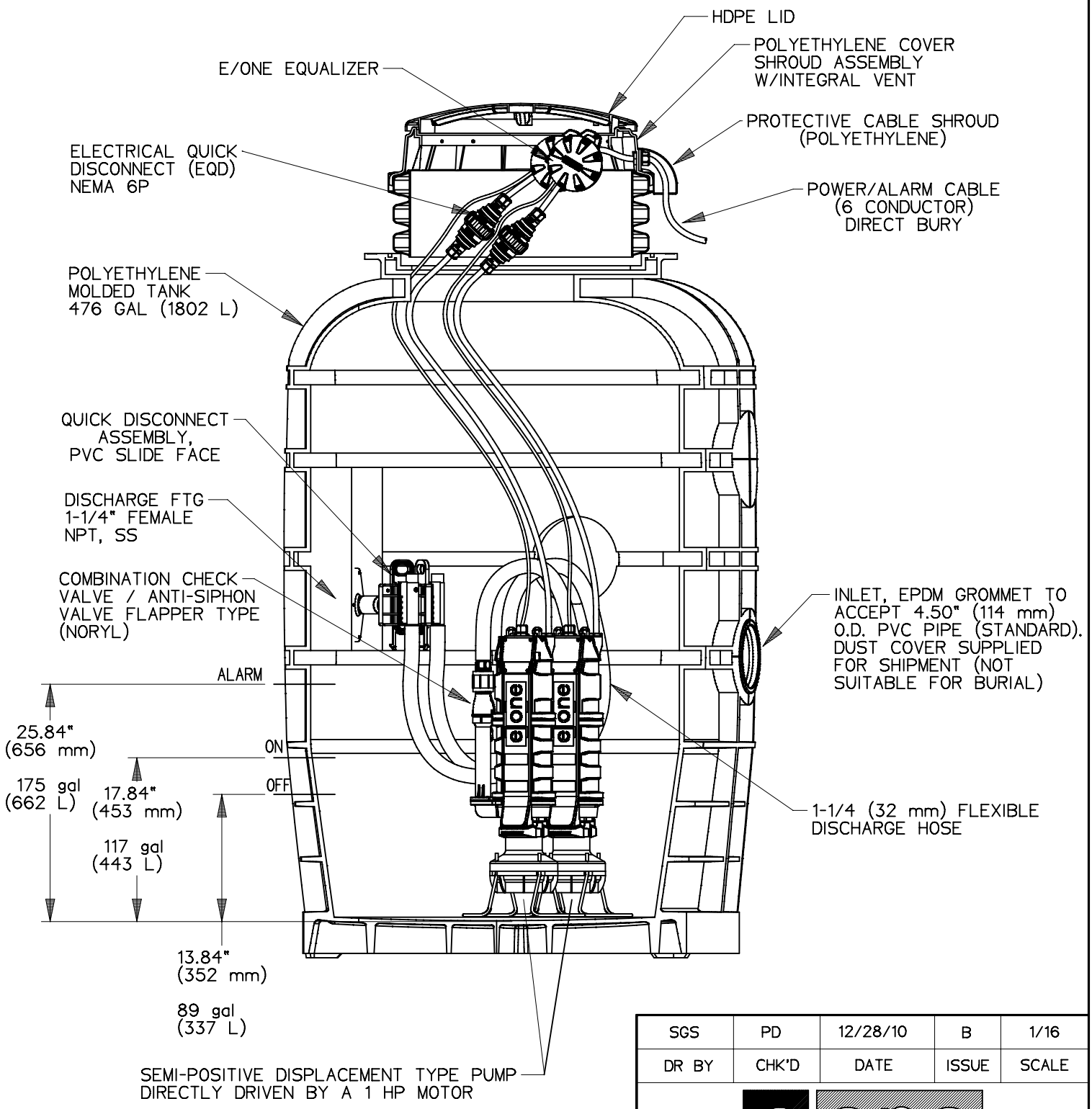
11 gpm at 40 psig (.63 lps at 20 m TDH)

7.8 gpm at 80 psig (.47 lps at 42 m TDH)

Overload Capacity

The maximum pressure that the pump can generate is limited by the motor characteristics. The motor generates a pressure well below the rating of the piping and appurtenances. The automatic reset feature does not require manual operation following overload.

OPTIONS : ☐ WH472 (HARD WIRED LEVEL CONTROLS)
☐ WR472 (WIRELESS LEVEL CONTROLS)



SGS	PD	12/28/10	B	1/16
DR BY	CHK'D	DATE	ISSUE	SCALE

SEWER SYSTEMS

MODEL WH472 / WR472
DETAIL SHEET

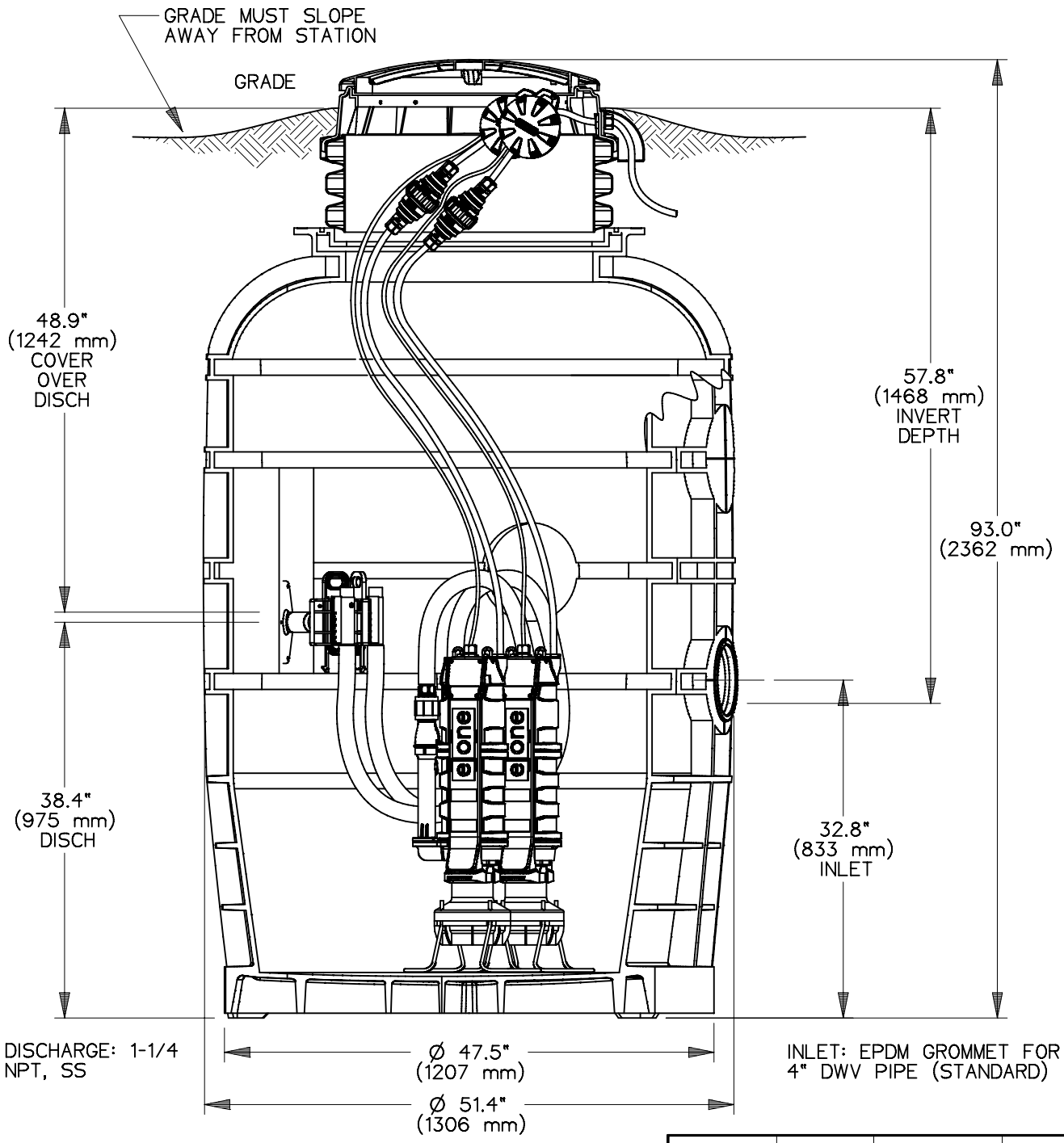
NA0223P02

CONCRETE BALLAST MAY BE REQUIRED
SEE INSTALLATION INSTRUCTIONS
FOR DETAILS

NOTE: DIMENSIONS ARE FOR REFERENCE ONLY

OPTIONS : ☐ WH472-92 (HARD WIRED LEVEL CONTROLS)

☐ WR472-92 (WIRELESS LEVEL CONTROLS)



SGS	PD	12/28/10	A	1/16
DR BY	CHK'D	DATE	ISSUE	SCALE

CONCRETE BALLAST MAY BE REQUIRED
SEE INSTALLATION INSTRUCTIONS
FOR DETAILS

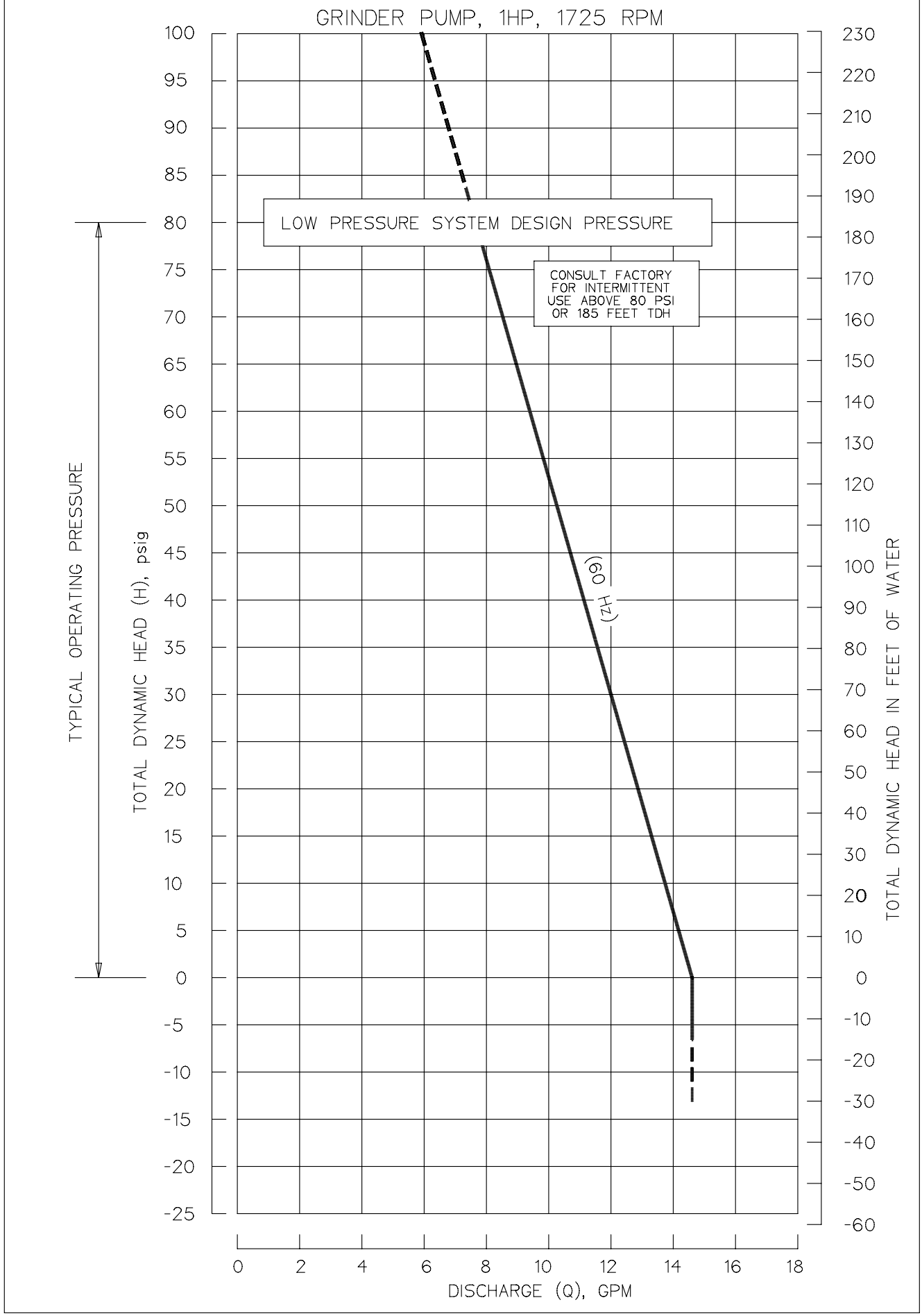
NOTE: DIMENSIONS ARE FOR REFERENCE ONLY

SEWER SYSTEMS

MODEL WH472-92 / WR472-92

NA0223P04

E|ONE SPD PUMP PERFORMANCE CURVE



Pumping Station - System Curve Calcs

Project Name:	Dom-Mar Transfer and Recycling Facility	**Designer:**	Haley Bigando
Project Number:	32034.00	**DATE:**	July 19, 2021

************FLOW DATA************

Design Flow (GPD) =	2,464	**gpd**
Design Operation Time (Hours per day) =	15	**hrs/day**
Avg Flow Rate (Design Flow/Design Time *60) =	**2.7**	**gpm**
Peaking Factor (average range 2 - 4) =	4.00	
Peak Flow =	**11.0**	**gpm**

********* SYSTEM HEAD CURVE *********

Force Main Length + Equiv. Length, (L), Ft =	1374	Highest Static Elev =	522.14
Nominal Size of Force Main in Inches =	2	PS Outlet Elev =	453.92
Actual ID of Force Main, (D) in Inches =	1.50	PS Inlet Elev =	453.07
Type of Force Main =	PVC SDR-26	Lag Pump on =	
C Value =	120	High Alarm =	452.99
Static Head (Hs) in Feet =	70.15	Lead Pump on =	452.33
		Pumps Off - Low Water Elev =	451.99
Lowest Pump Flow Rate, in GPM =	6	Low Level Alarm =	
Incremental Increase, in GPM =	2		
		FM length =	1360
Hazen Williams Equation		Fittings Equiv length (Table 1) =	14
Hf=(L*10.44*Q^1.85)/((D^4.87)*C^1.85)			
TDH=Hs+Hf		High Ground Water Elev =	449.50
V=.40853*Q/D^2		PS Top Elev =	457.89
Hv=V^2/2g		PS Bottom Elev =	450.51
		PS Depth =	7.38

Pump Data: E/One WH472
Duplex Grinder Pump Station

Flow Rate Q, GPM	Friction Head Hf, Feet	Static Head Hs, Feet	Total Dynamic Head TDH, Feet	Velocity FPS	Velocity Head Hv, Feet	Pump Curve Ft of Head	Parallel Curve Ft of Head	Duty Point
6	7.8	70.2	78.0	1.1	0.0	230.0	230.0	
8	13.3	70.2	83.4	1.5	0.0	175.0		
10	20.1	70.2	90.2	1.8	0.1	122.0	175.0	
12	28.1	70.2	98.3	2.2	0.1	69.0		
14	37.4	70.2	107.6	2.5	0.1	18.0	122.0	
16	47.9	70.2	118.0	2.9	0.1			
18	59.5	70.2	129.7	3.3	0.2		69.0	
20	72.4	70.2	142.5	3.6	0.2			
22	86.3	70.2	156.5	4.0	0.2		18.0	
24	101.4	70.2	171.5	4.4	0.3			
26	117.6	70.2	187.7	4.7	0.3		0.0	**11.0 GPM**
28	134.9	70.2	205.0	5.1	0.4			**94.4 TDH**
30	153.2	70.2	223.4	5.4	0.5		0.0	**2.0 FPS**
32	172.6	70.2	242.8	5.8	0.5			
34	193.1	70.2	263.3	6.2	0.6		0.0	
36	214.7	70.2	284.8	6.5	0.7			
38	237.3	70.2	307.4	6.9	0.7		0.0	
40	260.9	70.2	331.0	7.3	0.8			
42	285.5	70.2	355.7	7.6	0.9		0.0	
44	311.2	70.2	381.3	8.0	1.0			
46	337.8	70.2	408.0	8.4	1.1		0.0	

Attachment 7

EnSol, Inc.

ENGINEERING + ENVIRONMENTAL

Drainpipe and Oil Water Separator (OWS) Calculations and OWS Specification

DOM-MAR TRANSFER AND RECYCLING FACILITY
Drain Pipe Capacity Calculation

Find: Determine expected peak flow rate to the Facility drain pipe, and compare to the drain pipe capacity.

Expected Peak Flow Rate Calculation

	Peak Flow Rate	Unit
MSW and C&D Tipping Floor Washwater (water spigot demand)	5.0	gal/min
Recycling Facility Tipping Floor Washwater (water spigot demand)	5.0	gal/min
Leachate (500 gallons/day):	1.0	gal/min
Total:	11	gal/min
Design Flow Capacity Q_{req}:	0.025	ft^3/s

Drain Pipe Capacity Calculation

Method: Manning's Equation for flow in a partially full conduit

$$Q_{all} = \frac{1.49}{n}(A)(Rh)^{2/3}(S)^{1/2}$$

$$V = Q_{all}/A$$

Less than half full flow:

$$r = D/2$$

$$\theta = 2\arccos\left(\frac{r-h}{r}\right)$$

$$A = \frac{r^2(\theta - sin\theta)}{2}$$

$$P = r\theta$$

$$R_h = A/P$$

Greater than half full flow:

$$r = D/2$$

$$\theta = 2\arccos\left(\frac{r-h}{r}\right)$$

$$A = \pi r^2 - \frac{r^2(\theta - sin\theta)}{2}$$

$$P = 2\pi r - r\theta$$

$$R_h = A/P$$

Input parameters			**Unit**
n =	Manning's roughness coefficient (smoothwalled PVC)	0.011	
S =	Slope of pipe	**0.010**	ft/ft
D =	Trial size (diameter) of pipe	**8**	**in**
		0.67	ft
d =	Trial depth of flow	0.8	in
		0.067	ft
Solution:			
h =	Distance from flow surface to top/bottom of pipe (nearest)	0.067	ft
θ =	Angle between center of pipe and flow surface	1.29	rad
A =	Area of flow	0.02	ft^2
P =	Wetted Perimeter	0.43	ft
Rh =	Hydraulic Radius	0.04	ft
Q_{req} =	Required flowrate capacity of Drainpipe	0.025	ft^3/s
Q_{all} =	Design Drainpipe Flowrate	0.030	ft^3/s
Is $Q_{all} > Q_{req}$?		**Yes**	
V=	Velocity	1.6	ft/s

BY: DL
CHKD BY: BA

DOM-MAR TRANSFER AND RECYCLING FACILITY
Oil Water Separator Sizing Calculation

Find: Oil Water Separator Size based on the drainage area including the Transfer and Recycling Facility Floor Area, and the Trailer Parking Area.

Method: Required Nominal Gallonage$= [6 + \left(\frac{Total\ Square\ Feet - 100}{100} \cdot 1\right)] \cdot 7.48$

Reference: Highland Tank Oil/Water Separator Sizing Guide Indoor Applications: Vehicle Service Bay Drainage. Based on International Building Code which requires 6 cubic feet of volume for the first 100 square feet of indoor floor area and one cubic foot of volume for each 100 square feet of floor area thereafter.

Input Parameter:

Facility Floor Area:	42,000	Square Feet
Trailer Parking Area:	6,000	Square Feet
Total Area:	48,000	Square Feet

Solution:

Required Nominal Gallonage:	3,628	gallons
Selected Oil Water Separator Size:	3,700	Gallons

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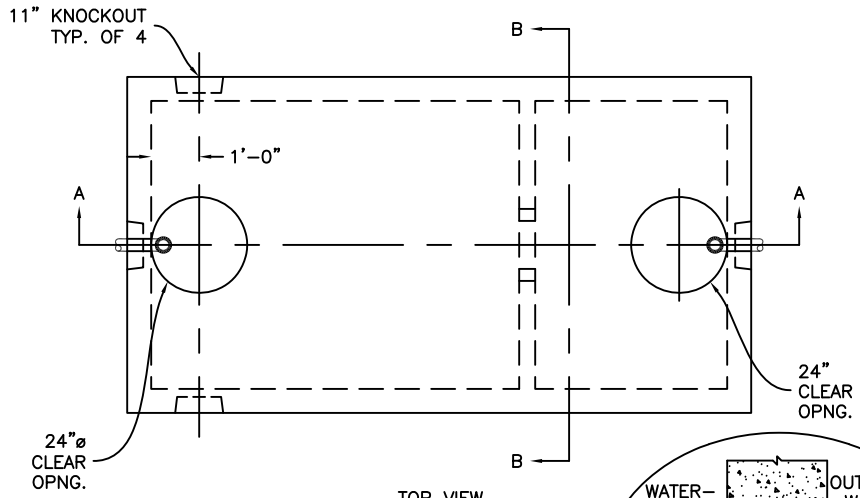
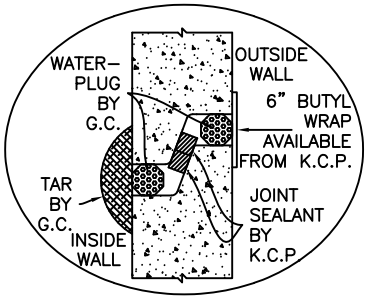


TOP VIEW



WATERTIGHT JOINT DETAIL
SCALE: N/A

SP-7A

SPECIFICATIONS:

CONCRETE:	5,000 P.S.I. @ 28 DAYS.
ENTRAINED AIR:	5% – 8%.
STEEL:	A.S.T.M. A496–A615 GRADE 60–80 KSI.
DESIGN LOADING:	ACI 318–99 TRAFFIC. USE ACI LOAD FACTORS. A.A.S.H.T.O. METHOD OF DESIGN. EQUIVALENT SOIL PRESSURE OF 40 (PCF).
LIVE LOAD:	H20.
EARTH FILL:	0 TO 6'.
WATER TABLE:	3' BELOW GRADE.

WEIGHT:

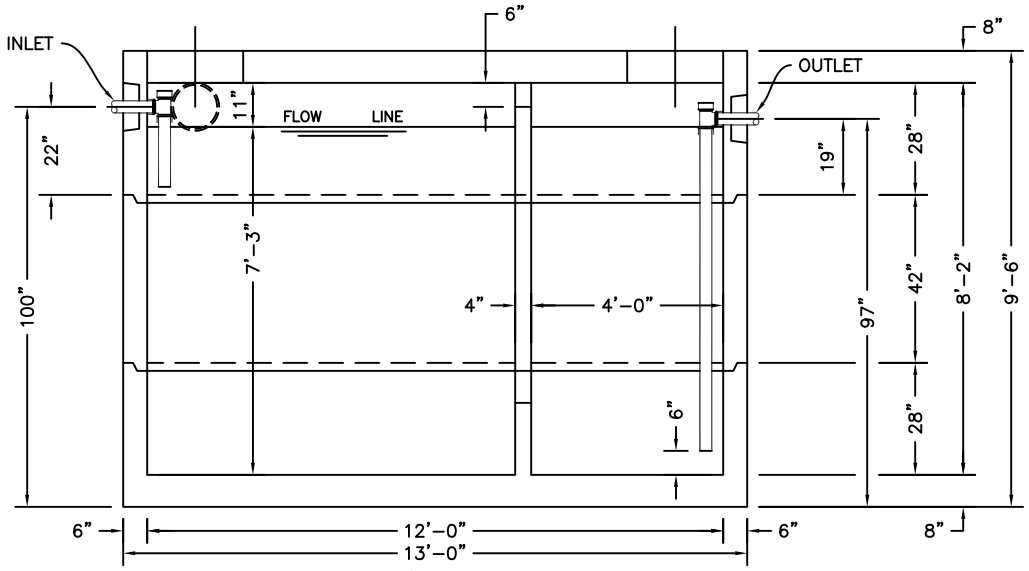
TOP SECTION:	16,712 LBS.
MID–SECTION:	11,935 LBS.
BOTTOM SECTION:	18,007 LBS.
TOTAL:	46,654 LBS.

BAFFLE: PIPING: TEES, DROP LEGS & FITTINGS SUPPLIED AND INSTALLED BY G.C.

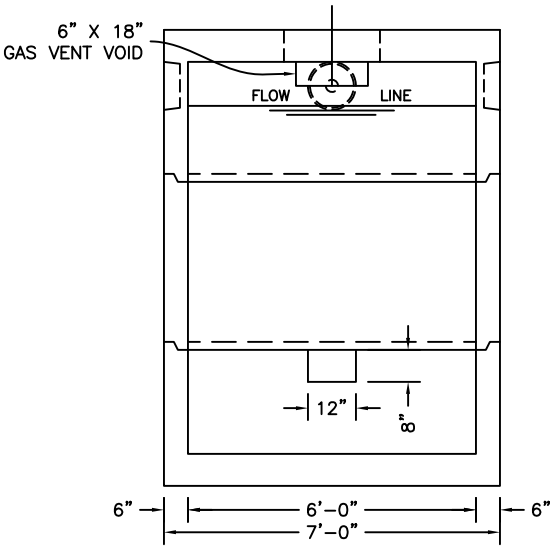
WATERTIGHT ASSEMBLY IS THE RESPONSIBILITY OF THE INSTALLING CONTRACTOR. ASK FOR KISTNER "WATERTIGHT JOINT INSTALLATION" DETAIL.

PIPE OPENINGS STOCK:

- ☐ PIPE SEALS REQUIRED
  - ☐ 4" PVC – OPENING WITH SEAL – STOCK
  - ☐ 6" PVC – OPENING STOCK – SEAL TO BE INSTALLED
  - ☐ 8" PVC – OPENING STOCK – SEAL TO BE INSTALLED
- ☐ GROUTED OPENINGS ONLY – REQUIRED
  - ☐ 4" PVC – OPENING WITH SEAL – STOCK
  - ☐ 6" PVC – STOCK KNOCKOUT TO BE BROKEN OUT BY CONTRACTOR
  - ☐ 8" PVC – STOCK KNOCKOUT TO BE BROKEN OUT BY CONTRACTOR



SECTION A–A



SECTION B–B

KISTNER CONCRETE PRODUCTS INC.
8713 READ ROAD
E. PEMBROKE, N.Y.
14056
(716) 894–2267

PRODUCT DESIGNATION

3700 GAL. OIL SEPARATOR - TRAFFIC

DWG. NO.
OS-OS3700T
4/2/19

©

Attachment 8

EnSol, Inc.

ENGINEERING + ENVIRONMENTAL

Geotechnical Subsurface Investigation Report

Geotechnical Investigation Report

for the:

Dom-Mar Transfer and Recycling Facility
Dolsontown Road
Wawayanda, New York 10940

October 2022
Revised March 2022

prepared for:

DOM KAM LLC
366 Highland Avenue Ext.
Middletown, New York 10940

prepared by:

EnSol
ENGINEERING+
ENVIRONMENTAL

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PN 029-A0001

Table of Contents

1. Introduction

This Geotechnical Investigation Report has been prepared for the proposed Dom-Mar Transfer and Recycling Facility located at 1118 Dolsontown Road in the Town of Wawayanda, New York. DOM KAM LLC (DM) retained EnSol, Inc. (EnSol) to perform a geotechnical investigation for an approximately 18.39-acre area located on a portion of parcel 6-1-3.32 and parcel 6-1-3.31.

The field portion of the investigation, including exploratory borings was completed by Soil Testing, Inc. (ST) of Oxford, CT on April 9, 12 and 13, 2021. Borehole logs prepared by ST were provided to EnSol for the purpose of preparing this report. The borehole locations are shown on the Site Plan included in Attachment 1; copies of the borehole logs are included in Attachment 2.

This report summarizes our understanding of the proposed project as it relates to geotechnical matters and the associated construction activities. The report describes the investigation procedures, presents the findings, and discusses the associated evaluations, including foundation design and construction recommendations.

2. Project Description

DOM KAM LLC (DM) of Middletown, New York is proposing to construct a solid waste transfer and recycling facility (Dom-Mar Transfer and Recycling Facility or Facility) in the Town of Wawayanda, Orange County, New York. The Transfer and Recycling Facility will process and transfer municipal solid waste (MSW), Construction and Demolition debris (C&D), and Industrial Waste (IW) for disposal, and package and transfer source separated Old Corrugated Containers (OCC) for further processing. Concrete, asphalt, rock, brick, soil, brush, unadulterated wood, and metal from the C&D will be separated through simple floor sorting and transferred for further processing.

Stormwater runoff from developed areas will be conveyed to a bioretention basin, and two Wet Ponds. Stormwater north of the Transfer Station Building shall be collected by catch basins and directed to Wet Pond 2 by a storm sewer. Wet Pond 2 will discharge to the unnamed tributary which flows south to Monhagen Brook. Stormwater runoff south and west of the Transfer Station Building will be collected by stormwater channels and directed to a bioretention basin and Wet Pond 1.

A Site Plan of the proposed development is included in Attachment 1.

3. Subsurface Investigation Procedure

Eight exploratory borings; designated on the logs as B-1 through B-8 were completed on April 9, 12, and 13, 2021 by ST. The boreholes were located across the proposed project area, including one borehole located in each of the wet ponds, the bioretention basin, the storm sewer alignment, the Transfer and Recycling Facility building, the area north of the Facility, the parking lot, and the entrance road. The information provided by the borehole logs has been utilized to evaluate the geotechnical properties of the subsurface materials at the site. The horizontal location at each borehole was staked out on the project site by Lanc and Tulley Engineering and Surveying, PC of Goshen, NY. The location of the boreholes is shown on the Site Plan included in Attachment 1.

The test borings performed during this investigation were drilled utilizing 4¼-inch inner diameter hollow-stem augers. Soil sampling was completed in general accordance with accepted geotechnical investigative procedures outlined in ASTM D1586, the Standard Test Method for Standard Penetration Test (STP) and Split Barrel Sampling of Soils. Soil samples were recovered by driving a standard 2-inch diameter split spoon sampler (1 3/8" inner diameter) into the soil with a 140-pound weight falling freely over 30 inches. The sampler was driven in four successive six-inch increments, and the number of blows per increment were recorded. The sum of the number of blows required to advance the sampler the second and third six-inch increments is termed the Standard Penetration Resistance (N-value) and is presented on the final borehole logs. The split spoon sampler recovered 1 3/8-inch diameter samples.

The drilling crew consisted of the driller, and a foreman responsible for classifying the soil samples in the field. The field logs and jar samples were reviewed by a senior engineering geologist, who supervised and approved the preparation of the final logs. Final borehole logs are included in Attachment 2.

Borehole B-5 was advanced to auger refusal at a depth of 67 feet below ground surface (bgs), the other boreholes were advanced to a depth of approximately 24 feet bgs. During drilling operations, the augers were advanced such that soil samples were collected continuously throughout the upper 16-feet of each borehole, and then at a five-foot interval to the bottom of the boreholes. The soil samples were sealed in jars for confirmatory classification and subsequent laboratory testing.

Soil and groundwater conditions encountered in the test borings are presented in the logs. The boring logs also present detailed descriptions and classifications for the soils, information related to sampling equipment, sample data, SPT results and any water or moisture conditions observed in the borehole on

completion. Unified Soil Classification System (USCS) classifications are included in the logs (ASTM D 2487 and D 2488) and help form the basis for some of the statements made in this report.

Experience indicates that the actual subsoil conditions at a site could vary from those generalized based on test borings made at specific locations. Therefore, it is recommended that a qualified individual be retained to provide soil engineering services during the site preparation, excavation, and other construction phases of the proposed project. This is to observe compliance with the design and construction recommendations and to allow design changes in the event subsurface conditions differ from those now anticipated.

4. General Site and Subsurface Conditions

4.1 Site Conditions

The site has historically been used for agricultural purposes, Parcel 6-1-3.32 contains multiple vacant farm buildings and a silo, the property is classified as a dairy farm. Parcel 6-1-3.31 contains a residential house, and a commercial storage building, the property is classified as a one-use small building. The ground surface generally slopes down from Dolsontown Road to the south on Parcel 6-1-3.32 to Monhagen Brook which flows west to east across the property. On Parcel 6-1-3.31 the ground surface generally slopes to the west to an unnamed tributary to Monhagen Brook which flows north to south across the property. The topography of the site is steeper in the northern portion with approximately 3 to 8% slopes and flatter in the southern portion with 0 to 3% slopes. The existing ground cover consists of predominately grassed areas with wooded and brush covered areas throughout the remainder of the site.

4.2 Subsurface Soil Conditions

In general, the subsurface soils consist of a surficial approximately four-to-six-inch thick layer of topsoil underlain by brown and grey fine, medium, and coarse sand with varying amounts of silt, fine and coarse gravel, cobbles, and trace amounts of clay. The brown and grey sand was predominately classified as SW/SM, and SP/SM per the USCS, which consists of well graded sand, fine to coarse sand/silty sand and poorly graded sand/silty sand. Borehole B-3 included dark brown to light brown silt beginning two feet bgs to a depth of four feet underlain by the brown and grey fine, medium, and coarse sand, and fine and coarse gravel, with little silt. Borehole B-5 included brown silt and fine and coarse gravel with some sand beginning at a depth of one-foot bgs to a depth of two feet bgs, underlain by brown fine, medium, and coarse sand, and fine and coarse gravel, with little cobbles and silt. The silty sand and gravel extended to a depth of 45 feet bgs in Borehole B-5 and is underlain by light gray silt, some very fine, fine, medium, and coarse sand, fine and coarse gravel, cobbles, and trace boulders. This layer is classified as ML per the USCS, which consists of silt. The light brown silt extends to a depth of 55 feet bgs in Borehole B-5 and is underlain by grey and brown very fine to coarse sand, some silt, gravel, and cobbles until auger refusal at a depth 67 feet. The grey brown very fine to coarse sand layer was classified as poorly graded sand/silty sand to well graded sand, fine to coarse sand/silty sand.

Based on the SPT N values the upper one to two feet of the silty sand was loose. The silty sand and gravel mixture then ranged from firm to very compact to the end of the borehole. The light grey silt layer in Borehole B-5 was classified as compact to very compact.

4.2.1 Laboratory Testing

Representative samples of the silty sand from Boreholes B-4, B-5, B-6 and B-8 were tested by ST for grain size (ASTM D-112), and Atterberg limits (ASTM D-4318). The selected samples are taken below the proposed Bioretention Basin (Borehole B-4), the expected footer excavation of the Transfer and Recycling Facility building (Borehole B-5), the proposed base of Wet Pond 1 (Borehole B-6), and the proposed base of Wet Pond 2. The sample results are shown in Table 1 below:

Table 1 Atterberg Limits and Grain Size Results

Borehole	Sample No.	Depth (ft)	Atterberg Limits			Gravel (%)		Sand (%)			Silt and Clay (%)	Moisture Content (%)
			LL	PL	PI	Coarse	Fine	Coarse	Medium	Fine		
B-4	S3, S4, S5	4-10	26	19	7	0.0	7.1	4.1	6.6	33.9	48.3	24.3
B-5	S2, S3, S4	2-8				5.8	27.7	19.3	25.1	9.5	12.6	
B-5	S5, S6	8-12	20	16	4	32.4	18.1	7.0	17.7	12.8	12.0	18.9
B-6	S3, S4, S6, S7	4-8 10-14				9.7	26.5	16.0	25.3	10.7	11.8	
B-8	S2, S3, S4	2-8				20.9	26.8	15.6	13.9	7.5	15.3	

The test laboratory reports are included in Attachment 2. Based on the laboratory test results the soil below the Bioretention Basin in Borehole B-4 was classified as brown and grey silty, clayey sand. The soil near the expected footer elevation of the Transfer and Recycling Facility building in Borehole B-5 was classified as brown and grey silty sand with gravel at a depth of two to eight feet, and brown and grey poorly graded gravel with silty clay and sand at a depth of eight to 12 feet. The soil at the proposed base of Wet Pond 1 in Borehole B-6 was classified as brown poorly graded sand with silt and gravel. The soil at the proposed base of Wet Pond 2 in Borehole B-8 was classified as grey-brown silty gravel with sand.

4.2.2 Expansive Soils

For the purposes of this report, expansive soils are those that experience significant volume changes with variations in moisture content between a wet and dry state, such as swelling with increasing moisture

content and shrinkage with decreasing moisture content. The magnitude of the volume change in any given soil is primarily related to the type and amount of clay sized particles in the matrix. Holtz and Gibbs (1956) developed a system to classify soils as having either a low, medium, high, or very high expansion potential given the clay content and plasticity index of the soil, as follows:

Expansion Potential	**Very Low**	**Low**	**Medium**	**High**	**Very High**
Expansion Index	0-20	21-50	51-90	91-130	130 +
Clay Content	0 – 10%	10 – 15%	15 – 25%	25 – 30%	35 – 100%
Plastic Index	0 - 10	10 - 15	15 - 25	25 - 35	35 +

Based on the laboratory testing of the silty sand and gravel mixture, the soil exhibits a very low expansion potential.

According to Section 1803.5.3 Expansive Soil of the New York State Building Code soils meeting all four of the following provisions shall be considered to be expansive, except that tests to show compliance with Items 1, 2, and 3 shall not be required if the test in Item 4 is conducted:

1. Plasticity Index of 15 or greater, determined in accordance with ASTM D4318
2. More than 10 percent of the soil particles pass a No. 200 sieve, determined in accordance with ASTM D422.
3. More than 10 percent of the soil particles are less than 5 micrometers in size, determined in accordance with ASTM D422.
4. Expansion index greater than 20, determined in accordance with ASTM D4829.

Based on the New York State Building Code criteria the silty sand and gravel mixture is not considered to be expansive.

4.2.3 Compressibility

The compressibility of the shallow soils is also an important consideration in the design and construction of foundations. Compressibility is defined as a decrease in volume that occurs in a soil mass when it is subject to an increase in loading. Some examples of more compressible soils include loose sands, organic clays, sensitive clays, highly plastic or soft clays and uncompacted fills.

The silty sand and gravel mixtures are classified as firm to very compact, with low plasticity and has a low potential for compressibility.

4.3 Groundwater

Free-standing water was recorded after completion of the borehole at a depth of four to six feet bgs in Boreholes B-1, B-2, B-3, B-4 and B-5. The ground water was noted to rise to a depth of two feet bgs in Borehole B-3 after four hours. Groundwater was deeper in Boreholes B-6 and B-7 at eight and 13 feet bgs respectively at 0 hours. Boreholes B-6 and B-7 are located in relatively higher elevations on the site. Groundwater at Borehole B-1 was shallower at 2.5 feet bgs at Borehole B-8, which is located in the lowest elevation of the project area. The excavation and construction of the Transfer and Recycling Facility building will involve excavation in both unsaturated and saturated sand & silt and sand & gravel mixtures. Wet Pond 1 and Wet Pond 2 will also be located below the water table and will have normal pool elevations lower than the existing water table based on the subsurface investigation results.

5. Geotechnical Considerations and Design Parameters

5.1 Seismic Site Classification

The intensity of ground shaking during an earthquake and the amount of force transferred to any structure is related in a general way to the local soil conditions. Section 1613.2 of the Building Code of New York State requires that building sites be categorized into one of the seismic site classes in accordance with Chapter 20 of ASCE 7. The seismic site class is based on the average soil properties to a depth of 100 feet. The average N value was determined for Borehole B-5 using the procedures Chapter 20 of ASCE 7. The average N value was calculated as 53.5, therefore the site is classified as Seismic Site Class C, very dense soil and soft rock per Table 20.3-1 Site Classification included in Chapter 20 of ASCE 7.

According to Figure 1613.2.1(1) of the Building Code of New York State, the mapped short period (0.2 sec.) spectral response acceleration (SS) for the Town of Wawayanda is approximately 0.225g. The adjusted short period response (SMS) acceleration for Site Class C is 0.29g, and the corresponding five-percent damped design spectral response acceleration (SDS) is 0.19g. According to Figure 1613.2.1(2) of the Building Code of New York State, the mapped 1-second spectral response acceleration (S1) for the Town of Wawayanda is approximately 0.06g. The adjusted 1-second response (SM1) acceleration for Site Class C is 0.09g, and the corresponding five-percent damped design spectral response acceleration (SDS) is 0.06g.

Based on Table 1604.5 of the Building Code of New York State, the proposed building is classified as Risk Category II. Based on Table 1613.2.5(1) of the Building Code of New York State, the Seismic Design Category based on a short period response acceleration for this site is B for buildings classified as Risk Category II. Based on Table 1613.2.5(2) of the Building Code of New York State, the Seismic Design Category based on a 1-second period response acceleration for this site is A for buildings classified as Risk Category II.

5.2 Frost Effects

Frost action is defined as an increase in soil volume that occurs when water is drawn from unfrozen soil to the freezing zone where it attaches to form ice lenses, forcing soil particles apart and causing the soil surface to heave. In general, coarse-grained soils such as clean sands and gravels do not heave, whereas clays, silts and very fine sands and silty sands may support the growth of ice lenses even when present in

small proportions in coarse soils. The soils within the frost zone at the site, or about four feet bgs are typically classified as SP/SM poorly graded sand/silty sand which exhibit medium potential for frost heave.

The potential for frost heave adjacent to or under foundations, utilities and other structures can best eliminated in at least three ways. The most common method for building foundations and utilities is to place the base of the foundation below the maximum expected frost depth. Another approach for buildings or other structures is to provide for a foundation that can tolerate relatively minor movement.

Given the potential for frost susceptible soils and the climatic conditions in Wawayanda, New York the practical approach to preventing frost damage for structures at the Transfer and Recycling Facility is to provide a minimum burial depth of 48 inches, and/or adequate drainage of subgrade materials. For instance, frost protection for concrete slabs should include a well-drained, crushed stone base beneath a very stiff and well reinforced concrete slab. Any excavation for the stone base course should extend six inches wider than the planned concrete slab width.

5.3 Bearing Capacity

The ultimate bearing capacity is defined as that bearing stress that will result in shear failure of the soil. The allowable bearing capacity is the ultimate bearing capacity reduced by an appropriate factor of safety (typically = 3). The bearing capacity was computed for the portion of the silty sand and gravel mixture 48 inches below the lowest proposed ground elevation north of the building at a depth of approximately 6.7 feet.

Bearing capacity values were determined using the Meyerhof Allowable Bearing Capacity Equation based on SPT N Values in the area of interest and one inch of foundation settlement. The allowable bearing capacity of 4,000 pounds per square foot (psf) was conservatively computed for a foundation that rests on the silty sand and gravel.

5.4 Settlement

Based on the adherence to the site preparation recommendations and good construction practices included in Section 6 of this report, normal consolidation settlement should not result in total building settlements greater than one-inch or differential settlement in excess of ¾-inch, indicative of all good foundation soils.

5.5 Foundation Design

5.5.1 Concrete Floor Slabs

It is recommended that all floor slabs be "floating," that is, fully ground supported and not structurally connected to walls or foundations. This is to reduce the possibility of cracking and displacement of the floor slabs because of differential movements between the slab and the foundation. Such movements could be detrimental to the slabs if they were rigidly connected to the foundations.

Subgrades below the floor slab subbase material are expected to consist of silty sand. For subgrades that have been verified as stable by proof rolling/compaction in accordance with the recommendations provided in Section 6 of this report, a modulus of subgrade reaction (k) of 150 pounds per cubic inch (pci) may be used for floor slab design. It is also recommended that the floor slab be supported on a minimum six-inch layer of relatively clean granular material such as sand and gravel or crushed stone. This is to help distribute concentrated loads and to provide more uniform subgrade support beneath the slab. Also, the upper 12 inches of the existing subgrade materials should be compacted to a minimum of 90 percent of the maximum dry density as determined by ASTM D 1557 (Modified Proctor) or confirmed as stable by proof rolling/compaction.

5.5.2 Drainage and Waterproofing

To address the potential for a high-water table, a foundation drainage system must be installed such that the adjacent backfill or subbase material remains in a drained state. Non-expansive free draining foundation backfill material such as sands and gravels shall be used. The drainage system should include a properly designed and selected graded soil or geotextile filter to prevent piping of the erodible fine-grained soil from below the foundation. The filter should be designed to operate without clogging the filter, or any drain stone and pipe system that may be employed. The design of the drainage system must be based on accepted principles of engineering in consideration of the permeability of the soil, the grain size distribution of the soil and drainage stone, and the anticipated rate of flow.

5.5.3 General Recommendations

The following additional foundation design recommendations are commonly required by the building codes, or are considered standard operating procedure in quality construction projects:

- The foundation design must be completed by a qualified design professional in accordance with standard engineering practice, the soil information presented above and the requirements of all applicable codes.

- Reinforcing steel should be incorporated in the foundation design by a structural engineer licensed to practice engineering in New York state as required to aid in stress distribution and minimize cracking and differential motion.
- An experienced geotechnical engineer licensed to practice engineering in New York state shall review the foundation design details and foundation elevations and loadings as indicated on the drawings submitted with the building permit application to determine compliance with the recommendations of this Report.
- Unbalanced soil bearing pressures should be avoided.
- Concrete for the footing should be placed as soon after foundation excavation as is possible, and water must not be allowed to pond in any excavation. If it is necessary to leave the bearing surface open for any extended period of time, it is highly recommended that a thin mat of lean concrete be placed over the bottom of the excavation to minimize damage to the surface from weather or construction. Foundation concrete should not be placed on a frozen or saturated subgrade.
- Positive final site grading should be such that surface water drainage is conducted away from the structure. Roof drainage systems including gutters and downspouts should be unobstructed by leaves and tree limbs and should be connected to drainpipe extensions so that the roof water is drained at least 15-feet away from the foundation.

6. Construction Recommendations

6.1 Subgrade Preparation

We recommend that a geotechnical engineer or a trained and experienced observer complete a detailed footing subgrade soil inspection prior to the concrete placement. The purpose is to verify that conditions are suitable, that site specific bearing grade preparation as required by this Report have been followed, that any unsatisfactory soils have been removed and the exposed soil conditions are consistent with the subsurface conditions encountered in the test borings and are capable of supporting the design foundation loads.

Proof rolling the stripped surface should be used in detecting excessively soft or otherwise unacceptable conditions or subgrade materials. Proof rolling is performed by driving a select heavy vehicle over the soil surface and observing the soil surface for deflection such as ruts or indentations. Typically, soft or loose soil is detected by permanent ruts or indentations of one inch or more. The top 12 inches of subgrade shall be compacted. Proof roll immediately after compaction and before environmental conditions can degrade the subgrade incorporated in the work. A one-inch permanent rut is considered failure. Rebound rutting of one inch with substantial cracking or substantial lateral displacement is failure.

Should loose or soft soils be identified during the proof rolling effort, the soils should be densified using a smooth drum compactor providing a static weight on the drum of no less than 7,000 pounds. The roller should make a minimum of two passes covering the proposed construction area, with additional passes as necessary to achieve required compaction and/or subgrade stabilization. Prior to proceeding with the placement of any compacted soil operations, all topsoil and other deleterious non-soil materials should be stripped from the proposed fill areas. Any on-site stockpiling should be completed in accordance with Best Management Practices, (BMP's) to minimize erosion and sedimentation.

If the subgrade soils cannot be readily compacted, they should be over excavated and removed. Over-excavation should extend to suitable bearing soils, or a depth of three feet below the design subgrade elevation. Should unsatisfactory bearing soils remain at an over excavation depth of three feet, the subsurface conditions should be reviewed by the geotechnical engineer considering the encountered bearing strength to determine if a reduced bearing pressure is appropriate. Loose, dry granular fill over

excavated from foundation excavations may be recompacted as engineered backfill, provided is it free of deleterious materials.

6.2 Building Foundation and Wet Pond Excavation

The sides of temporary excavations for building foundations, utility installations, and other construction should be adequately sloped to provide stable sides and safe working conditions. Otherwise, the excavation must be properly braced against lateral movements. In any case, applicable Occupational Safety and Health Administration (OSHA) safety standards must be followed.

Based on the field and laboratory test results, the overburden soils may generally be classified as OSHA Type C soils (granular soils including gravel, sand, and loamy sand). Slopes in areas of Type C soils must be constructed no steeper than 1.5 horizontal to 1 vertical (3/4H:1V) for excavation depths of 20 feet or less. Flatter slopes will be required if lower-strength soils or adverse seepage conditions are encountered.

The Wet Pond slopes shall be excavated at a maximum slope of 4:1 to the permanent pool elevation of 450.2 for Wet Pond 1 and 447 for Wet Pond 2. At the permanent pool elevation, the maximum slope shall be 8:1 to an elevation of 449.2 for Wet Pond 1, and 446 for Wet Pond 2 to create the aquatic bench. Below the aquatic bench a maximum slope of 2:1 shall be excavated to the base of the pond. The 2:1 slopes shall be stabilized by a layer of stone rip rap underlain by a gravel filter to address the erodible nature of the sand & silt and sand & gravel mixtures from groundwater seepage.

The construction of the Transfer and Recycling Facility building, Wet Pond 1 and Wet Pond 2 will involve excavation in saturated sand & silt and sand & gravel mixtures. Given the erodible nature of the on-site soils, it is recommended that the excavation take place under predominantly dry conditions. Construction dewatering techniques should be employed to lower groundwater levels below the base of the excavation.

7. Conclusion

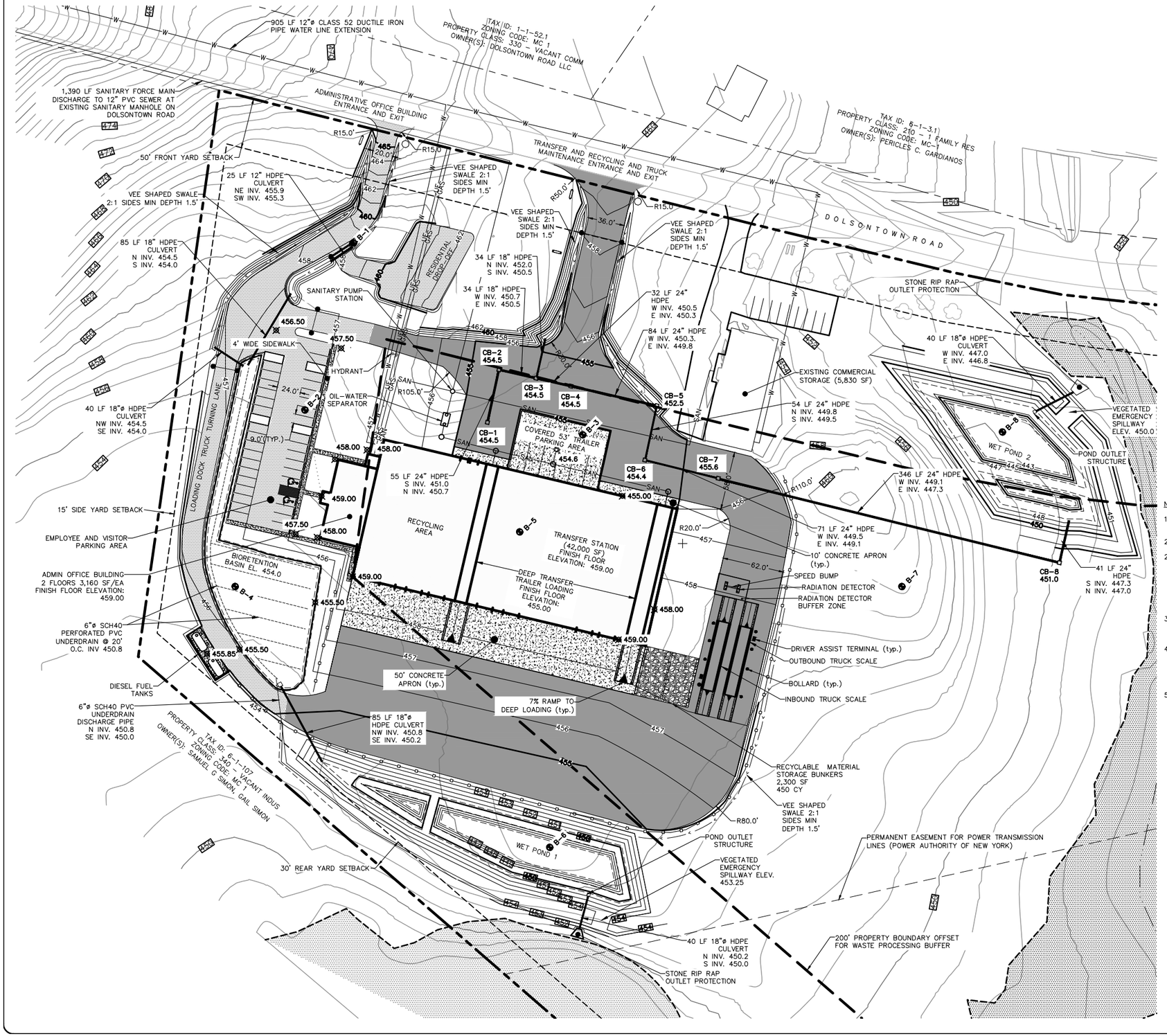
The borehole investigation, laboratory testing and geotechnical engineering analysis of the subsurface conditions for the proposed Dom-Mar Transfer and Recycling Facility demonstrate that the subsurface conditions are suitable for the Transfer and Recycling Facility building if the foundation design recommendations and the site and subgrade preparation techniques are adhered to. The recommendations provided have been developed in accordance with generally accepted geotechnical engineering practice. No guarantees or warranties of any kind are expressed or implied.

ATTACHMENT 1

EnSol, Inc.

ENGINEERING + ENVIRONMENTAL

Project Site Plan and Borehole Locations



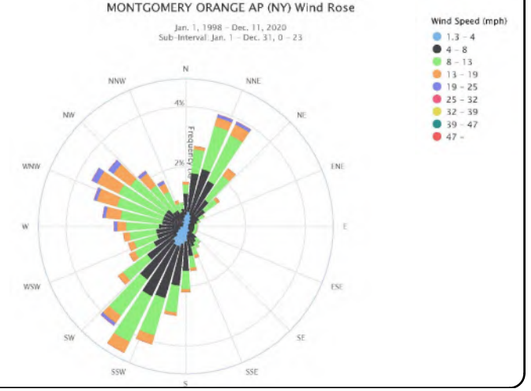
LEGEND:

- EXISTING GROUND MAJOR CONTOUR
- EXISTING GROUND MINOR CONTOUR
- PROPOSED GRADING MAJOR CONTOUR
- PROPOSED GRADING MINOR CONTOUR
- PROPERTY BOUNDARY
- PROPERTY BOUNDARY SETBACK
- EXISTING BUILDING
- JURISDICTIONAL FEDERAL WETLAND
- OUTDOOR SIGNAGE
- STANDARD DUTY PAVEMENT
- HEAVY DUTY PAVEMENT
- CONCRETE
- GRAVEL
- LITTER FENCE
- SANITARY SEWER
- WATER LINE
- UNDERGROUND ELECTRIC
- NATURAL GAS LINE
- PROPOSED SWALE
- PROPOSED STORM SEWER
- 3'X3' CATCH BASIN ID AND RIM ELEVATION
- LOCKING GATE
- BOREHOLE LOCATION

NOTES:

1. EXISTING PROPERTY LINE, BUILDINGS AND TOPOGRAPHY FROM A SURVEY PREPARED FOR MIKE MARANGI, DATED NOVEMBER 16, 2020, BY LANC & TULLY ENGINEERING AND SURVEYING, P.C.
2. ELEVATIONS BASED ON NAVD88 DATUM, HORIZONTAL DATUM IS NEW YORK STATE PLANE EAST.
2. WETLAND BOUNDARIES AND THE FEDERAL JURISDICTION ARE FROM THE WETLAND DELINEATION REPORT FOR DOLSONTOWN ROAD PREPARED BY ENSOL, INC. DATED DECEMBER 2020. FEDERAL JURISDICTION WAS CONFIRMED THROUGH A JURISDICTIONAL DETERMINATION FROM THE UNITED STATES ARMY CORPS OF ENGINEERS DATED JANUARY 5, 2022 (APPLICATION NUMBER NAN-2021-00721-WOR). WETLAND FLAGS AND BOUNDARY LOCATION ARE FROM THE SURVEY PREPARED FOR MIKE MARANGI DATED NOVEMBER 16, 2020, PREPARED BY LANC & TULLEY ENGINEERING AND SURVEYING, P.C.
3. EACH RESIDENTIAL, INDUSTRIAL, COMMERCIAL SUBDIVISION OR SITE PLANS SHALL CONTRIBUTE RECREATIONAL FEES CALCULATED ON THE BASIS OF GROSS FLOOR AREA FOR ALL NEW CONSTRUCTION.
4. THE EXISTING COMMERCIAL STORAGE BUILDING WATER LINE SHALL BE DISCONNECTED FROM THE EXISTING WATER WELL AND CONNECTED TO THE EXTENDED WATER LINE ALONG DOLSONTOWN ROAD. THE SANITARY LINE SHALL BE DISCONNECTED FROM THE EXISTING SEPTIC SYSTEM AND DRAIN TO THE SANITARY PUMP STATION TO BE DISCHARGED TO THE EXISTING SEWER LINE ON DOLSONTOWN ROAD VIA A FORCE MAIN.
5. BASED ON THE NEW YORK STATE HISTORIC PRESERVATION OFFICE (SHPO) LETTER DATED JUNE 15TH 2021 AND THE PHASE 1 ARCHAEOLOGICAL INVESTIGATION FOR THE DOM-MAR TRANSFER AND RECYCLING CENTER, TOWN OF WAWAYANDA, ORANGE COUNTY, NEW YORK, PERFORMED BY TRACKER ARCHAEOLOGY OF MONROE, NEW YORK, NO EVIDENCE OF ARCHEOLOGICAL SITES WERE FOUND WITHIN THE PROJECT'S AREA OF POTENTIAL EFFECTS. THE APPROXIMATE LOCATION OF A NEW YORK STATE MUSEUM-RECORDED ARCHAEOLOGICAL SITE NYSM 6169 DESCRIBED AS "CEMETERY" IS MAPPED IN THE PROJECT AREA. THE SHPO HUMAN REMAINS DISCOVERY PROTOCOL DATED JANUARY 2021 SHALL BE IMPLEMENTED SHOULD ANY EVIDENCE OF HUMAN REMAINS OR POSSIBLE BURIAL GROUNDS BE ENCOUNTERED DURING CONSTRUCTION.

MONTGOMERY ORANGE AP (NY) Wind Rose



IT IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW, ARTICLE 145 SECTION 7209, FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER OR LAND SURVEYOR TO ALTER AN ITEM IN ANY WAY.

NO.	REVISION	BY	DATE

EnSol
661 Main St.
Niagara Falls, NY 14301
716.285.3920

DAVID A. LENOX, P.E.
NYSPE LICENSE NO. 093384

CLIENT: DOM KAM LLC

SITE: DOM-MAR TRANSFER AND RECYCLING FACILITY
TOWN OF WAWAYANDA
COUNTY OF ORANGE
STATE OF NEW YORK

PROJECT: NYSDEC SOLID WASTE MANAGEMENT FACILITY PERMIT APPLICATION

TITLE: SITE PLAN

ISSUE: REVIEW

DES:	DRN:	CHK:
DAL	SJD	DAL

PROJECT NO: 029-A0001
DATE: MARCH 2022

GRAPHIC SCALE: 0' 50' 100'

FILE: Sheet 2 And 8 - Site Plan REV2.dwg

REV NO: 0
SHEET NO: 2

ATTACHMENT 2

EnSol, Inc.

ENGINEERING + ENVIRONMENTAL

ST Boring Logs and Laboratory Results

SOILTESTING, INC. 90 DONOVAN RD. OXFORD, CT 06478 CT (203) 262-9328 NY (914) 946-4850	CLIENT: Ensol, Inc.	SHEET 1 OF 1 HOLE NO. B-1
	PROJECT NO. G70-1762-21	
	PROJECT NAME 1128 Dolsontown Rd	BORING LOCATIONS per Plan
FOREMAN - DRILLER MK/ao	LOCATION Wawayanda NY	
INSPECTOR	CASING / SAMPLER / CORE BAR	OFFSET
	TYPE HSA / SS	DATE START 4/12/21
GROUND WATER OBSERVATIONS	SIZE I.D. 4 ¼" / 1 3/8"	DATE FINISH 4/12/21
AT 5' FT AFTER 0 HOURS	HAMMER WT. 140# BIT	SURFACE ELEV. 457.0
AT FT AFTER HOURS	HAMMER FALL 30"	GROUND WATER ELEV.

DEPTH	CASING BLOWS PER FOOT	SAMPLE NO	Type	PEN	REC.	DEPTH @ BOT	BLOWS PER 6 IN ON SAMPLER (FORCE ON TUBE) 0 - 6 / 6 - 12 / 12 - 18	N VALUE	DENSITY OR CONSIST / MOIST	STRATA CHANGE DEPTH / ELEV	FIELD IDENTIFICATION OF SOIL REMARKS INCL. COLOR, LOSS OF WASH WATER, SEAMS IN ROCK, ETC.
		1	ss	24"	6"	2'0"	1 / 2 /	5	moist		6" Topsoil; Brn F SAND, lit silt [SP]
							3 / 3 /		loose	2'0"	
		2	ss	24"	12"	4'0"	8 / 12 /	30	moist		Brn F SAND, lit silt, lit FC gravel [SP]
							18 / 14 /		compact		
5		3	ss	24"	20"	6'0"	3 / 4 /	11	wet		Brn F SAND & SILT, tr clay [SP/SM]
							7 / 8 /		compact		
		4	ss	24"	20"	8'0"	10 / 15 /	25	moist		SAME
							10 / 12 /		compact		
		5	ss	24"	10"	10'0"	14 / 17 /	33	moist		SAME
10							16 / 12 /		dense		
		6	ss	24"	18"	12'0"	7 / 8 /	20	wet		Grey FMC SAND & SILT, tr clay, lit FC gravel [SW/SM]
							12 / 10 /		compact		
		7	ss	24"	20"	14'0"	12 / 28 /	68	wet		SAME, tr cobbles
							40 / 26 /		v dense		
15		8	ss	24"	16"	16'0"	19 / 17 /	32	wet		Grey FMC SAND, sm silt, sm FC gravel, tr clay [SW/SM]
							15 / 17 /		dense		
20											
		9	ss	10"	6"	20'9"	41 / 100/4" /	100	wet		SAME
									v dense		
		10	ss	24"	20"	25'0"	29 / 41 /	93	wet		SAME
25							52 / 60 /		v dense	25'0"	
											E.O.B 25'0"
30											
35											
40											

NOTE: Subsoil conditions revealed by this investigation represent conditions at specific locations and may not represent conditions at other locations or times.

GROUND SURFACE TO _____FT. USED _____CASING THEN _____ CASING TO _____FT. **HOLE NO. B-1**

A = AUGER UP = UNDISTURBED PISTON T = THINWALL V = VANE TEST

WOR = WEIGHT OF RODS WOH = WEIGHT OF HAMMER & RODS

SS = SPLIT TUBE SAMPLER H.S.A. = HOLLOW STEM AUGER

PROPORTIONS USED: TRACE = 0 - 10% LITTLE = 10 - 20% SOME = 20 - 35% AND =35 - 50%

C = COARSE

M = MEDIUM

F = FINE

SOILTESTING, INC. 90 DONOVAN RD. OXFORD, CT 06478 CT (203) 262-9328 NY (914) 946-4850	CLIENT: Ensol, Inc.	SHEET 1 OF 1 HOLE NO. B-2
	PROJECT NO. G70-1762-21	
	PROJECT NAME 1128 Dolsontown Rd	BORING LOCATIONS per Plan
FOREMAN - DRILLER MK/ao	LOCATION Wawayanda NY	
INSPECTOR	CASING / SAMPLER / CORE BAR	OFFSET
	TYPE: HSA / SS	DATE START 4/12/21
GROUND WATER OBSERVATIONS	SIZE I.D.: 4 ¼" / 1 3/8"	DATE FINISH 4/12/21
AT 6' FT AFTER 0 HOURS	HAMMER WT.: 140# BIT	SURFACE ELEV. 455.7
AT FT AFTER HOURS	HAMMER FALL: 30"	GROUND WATER ELEV.

DEPTH	CASING BLOWS PER FOOT	SAMPLE NO	Type	PEN	REC	DEPTH @ BOT	BLOWS PER 6 IN ON SAMPLER (FORCE ON TUBE) 0 - 6 / 6 - 12 / 12 - 18	N VALUE	DENSITY OR CONSIST / MOIST	STRATA CHANGE DEPTH / ELEV	FIELD IDENTIFICATION OF SOIL REMARKS INCL. COLOR, LOSS OF WASH WATER, SEAMS IN ROCK, ETC.
		1	ss	24"	20"	2'0"	1 / 2 /	5	moist		4" Topsoil; GreyBrn F SAND & SILT, tr clay, tr F grave
							3 / 5 /		loose		
		2	ss	24"	20"	4'0"	7 / 11 /	21	moist	2'3"	
							10 / 12 /		compact		
5		3	ss	24"	18"	6'0"	6 / 10 /	24	moist		GreyBrn F SAND & SILT, tr clay [SP/SM]
							14 / 13 /		compact		
		4	ss	24"	20"	8'0"	11 / 15 /	49	wet		Brn FMC SAND & SILT, tr FC gravel [SP/SM]
							34 / 21 /		dense		
		5	ss	24"	12"	10'0'	10 / 14 /	27	wet/moist		Grey F SAND & SILT, tr clay, lit FC gravel [SW/SM]
10							13 / 14 /		compact		
		6	ss	24"	18"	12'0'	6 / 8 /	19	wet		Grey FMC SAND & SILT, tr clay, lit FC GRAVEL [SP/SM]
							11 /		compact		
		7	ss	24"	20"	14'0'	15 / 25 /	57	wet		SAME
							32 / 27 /		v dense		
15		8	ss	24"	18"	16'0"	17 / 17 /	33	wet		
							16 / 17 /		dense		Grey FMC SAND, sm siltm sm FC gravel, tr clay [SW/SM]
20											
		9	ss	24"	20"	22'0"	27 / 39 /	80	wet		SAME
							41 / 60 /		v dense		
		10	ss	24"	18"	23'8"	24 / 37 /	86	wet		
							49 / 50/4" /		v dense	23'8"	SAME
25											E. O B 23'8"
30											
35											
40											

NOTE: Subsoil conditions revealed by this investigation represent conditions at specific locations and may not represent conditions at other locations or times.

GROUND SURFACE TO _____FT. USED _____CASING THEN _____ CASING TO _____FT. HOLE NO. B-2

A = AUGER UP = UNDISTURBED PISTON T = THINWALL V = VANE TEST

WOR = WEIGHT OF RODS WOH = WEIGHT OF HAMMER & RODS C = COARSE

SS = SPLIT TUBE SAMPLER H.S.A. = HOLLOW STEM AUGER M = MEDIUM

PROPORTIONS USED: TRACE = 0 - 10% LITTLE = 10 - 20% SOME = 20 - 35% AND =35 - 50% F = FINE

SOILTESTING, INC. 90 DONOVAN RD. OXFORD, CT 06478 CT (203) 262-9328 NY (914) 946-4850	CLIENT: Ensol, Inc.	SHEET 1 OF 1 HOLE NO. B-3
	PROJECT NO. G70-1762-21	
	PROJECT NAME 1128 Dolsontown Rd	BORING LOCATIONS per Plan
FOREMAN - DRILLER PD/ak	LOCATION Wawayanda NY	
INSPECTOR	CASING / SAMPLER / CORE BAR TYPE HSA / SS SIZE I.D. 4 ¼" / 1 3/8" HAMMER WT. 140# / BIT HAMMER FALL 30"	OFFSET DATE START 4/9/21 DATE FINISH 4/9/21 SURFACE ELEV. 456.0 GROUND WATER ELEV.
GROUND WATER OBSERVATIONS AT 4' FT AFTER 0 HOURS AT 2' FT AFTER 4 HOURS		

DEPTH	CASING BLOWS PER FOOT	SAMPLE NO	Type	PEN	REC	DEPTH @ BOT	BLOWS PER 6 IN ON SAMPLER (FORCE ON TUBE) 0 - 6 / 6 - 12 / 12 - 18	N VALUE	DENSITY OR CONSIST / MOIST	STRATA CHANGE DEPTH / ELEV	FIELD IDENTIFICATION OF SOIL REMARKS INCL. COLOR, LOSS OF WASH WATER, SEAMS IN ROCK, ETC.
		1	ss	24"	18"	2'0"	2 / 2	5	moist	0'6"	Topsoil; DkBrnBrn SILT [ML]
							3 / 6		stiff		
		2	ss	24"	14"	4'0"	17 / 12	32	moist	2'0"	BrnLtBrn SILT [ML]
							20 / 25		hard		
5		3	ss	24"	18"	6'0"	28 / 21	35	wet	4'0"	Brn SILT & FM SAND, FC gravel [ML]
							14 / 11		hard		
		4	ss	24"	19"	8'0"	11 / 11	24	wet	7'0"	Brn FMC SAND & FC GRAVEL, lit silt [SW]
							13 / 15		compact		LtBrnBrn VFFMC SAND & FC GRAVEL, lit silt
		5	ss	11"	10"	8'11"	43 / 100/5"	100	vmoist		[SW]
10									v dense		
		6	ss	24"	20"	12'0"	33 / 70	143	moist	10'6"	LtBrn VFFMC SAND & FC GRAVEL, silt
							73 / 84		v dense		LtGrey VFFMC SAND & FC GRAVEL, silt, lit cobbles
		7	ss	11"	6"	12'11"	87 / 100/5"	100	moist/dry		[SW/SM]
15		8	ss	24"	18"	16'0"	14 / 17	42	moist		Grey VFFM SAND, F gravel, silt, sm cobbles, tr boulders
							25 / 20		dense		[SP/SM]
20											
		9	ss	24"	18"	22'0"	18 / 22	42	moist		Grey VFF SAND, FC gravel, sm silt [SW]
							20 / 22		dense		
25											
		10	ss	4"	3"	25'4"	100/4"	100	v dense	25'4"	Grey VFFM SAND, FC gravel, cobbles, lit silt, boulders
											E.O.B 25'4"
30											
											* POCKET PENETROMETER READING Tons/sqft
35											
40											

NOTE: Subsoil conditions revealed by this investigation represent conditions at specific locations and may not represent conditions at other locations or times.

GROUND SURFACE TO _____FT. USED _____CASING THEN _____ CASING TO _____FT. HOLE NO. B-3

A = AUGER UP = UNDISTURBED PISTON T = THINWALL V = VANE TEST

WOR = WEIGHT OF RODS WOH = WEIGHT OF HAMMER & RODS

SS = SPLIT TUBE SAMPLER H.S.A. = HOLLOW STEM AUGER

PROPORTIONS USED: TRACE = 0 - 10% LITTLE = 10 - 20% SOME = 20 - 35% AND =35 - 50%

C = COARSE
M = MEDIUM
F = FINE

SOILTESTING, INC. 90 DONOVAN RD. OXFORD, CT 06478 CT (203) 262-9328 NY (914) 946-4850	CLIENT: Ensol, Inc.	SHEET 1 OF 1 HOLE NO. B-4
	PROJECT NO. G70-1762-21	
	PROJECT NAME 1128 Dolsontown Rd	BORING LOCATIONS per Plan
FOREMAN - DRILLER MK/ao	LOCATION Wawayanda NY	
INSPECTOR	CASING / SAMPLER / CORE BAR	OFFSET
	TYPE HSA / SS	DATE START 4/12/21
GROUND WATER OBSERVATIONS	SIZE I.D. 4 ¼" / 1 3/8"	DATE FINISH 4/12/21
AT 6' FT AFTER 0 HOURS	HAMMER WT. 140# BIT	SURFACE ELEV. 453.4
AT FT AFTER HOURS	HAMMER FALL 30"	GROUND WATER ELEV.

DEPTH	CASING BLOWS PER FOOT	SAMPLE NO	Type	PEN	REC	DEPTH @ BOT	BLOWS PER 6 IN ON SAMPLER (FORCE ON TUBE) 0 - 6 / 6 - 12 / 12 - 18	N VALUE	DENSITY OR CONSIST / MOIST	STRATA CHANGE DEPTH / ELEV	FIELD IDENTIFICATION OF SOIL REMARKS INCL. COLOR, LOSS OF WASH WATER, SEAMS IN ROCK, ETC.
		1	ss	24"	16"	2'0"	1 / 1	4	moist		4" Topsoil, GreyBrn F SAND & SILT [SM]
							3 / 5		v loose		
		2	ss	24"	16"	4'0"	6 / 10	20	moist		SAME
							10 / 11		compact		
5		3	ss	24"	14"	6'0"	6 / 8	18	moist		GreyBrn F SAND & SILT [SP/SM]
							10 / 10		compact		
		4	ss	24"	6"	8'0"	4 / 5	10	wet		Brn F SAND, tr silt [SP]
							5 / 5		loose		
		5	ss	24"	12"	10'0"	5 / 5	13	wet		Brn FMC SAND, sm silt, sm FC gravel [SW/SM]
10							8 / 8		compact	9'6"	
		6	ss	24"	18"	12'0"	7 / 9	21	wet		Grey FMC SAND, sm silt, some FC gravel [SW/SM]
							12 / 13		compact		
		7	ss	24"	26"	14'0"	14 / 27	56	wet		Grey FMC SAND, sm silt, lit FC gravel tr clay
							29 / 30		v dense		
15		8	ss	24"	14"	16'0"	18 / 17	33	wet		SAME
							16 / 17		dense		
20											
		9	ss	15	10"	21'3"	31 / 40	90	wet		Gray FMC SAND, sm silt, sm FC gravel , tr clay [SW/SM]
							50/3"		v dense		
		10	ss	24"	20"	25'0"	24 / 37	87	wet		same
25							50 / 71		v dense	25'0"	
											E.O.B 25'0"
30											
35											
40											

NOTE: Subsoil conditions revealed by this investigation represent conditions at specific locations and may not represent conditions at other locations or times.

GROUND SURFACE TO _____FT. USED _____CASING THEN _____ CASING TO _____FT. HOLE NO. B-4

A = AUGER UP = UNDISTURBED PISTON T = THINWALL V = VANE TEST

WOR = WEIGHT OF RODS WOH = WEIGHT OF HAMMER & RODS

SS = SPLIT TUBE SAMPLER H.S.A. = HOLLOW STEM AUGER

PROPORTIONS USED: TRACE = 0 - 10% LITTLE = 10 - 20% SOME = 20 - 35% AND =35 - 50%

C = COARSE
M = MEDIUM
F = FINE

Particle Size Distribution Report

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	7.1	4.1	6.6	33.9	48.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75	100.0		
.375	94.1		
#4	92.9		
#10	88.8		
#20	85.4		
#40	82.2		
#60	75.9		
#140	60.6		
#200	48.3		

* (no specification provided)

Material Description

Brown and gray silty, clayey sand

Atterberg Limits

PL= 19 LL= 26 PI= 7

Coefficients

D_{90}= 2.4908 D_{85}= 0.7347 D_{60}= 0.1039
D_{50}= 0.0785 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SC-SM AASHTO=

Remarks

Moisture content=24.3%

Source of Sample: B-4 **Depth:** 4-10 ft.
Sample Number: S-3,S-4,S-5 Comp.

Date: 6-22-2021

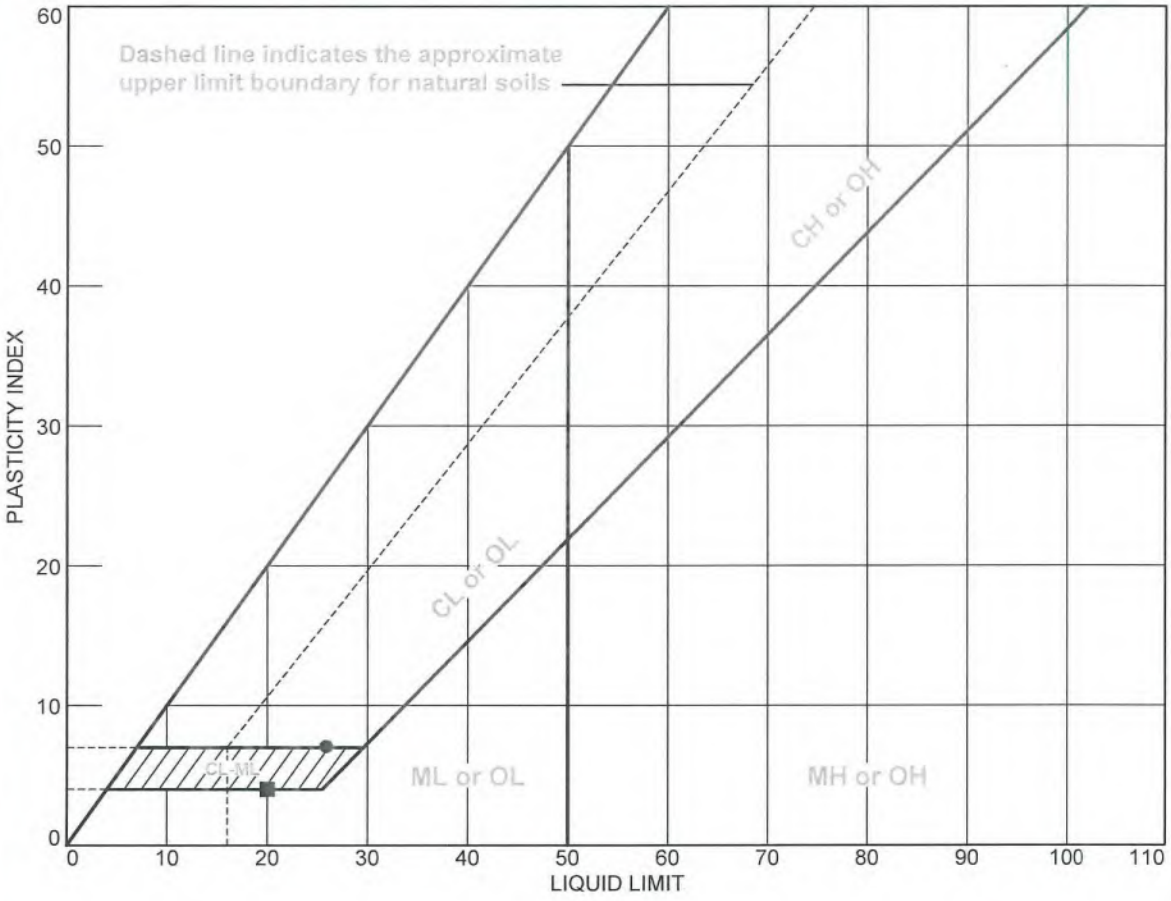
SKYLANDS TESTING, LLC

Sparta, NJ

Client: Soiltesting, Inc.
Project: 1128 Dolsontown Road
Wawayanda, NY
Project No: 21-065 **Figure**

Tested By: RS **Checked By:** VRS

ATTERBERG LIMITS REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	B-4	S-3,S-4,S-5 Comp.	4-10 ft.	24.3	19	26	7	SC-SM
■	B-5	S-5,S-6 Comp.	8-12 ft.	18.9	16	20	4	GP-GC

SKYLANDS TESTING, LLC

Sparta, NJ

Client: Soiltesting, Inc.
Project: 1128 Dolsontown Road
Wawayanda, NY
Project No.: 21-065 **Figure**

Tested By: EH **Checked By:** VRS

SOILTESTING, INC. 90 DONOVAN RD. OXFORD, CT 06478 CT (203) 262-9328 NY (914) 946-4850	CLIENT: Ensol, Inc.	SHEET 1 OF 2 HOLE NO. B-5
	PROJECT NO. G70-1762-21	
	PROJECT NAME 1128 Dolsontown Rd	BORING LOCATIONS per Plan
FOREMAN - DRILLER PD AK	LOCATION Wawayanda NY	
INSPECTOR	CASING / SAMPLER / CORE BAR	OFFSET
	TYPE: HSA / SS	DATE START 4/9/21
GROUND WATER OBSERVATIONS	SIZE I.D.: 4 ¼" / 1 3/8"	DATE FINISH 4/9/21
AT 6' FT AFTER 0 HOURS	HAMMER WT.: 140# BIT	SURFACE ELEV. 457.7
AT FT AFTER HOURS	HAMMER FALL: 30"	GROUND WATER ELEV.

DEPTH	CASING BLOWS PER FOOT	SAMPLE NO	Type	PEN	REC	DEPTH @ BOT	BLOWS PER 6 IN ON SAMPLER (FORCE ON TUBE) 0 - 6 / 6 - 12 / 12 - 18	N VALUE	DENSITY OR CONSIST M / OIST	STRATA CHANGE DEPTH / ELEV	FIELD IDENTIFICATION OF SOIL REMARKS INCL. COLOR, LOSS OF WASH WATER, SEAMS IN ROCK, ETC.
		1	ss	24"	16"	2'0"	3 / 3	6	moist	1'0"	Topsoil
							3 / 5		loose	2'0"	Brn SILT & FC GRAVEL, sm FM sand [ML]
		2	ss	24"	18"	4'0"	13 / 17	37	moist		Brn FMC SAND & FC GRAVEL, lit cobbles, silt [SW]
							20 / 22		dense		
5		3	ss	24"	20"	6'0"	18 / 19	33	moist/v moist		Brn FMC SAND & FC GRAVEL, lit cobbles, silt
							14 / 14		dense		
		4	ss	24"	18"	8'0"	14 / 15	29	wet		BrnGrey FMC SAND & FC GRAVEL, lit cobbles, silt
							14 / 15		compact		
		5	ss	24"	18"	10'0"	14 / 15	27	wet		Lt BrnBrn VFFMC & SAND, silt, FC gravel [SW/SM]
10							12 / 11		compact		
		6	ss	24"	20"	12'0"	5 / 15	34	wet/v moist	11'0"	SAME
							19 / 20		dense		BrnGray FMC SAND & FC GRAVEL, lit silt, cobbles [SW]
		7	ss	24"	18"	14'0"	20 / 23	50	wet	12'6"	
							27 / 25		dense	13'6"	Brn FMC SAND, FC gravel [SW]
15		8	ss	17"	15"	15'5"	29 / 32	132	wet		Brn VFF SAND, silt, FC gravel, cobbles, tr boulders [SP/SM]
							100/5"		v dense		
20		9	ss	18"	18"	21'6"	14 / 16	35	wet		Brn VFF SAND, silt, FC gravel, cobbles, tr boulders [SP/SM]
							19		dense		Bolders
25		10	ss	18"	18"	26'6"	51 / 25	52	wet		Grey VFFMC SAND, FC gravel, sm silt, cobbles, lit bolders [SW/SM]
							27		v dense		
30		11	ss	18"	18"	31'6"	8 / 10	30	wet	31'0"	Cobbles @ 29' GreyDkGrey FM SAND, sm silt, Tr C Sand [SW/SM]
							20		compact		Grey FMC SAND & F GRAVEL, sm silt
35		12	ss	18"	18"	36'6"	33 / 50	113	v moist		LtGrey VF SAND, silt, sm F gravel, cobbles [SP/SM]
							63		v dense		
40											

NOTE: Subsoil conditions revealed by this investigation represent conditions at specific locations and may not represent conditions at other locations or times.

GROUND SURFACE TO _____FT. USED _____CASING THEN _____ CASING TO _____FT. HOLE NO. B-5

A = AUGER UP = UNDISTURBED PISTON T = THINWALL V = VANE TEST

WOR = WEIGHT OF RODS WOH = WEIGHT OF HAMMER & RODS

SS = SPLIT TUBE SAMPLER H.S.A. = HOLLOW STEM AUGER

PROPORTIONS USED: TRACE = 0 - 10% LITTLE = 10 - 20% SOME = 20 - 35% AND =35 - 50%

C = COARSE
M = MEDIUM
F = FINE

90 DONOVAN RD. OXFORD, CT 06478 CT (203) 262-9328 NY (914) 946-4850		HOLE NO. B-5
	PROJECT NO. G70-1762-21	
	PROJECT NAME 1128 Dolsontown Rd	BORING LOCATIONS per Plan
FOREMAN - DRILLER MK/ao	LOCATION Wawayanda NY	
INSPECTOR	CASING / SAMPLER / CORE BAR	OFFSET
	TYPE HSA / SS	DATE START 4/12/21
GROUND WATER OBSERVATIONS	SIZE I.D. 4 ¼" / 1 3/8"	DATE FINISH 4/12/21
AT 6' FT AFTER 0 HOURS	HAMMER WT. 140# BIT	SURFACE ELEV.
AT __FT AFTER __HOURS	HAMMER FALL 30"	GROUND WATER ELEV.

DEPTH	CASING BLOWS PER FOOT	SAMPLE NO	Type	PEN	REC	DEPTH @ BOT	BLOWS PER 6 IN ON SAMPLER (FORCE ON TUBE) 0 - 6 / 6 - 12 / 12- 18	N VALUE	DENSITY OR CONSIST ____M OIST	STRATA CHANGE DEPTH ELEV	FIELD IDENTIFICATION OF SOIL REMARKS INCL. COLOR, LOSS OF WASH WATER, SEAMS IN ROCK, ETC.
		13	ss	19"	9"	40'9"	81 / 100/3"	100	wet v dense		SAME
45		14	ss	18"	18"	46'6"	37 / 42 90	132	wet v dense		LtGreyGrey SILT, sm VFFMC SAND, FC gravel, cobbles, tr boulders [ML]
50		15	ss	18"	18"	51'6"	35 / 41 58	99	wet v dense		SAME
55		16	ss	18"	18"	56'6"	19 / 22 26	48	wet dense		GreyBrn VFF SAND, sm silt [SP/SM]
60		17	ss	18"	18"	61'6"	20 / 28 45	73	wet v dense		GreyBrn VFF SAND, lit silt [SP] Grey FMC SAND & FC GRAVEL, lit silt, cobbles [SW]
65		18	ss	18"	17"	66'6"	41 / 63 77	140	wet v dense	67'0"	Grey VFFMC SAND, silt, FC gravel, cobbles [SW/SM] Auger refusal
70											E.O.B 67'0" *PP: Pocket Petrometer
75											
80											

NOTE: Subsoil conditions revealed by this investigation represent conditions at specific locations and may not represent conditions at other locations or times.

GROUND SURFACE TO _____FT. USED _____CASING THEN _____ CASING TO _____FT. **HOLE NO. B-5**

A = AUGER UP = UNDISTURBED PISTON T = THINWALL V = VANE TEST

WOR = WEIGHT OF RODS WOH = WEIGHT OF HAMMER & RODS

SS = SPLIT TUBE SAMPLER H.S.A. = HOLLOW STEM AUGER

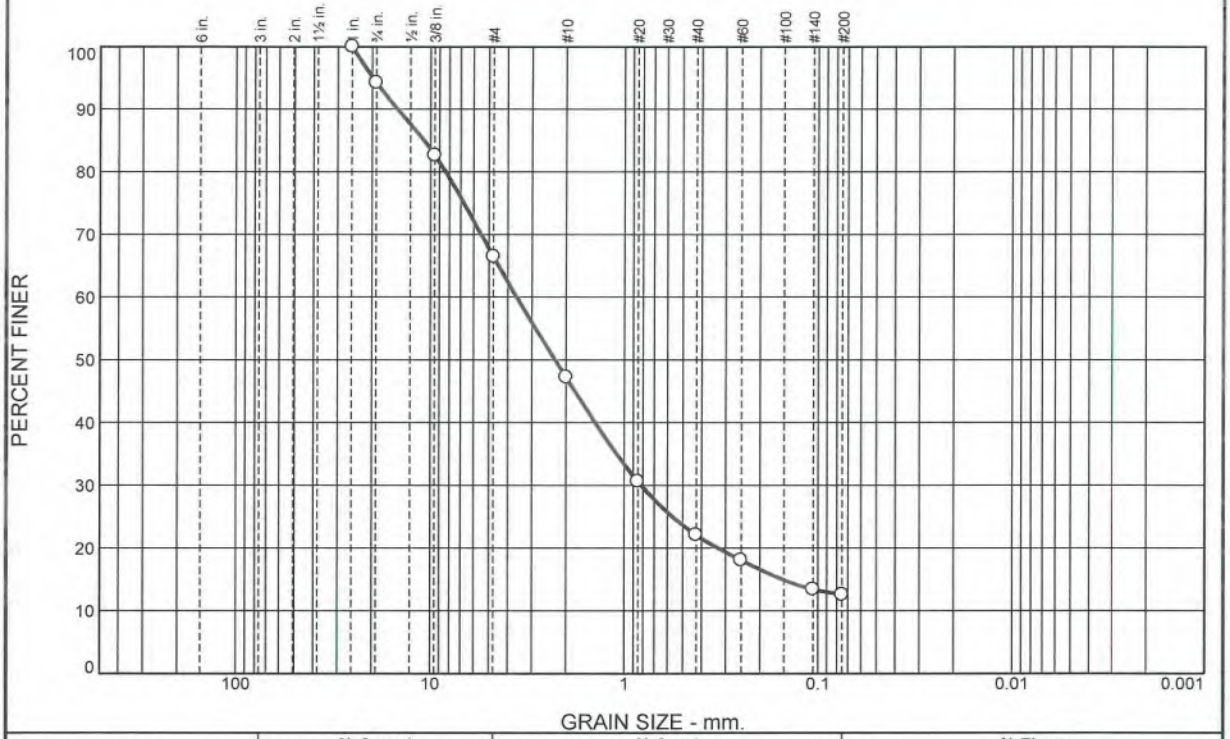
PROPORTIONS USED: TRACE = 0 - 10% LITTLE = 10 - 20% SOME = 20 - 35% AND =35 - 50%

C = COARSE

M = MEDIUM

F = FINE

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	5.8	27.7	19.3	25.1	9.5	12.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	94.2		
.375	82.6		
#4	66.5		
#10	47.2		
#20	30.6		
#40	22.1		
#60	18.1		
#140	13.4		
#200	12.6		

* (no specification provided)

Material Description

Brown and gray silty sand with gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 14.8075 D_{85}= 10.8418 D_{60}= 3.6024
D_{50}= 2.2795 D_{30}= 0.8161 D_{15}= 0.1522
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO=

Remarks

USCS based on dilatancy & plasticity per ASTM D2488

Source of Sample: B-5 **Depth:** 2-8 ft.
Sample Number: S-2,S-3,S-4 Comp.

Date: 6-22-2021

SKYLANDS TESTING, LLC

Sparta, NJ

Client: Soiltesting, Inc.
Project: 1128 Dolsontown Road
Wawayanda, NY
Project No: 21-065 **Figure**

Tested By: RS **Checked By:** VRS

Particle Size Distribution Report

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	32.4	18.1	7.0	17.7	12.8	12.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.5	100.0		
1	74.4		
.75	67.6		
.375	54.8		
#4	49.5		
#10	42.5		
#20	34.9		
#40	24.8		
#60	18.9		
#140	13.5		
#200	12.0		

* (no specification provided)

Material Description

Brown and gray poorly graded gravel with silty clay and sand

Atterberg Limits

PL= 16 LL= 20 PI= 4

Coefficients

D_{90}= 33.2740 D_{85}= 30.9360 D_{60}= 12.8380
D_{50}= 5.1868 D_{30}= 0.6038 D_{15}= 0.1441
D_{10}= C_u= C_c=

Classification

USCS= GP-GC AASHTO=

Remarks

Moisture content=18.9%

Source of Sample: B-5 **Depth:** 8-12 ft.
Sample Number: S-5,S-6 Comp.

Date: 6-22-2021

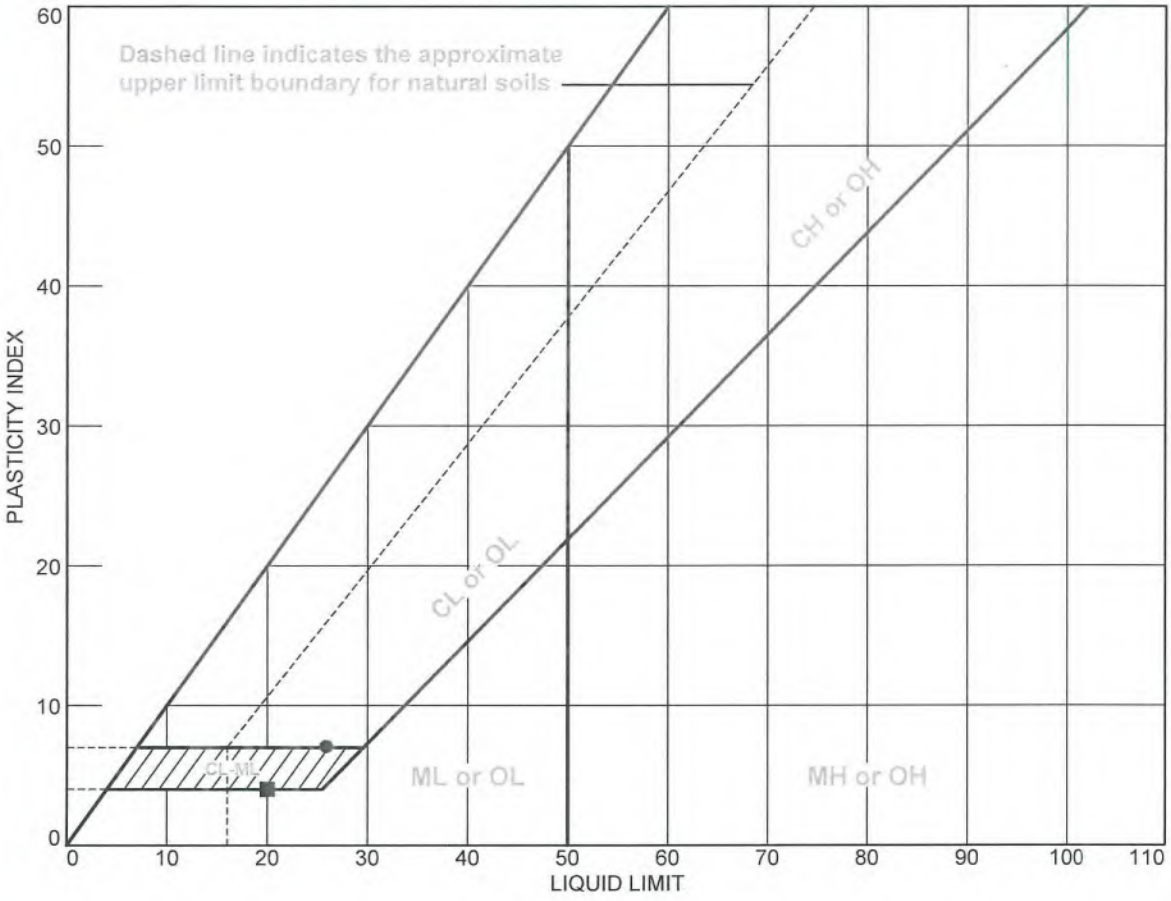
SKYLANDS TESTING, LLC

Sparta, NJ

Client: Soiltesting, Inc.
Project: 1128 Dolsontown Road
Wawayanda, NY
Project No: 21-065 **Figure**

Tested By: RS **Checked By:** VRS

ATTERBERG LIMITS REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	B-4	S-3,S-4,S-5 Comp.	4-10 ft.	24.3	19	26	7	SC-SM
■	B-5	S-5,S-6 Comp.	8-12 ft.	18.9	16	20	4	GP-GC

SKYLANDS TESTING, LLC

Sparta, NJ

Client: Soiltesting, Inc.
Project: 1128 Dolsontown Road
Wawayanda, NY
Project No.: 21-065 **Figure**

Tested By: EH **Checked By:** VRS

SOILTESTING, INC. 90 DONOVAN RD. OXFORD, CT 06478 CT (203) 262-9328 NY (914) 946-4850	CLIENT: Ensol, Inc.	SHEET 1 OF 1 HOLE NO. B-6
	PROJECT NO. G70-1762-21	
	PROJECT NAME 1128 Dolsontown Rd	BORING LOCATIONS per Plan
FOREMAN - DRILLER MK/ao	LOCATION Wawayanda NY	
INSPECTOR	CASING / SAMPLER / CORE BAR TYPE HSA / SS SIZE I.D. 4 ¼" / 1 3/8" HAMMER WT. 140# BIT HAMMER FALL 30"	OFFSET DATE START 4/13/21 DATE FINISH 4/13/21 SURFACE ELEV. 456.0 GROUND WATER ELEV.
GROUND WATER OBSERVATIONS AT 8 FT AFTER 0 HOURS AT __FT AFTER __HOURS		

DEPTH	CASING BLOWS PER FOOT	SAMPLE NO	Type	PEN	REC	DEPTH @ BOT	BLOWS PER 6 IN ON SAMPLER (FORCE ON TUBE) 0 - 6 / 6 - 12 / 12 - 18	N VALUE	DENSITY OR CONSIST / MOIST	STRATA CHANGE DEPTH / ELEV	FIELD IDENTIFICATION OF SOIL REMARKS INCL. COLOR, LOSS OF WASH WATER, SEAMS IN ROCK, ETC.
		1	ss	24"	12"	2'0"	8 / 10	18	moist		Topsoil
							8 / 9		compact		Brn FMC SAND, sm clay, silt [SW/SC]
		2	ss	24"	8"	4'0"	16 / 8	18	moist		SAME
							10 / 11		compact		
5		3	ss	24"	18"	6'0"	12 / 14	26	moist		GrayBrn FMC SAND, sm FC gravel, lit silt [SW]
							12 / 11		compact		
		4	ss	24"	6"	8'0"	13 / 13	28	moist		SAME
							15 / 15		compact		
		5	ss	24"	0"	10'0"	14 / 12	24	wet		NO RECOVERY
10							12 / 11		compact		
		6	ss	24"	4"	12'0"	11 / 9	17	wet		Brn FMC SAND & FC gravel [SW]
							8 / 9		compact		
		7	ss	24"	12"	14'0"	7 / 9	18	wet		SAME
							9 / 9		compact		
15		8	ss	20"	18"	15'8"	23 / 32	84	wet		Brn FMC SAND & FC GRAVEL, tr cobbles [SW]
							52 / 50/2"		v dense		
20											
		9	ss	24"	18"	22'0"	21 / 21	43	wet		Brn FMC SAND, lit FC gravel [SW]
							22 / 26		dense		
		10	ss	24"	16"	24'0"	18 / 22	54	wet		Grey FMC SAND & FC GRAVEL, tr cobbles [SW]
25							32 / 29		v dense	24'0"	
											E.O.B. 24'0"
30											
35											
40											

NOTE: Subsoil conditions revealed by this investigation represent conditions at specific locations and may not represent conditions at other locations or times.

GROUND SURFACE TO _____FT. USED _____CASING THEN _____ CASING TO _____FT. HOLE NO. B-6

A = AUGER UP = UNDISTURBED PISTON T = THINWALL V = VANE TEST

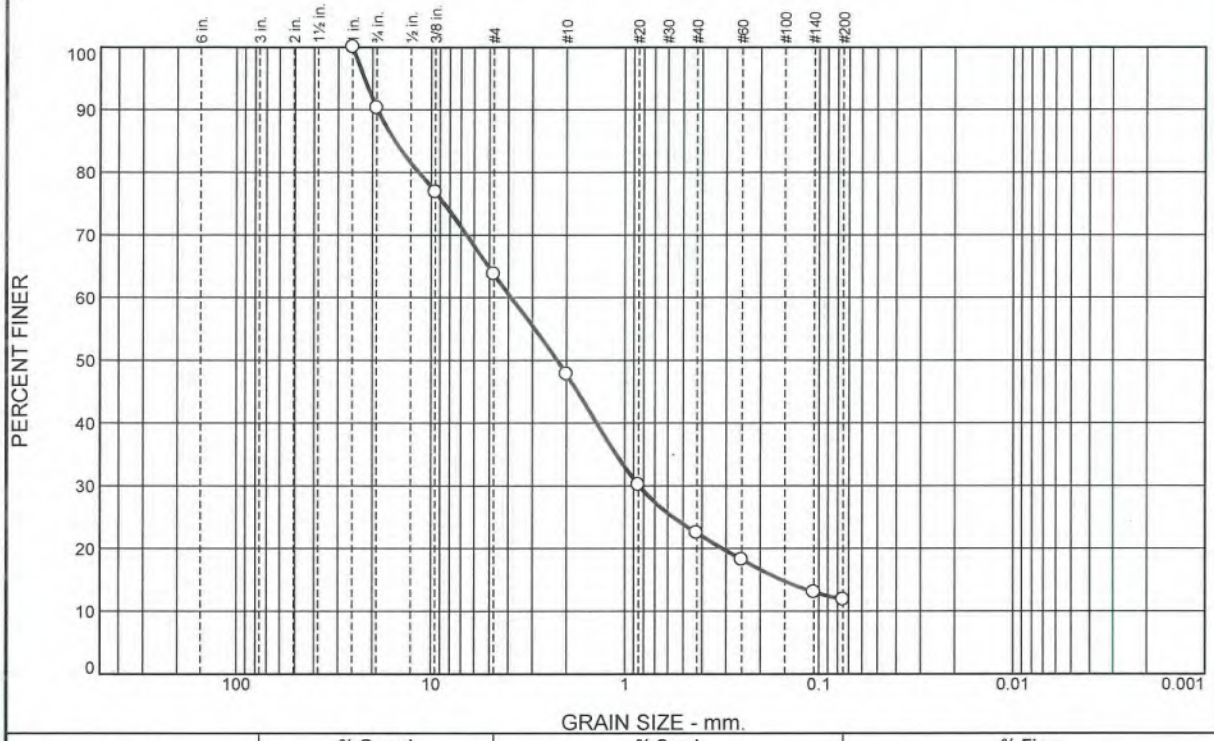
WOR = WEIGHT OF RODS WOH = WEIGHT OF HAMMER & RODS

SS = SPLIT TUBE SAMPLER H.S.A. = HOLLOW STEM AUGER

PROPORTIONS USED: TRACE = 0 - 10% LITTLE = 10 - 20% SOME = 20 - 35% AND =35 - 50%

C = COARSE
M = MEDIUM
F = FINE

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	9.7	26.5	16.0	25.3	10.7	11.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	90.3		
.375	76.9		
#4	63.8		
#10	47.8		
#20	30.2		
#40	22.5		
#60	18.2		
#140	13.0		
#200	11.8		

* (no specification provided)

Material Description

Brown poorly graded sand with silt and gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 18.8609 D_{85}= 15.3652 D_{60}= 3.8647
D_{50}= 2.2312 D_{30}= 0.8409 D_{15}= 0.1554
D_{10}= C_u= C_c=

Classification

USCS= SP-SM AASHTO=

Remarks

USCS based on dilatancy & plasticity per ASTM D2488

Source of Sample: B-6 **Depth:** 4-8 & 10-14 ft.
Sample Number: S-3,S-4,S-6,S-7 Comp

Date: 6-22-2021

SKYLANDS TESTING, LLC

Sparta, NJ

Client: Soiltesting, Inc.
Project: 1128 Dolsontown Road
Wawayanda, NY
Project No: 21-065

Figure

Tested By: RS **Checked By:** VRS

SOILTESTING, INC. 90 DONOVAN RD. OXFORD, CT 06478 CT (203) 262-9328 NY (914) 946-4850	CLIENT: Ensol, Inc.	SHEET 1 OF 1 HOLE NO. B-7
	PROJECT NO. G70-1762-21	
	PROJECT NAME 1128 Dolsontown Rd	BORING LOCATIONS per Plan
FOREMAN - DRILLER MK/ao	LOCATION Wawayanda NY	
INSPECTOR	CASING / SAMPLER / CORE BAR	OFFSET
	TYPE HSA / SS	DATE START 4/13/21
GROUND WATER OBSERVATIONS	SIZE I.D. 4 ¼" / 1 3/8"	DATE FINISH 4/13/21
AT 13' FT AFTER 0 HOURS	HAMMER WT. 140# BIT	SURFACE ELEV. 458.0
AT FT AFTER HOURS	HAMMER FALL 30"	GROUND WATER ELEV.

DEPTH	CASING BLOWS PER FOOT	SAMPLE NO	Type	PEN	REC.	DEPTH @ BOT	BLOWS PER 6 IN ON SAMPLER (FORCE ON TUBE) 0 - 6 / 6 - 12 / 12 - 18	N VALUE	DENSITY OR CONSIST / MOIST	STRATA CHANGE DEPTH / ELEV	FIELD IDENTIFICATION OF SOIL REMARKS INCL. COLOR, LOSS OF WASH WATER, SEAMS IN ROCK, ETC.
		ss	ss	24"	10"	2'0"	3 / 6	10	moist		4" Topsoil; Brn F SAND, sm silt, lit FC gravel [SP/SM]
							4 / 18		loose		
		2	ss	24"	10"	4'0"	16 / 11	21	moist		SAME
							10 / 10		compact		
5		3	ss	24"	14"	6'0"	17 / 18	41	dry		Brn FMC SAND, sm FC gravel, tr silt, tr cobbles [SW]
							23 / 36		dense		
		4	ss	24"	16"	8'0"	41 / 25	43	dry		SAME
							18 / 19		dense		
		5	ss	24"	14"	10'0"	10 / 11	23	moist/wet		DkBrn FMC SAND, sm FC gravel, tr silt [SW]
10							12 / 12		compact		
		6	ss	24"	12"	12'0"	15 / 24	45	wet		Brn FMC SAND & FC GRAVEl, tr silt [SW]
							21 / 16		dense		
		7	ss	24"	16"	14'0"	20 / 14	26	wet		SAME
							12 / 10		compact		
15		8	ss	24"	16"	16'0"	14 / 20	43	wet		Brn FMC SAND, sm FC gravel, tr silt [SW]
							23 / 25		dense		
20											
		9	ss	24"	8"	22'0"	28 / 22	42	wet		Brn FMC SAND, sm silt, tr clay, lit FC gravel [SW/SM]
							20 / 23		dense		
		10	ss	24"	12"	24'0"	29 / 19	31	wet		GreyBrn FMC SAND & FC GRAVEL, tr silt [SW]
							12 / 14		dense	24'0"	
25											E.O.B 24'0"
30											
35											
40											

NOTE: Subsoil conditions revealed by this investigation represent conditions at specific locations and may not represent conditions at other locations or times.

GROUND SURFACE TO _____FT. USED _____CASING THEN _____ CASING TO _____FT. HOLE NO. B-7

A = AUGER UP = UNDISTURBED PISTON T = THINWALL V = VANE TEST

WOR = WEIGHT OF RODS WOH = WEIGHT OF HAMMER & RODS

SS = SPLIT TUBE SAMPLER H.S.A. = HOLLOW STEM AUGER

PROPORTIONS USED: TRACE = 0 - 10% LITTLE = 10 - 20% SOME = 20 - 35% AND =35 - 50%

C = COARSE
M = MEDIUM
F = FINE

SOILTESTING, INC. 90 DONOVAN RD. OXFORD, CT 06478 CT (203) 262-9328 NY (914) 946-4850	CLIENT: Ensol, Inc.	SHEET 1 OF 1 HOLE NO. B-8
	PROJECT NO. G70-1762-21	
	PROJECT NAME: 1128 Dolsontown Rd	BORING LOCATIONS: per Plan
FOREMAN - DRILLER: MK/ao	LOCATION: Wawayanda, NY	
INSPECTOR	TYPE: CASING HSA, SAMPLER SS, CORE BAR	OFFSET
GROUND WATER OBSERVATIONS AT 2'6" FT AFTER 0 HOURS AT FT AFTER HOURS	SIZE I.D.: 4 ¼", 1 3/8" HAMMER WT.: 140#, BIT HAMMER FALL: 30"	DATE START 4/13/21 DATE FINISH 4/13/21 SURFACE ELEV. 449.7 GROUND WATER ELEV.

DEPTH	CASING BLOWS PER FOOT	SAMPLE NO	Type	PEN	REC	DEPTH @ BOT	BLOWS PER 6 IN ON SAMPLER (FORCE ON TUBE) 0 - 6	6 - 12	12 - 18	N VALUE	DENSITY OR CONSIST / MOIST	STRATA CHANGE DEPTH / ELEV	FIELD IDENTIFICATION OF SOIL REMARKS INCL. COLOR, LOSS OF WASH WATER, SEAMS IN ROCK, ETC.
		1	ss	24"	8"	2'0"	1	2		4	moist		4" Topsoil; Brn F SAND, sm silt, lit FC gravel
							2	2			v loose		
		2	ss	24"	14"	4'0"	5	11		31	wet		Grey FMC SAND, lit FC gravel, lit silt [SW]
							20	12			dense		
5		3	ss	24"	12"	6'0"	9	17		32	wet		Grey FMC SAND & FC gravel, tr silt
							15	15			dense		
		4	ss	24"	16"	8'0"	10	11		22	wet		Brn FMC SAND & FC GRAVEL, tr silt [SW]
							11	11			compact		
		5	ss	2"	0"	8'2"	100/2"			100	wet		No recovery
10											v dense		
		6	ss	24"	14"	12'0"	10	11		45	wet		Brn FMC SAND & FC GRAVEL, tr cobbles [SW]
							34	24			dense		
		7	ss	14"	10"	13'2"	26	49		149	wet		SAME
							100/2"				v dense	14'0"	
15		8	ss	24"	20"	16'0"	14	16		31	wet		Grey F SAND & SILT [SP/SM]
							15	17			dense		
20		9	ss	24"	20"	22'0"	11	10		29	wet		SAME
							19	15			compact		
		10	ss	24"	20"	24'0"	12	11		29	wet		SAME
							18	15			compact	24'0"	
25													E.O.B 24'0"
30													
35													
40													

NOTE: Subsoil conditions revealed by this investigation represent conditions at specific locations and may not represent conditions at other locations or times.

GROUND SURFACE TO _____FT. USED _____CASING THEN _____ CASING TO _____FT. HOLE NO. B-8

A = AUGER UP = UNDISTURBED PISTON T = THINWALL V = VANE TEST

WOR = WEIGHT OF RODS WOH = WEIGHT OF HAMMER & RODS

SS = SPLIT TUBE SAMPLER H.S.A. = HOLLOW STEM AUGER

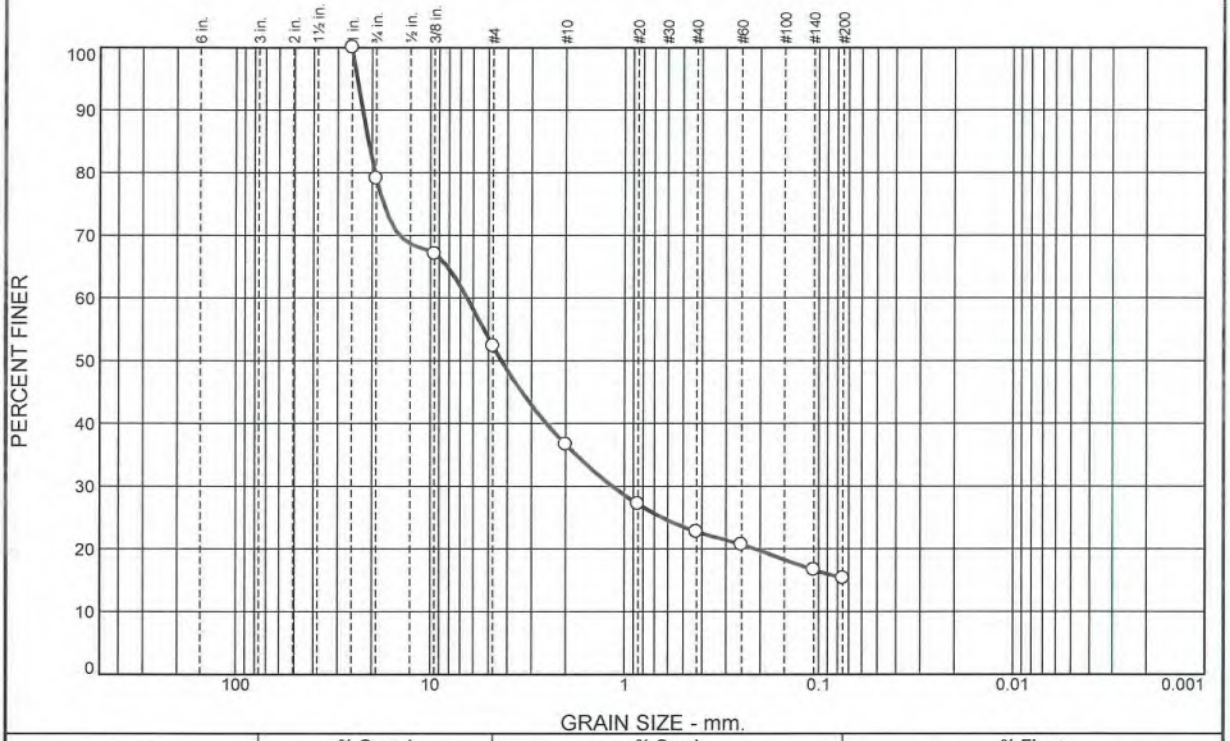
PROPORTIONS USED: TRACE = 0 - 10% LITTLE = 10 - 20% SOME = 20 - 35% AND =35 - 50%

C = COARSE

M = MEDIUM

F = FINE

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	20.9	26.8	15.6	13.9	7.5	15.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	79.1		
.375	67.0		
#4	52.3		
#10	36.7		
#20	27.2		
#40	22.8		
#60	20.7		
#140	16.7		
#200	15.3		

* (no specification provided)

Material Description

Gray-brown silty gravel with sand

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 22.4203 D_{85}= 20.9434 D_{60}= 6.4557
D_{50}= 4.2926 D_{30}= 1.1507 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= GM AASHTO=

Remarks

USCS based on dilatancy & plasticity per ASTM D2488

Source of Sample: B-8 **Depth:** 2-8 ft.
Sample Number: S-2,S-3,S-4 Comp.

Date: 6-22-2021

SKYLANDS TESTING, LLC

Sparta, NJ

Client: Soiltesting, Inc.
Project: 1128 Dolsontown Road
Wawayanda, NY
Project No: 21-065 **Figure**

Tested By: RS **Checked By:** VRS

Attachment 9

EnSol, Inc.

ENGINEERING + ENVIRONMENTAL

Foundation Design Documentation