ADDENDUM ACKNOWLEDGMENT

ADDENDUM NO. 01 **Dated: October 23, 2023**
Original Opening Date: Thursday, November 2, 2023, 3:00 PM
Revised Opening Date: Thursday, November 9, 2023, 3:00 PM

NOTICE

It is the sole responsibility of the bidder to ensure that it has received any and all Addenda and the Philadelphia Redevelopment Authority may in their sole discretion reject any bid for which Addenda have not been executed and returned.

PROPOSAL FOR

Project No.: 16368E-02-04
Description: Kingsessing Recreation Center, Building & Site Package 2: Building & Site Improvements

IS AMENDED AS FOLLOWS:

1. Amendments will be posted in **http://www.phdcphila.org**. Each Bidder shall ascertain prior to submitting a proposal that Bidder has received all Amendments issued and shall acknowledge their receipt in their proposal submission.
2. Attached **Pre-Bid Meeting Sign-in Sheet(s). October 5, 2023, posted on site.**
3. Attached are the **Answers and/or Clarifications to questions submitted on or before 3:00 pm Wednesday October 12, 2023, by prospective Bidders**.
4. Schedule a second Non-Mandatory Site Visit to all potential bidders for ***Thursday October 26, 2023, at 11:30 AM.***
5. **Extended the Bid Due date to *Thursday, November 9, 2023, 3:00 PM***
6. **All Drawings, Specifications and Instructions not reissued as part of Addendum No. 1 dated 19 OCT 23 remain valid.**
7. Please refer to KMA Narrative attached for All Drawings, Specifications and Instructions not reissued as part of Addendum ***No. 1 dated 19 OCT 23*** remain valid.

Bidder must acknowledge receipt of Addenda in their proposal submission.

Name of Firm: _____

Signature of Authorized Agent: _____

Date _____

1. There are multiple drawing attachments for the above-mentioned project. The total number of drawings combined for the architectural, civil, MEPFP, telecom, and landscape drawings is 211. The total number of drawings for contract drawings 1 & 2 is 227. Which drawing set(s) are to be used?
   Answer: We note 227 contract drawings in the uploaded documents, please see below breakdown.
   - Arch = 61
   - Struct = 16
   - MEP/FP = 93
   - Telecom = 15
   - Civil = 28
   - Land = 14
     i. Total = 227

2. Specification 122400 2.03A7a requires fabric to be SW2400 (2410).
   This fabric does not meet specification 122400 2.03A1b Cradle to Cradle
   Please confirm that the SW2400 is the required fabric.

   The same is the situation for the blackout fabric which does not meet the C2C
   Please confirm the fabric is the Verona
   Answer: Cradle to cradle certification is preferred but not required.

3. Specification 122400 1.02A.....3% for offices and other rooms as indicated on drawing
   Specification 122400 1.02B.....blackout for rooms indicated as assembly
   Specification 122400 2.02F3.....above ceiling mount for day room, bunk room, officers room

   There are no indications on the drawings as to which windows get which fabrics.
   None of the rooms on the drawings match the rooms listed in the specs.
   Please clarify which rooms get which type of shade.
   Answer: Contractors are to hold a $50,000 allowance for interior window shades. Interior window shades to be addressed in future ASI. Question

4. Specification 122400 2.02F2 requires side channels. Is this requirement for all shades or just specific rooms?
   Answer: Please refer to response to question #3.

5. Specification 122400 2.02B2 2.02B3 2.02B4 2.02D all describe aspects of a shade with some conflicts.

   Answer: Please refer to response to question #3.

6. I am writing to see if you would be willing to approve Distech Controls installed by Dynatech as an acceptable BAS for your project.

   Distech products are designed to be truly open. They use the same communication protocols and Niagara software that most other manufacturers use. Their device configuration software is unlicensed and free to the owner. Distech is owned by Acuity Brands, which is a major US lighting manufacturer.

   Our company, Dynatech, has been installing control systems for over 30 years in the tri-state area. We install and service control systems for numerous clients including New Castle County, Penn State, Villanova, and Penn Med Lancaster General Health. If you have any questions about our company or would like more information about Distech products, please let me know.
   Answer: We cannot make a determination on this until we see a submittal with controls specifications.

7. Spec section 08 5210 WINDOW SECURITY SCREENS is listed in the table of contents but is not in the spec book. Is this part of the scope of work? If so, please provide a spec.
   Answer: Security Screens are not in Bid Package #2 scope. Spec will be removed from TOC. Security Screens are part of the scope of Bid Package #1.

8. Louvers are stated as installed in package 1 on A104-R.2 but listed as "(N)" (new) on several elevations. Are Louvers part of package 2 of package 1? If only some are part of package 2, please clarify which are in package 2.
   All louvers are to be in Package 2 scope.
   See sketch drawings 'SK-231020-01A through 01E Louvers' for louvers in dormer windows, now in Package 2 scope.

9. My name is Bruce Patterson from IMC/Bethel Construction. We would like to request a two-week extension for submission of the bid proposal. The extension will allow us to prepare a more competitive and comprehensive proposal. We are committed to securing the best qualified and available subcontractor and minority participation as required for the project. This extension of time will be most beneficial and appreciative.
   Answer: The bid proposal deadline has been extended to Thursday, November 9, 2023 (11/9/23) at 3:00PM.

10. Will there be another site visit opportunity for subcontractors? We have subs asking for it.
    Answer: Yes, the second and final site visit is scheduled for Thursday, October 26, 2023, at 11:30 am.

11. Base stone – the profile/cross section view of the basin calls out 3", but the detail shows a 6" minimum. The 3" base is acceptable, is this the intended depth for the base stone?
    Answer: The correct depth is 6" of base stone.

12. Liner – is the system intended to be wrapped with an impermeable liner? The profile/cross section views do not include a liner, however the detail does. If one is required, which is preferred LLDPE or HDPE?
    Answer: An impermeable liner should be installed at the basin. Both HDPE and LLDPE will be accepted granted they meet the requirements of PWD. Liner shall be 30 mil. thick. Bidders are referred to Section F.18.7 Impervious Liner Design and Material Standards (Bullet 5) of the PWD Stormwater Manual for specification. Link provided for information purpose.

    F.18 Outlet Controls – Development Services (phila.gov)

13. Where is the elevator machine room? Based on the website of BOD's elevator product, it looks like they need a full machine room, not just a control space. Other manufacturers' equipment will need a 5'11 x 6'6" machine room.
    Answer: This is a machine-room-less, holeless hydraulic, and requires only a closet as shown; B.O.D. Elevator to be Canton Hydro, 3000# (not 2000#) hydraulic, dual telescopic MRL.

14. I understand this is for Package 2, but there is some athletic equipment specified for Package 1 that is similar to Package 2's equipment. Has some of this athletic equipment already been supplied in the 1ST Phase? Also, it's not clear where the Ball Control Netting System(s) is to be. Can you direct me to the appropriate sheet for that item?
    Answer: Athletic equipment is to be procured and installed as part of Bid Package 2.

15. Please clarify what "ALLOWANCE No. 3: Bidders are to include the amount of $50,000.00 to their base bid amount for site security." Is supposed to cover; is this for a permanently installed site security system that is to be determined or is this a part of the General Contractor's General Conditions responsibility to secure the site during construction (such as the use of a guard or video monitoring)?
    Answer: This is for any above and beyond general security measures that may be needed during construction outside of what is included in general conditions.

16. The maintenance shed detail on Sheet CS602-R.2 provides no information on what the shed is made of nor are any specifications provided. Please provide this information.
    Answer: Refer to Specification Section 133423 FABRICATED STRUCTURES for Specification information on the maintenance shed.

17. There are four areas of existing wrought iron fence that is circled on Sheet C-100-R.2 that reference the detail on Sheet C-601-R.2. Does this detail just apply to these four areas or does the entire fence line get refurbished?
    Answer: The detail on Sheet C-601-R.2 is only for the four identified locations. The entire fence line does not get refurbished. One of the locations (51st Steet) will be repaired but will remain open to serve as an entrance (see revised Civil dwgs).

18. The artificial turf infill is specified at Brockfill. This material requires a 17mm underlayment, however Sheet CS605-R.2 calls for a 10mm underlayment. Which one are we to include in our bid?
    Answer: The underlayment should be a 17mm pad – see also revised Civil drawing.

19. Sheet C-102-R.2 shows grass outside the northeast corner of the building and Sheet L-102-R.2 calls for full depth asphalt at this location. Please clarify which is required.
    Answer: Refer to sheet L-102-R.2 for correct material.

20. Please provide the limits of the temporary plant protection fence detailed on Sheet L-502-R.2.
    Answer: See sketch SK_2023-10-19_REC PKG 2_LAND for clarification.

21. Drawing E401-R.2
    a) What is the floor plan location of the 100A/2P disconnect switch feeding existing to remain pole lighting?
    b) What is the location of the existing Field Lighting Control Panel to be replaced?
    c) Can you provide a panel schedule for Field Lighting Control Panel?
    Answer: a.) Existing disconnect switch is located in the existing electrical cage on the lower level. See "Team Room E005" on Sheet E100-R.2.
    b.) The Field Lighting Control Panel located in Supply E112 on the first floor of the building is to remain. Refer to Sheet E101-R.2. The existing circuit for basketball and tennis court lighting is to remain and circuit for football and baseball field lighting to be removed.
    c.) Refer to Sheet EL300-R.2 from Addendum #1 plans.

22. Drawing E501-R.2: Do we need a circuit breaker in MDP for Field Lighting Control Panel? MDP schedule does not show a circuit breaker.
    Answer: Field lighting control panel is fed from the Panel PSH in the new shed. The panel in the new shed is tapped from the secondary of the new transformer on site. See single line on Sheet EL400-R.2 from Addendum #1 for details.

23. Drawing C-171-R.2: What panel feeds new walkway and gazebo lighting?
    Answer: Walkway and gazebo loads are fed from Panel PBW located in Vestibule 001. Refer to Addendum #1.

24. Will we be provided with electrical drawings for new walkway and gazebo lighting? License & Inspections will not accept electrical work only shown on Civil Drawings.
    Answer: Refer to updated electrical on Addendum #1.

25. E200-R.2: What is missing 'New Work Note" #6?
    Answer: Refer to Addendum #1 for updated New Work Note #6.

26. There is a discrepancy to the construction drawings; CS602-R.2; detail for the maintenance shed, floor and front plans indicates 20' x 20' building yet the roof plan indicates 16' x 20'-8". On drawing C-102-R.2, there's a note that indicates the shed is to be 16' x 20'. please confirm what the actual dimensions are.
    Answer: The correct shed dimensions are 20' x 16'.

27. Swimming Pool G-101-R.2, Who is responsible for Pool work outlined in Construction sequencing in G101?
    Site plan Z101 indicates Pool N.I.C.
    Answer: The contractor is responsible for all work shown under CONSTRUCTION SEQUENCING to allow the pool to open for the 2024 season.
    Z101: Pool N.I.C. refers to the pool structure itself. There are no renovations to the pool structure, but repairs to the wall surrounding the pool as described in plans elevations and details are in contract.

28. Could you consider extending the RFI deadline date due to the fact that several of our subcontractors are just now beginning their review of the bid documents?
    Answer: RFI deadline will not be extended.

29. Prefab structure C-102-R.2, CS-602-R.2, Spec 133423, C102 calls for a 16'L x 20'W x 9'H maintenance shed, but the dimensions do not match the specified dimensions called out on 1.03 B - 133423. Please clarify if this is the Easy-Set precast building called out in Spec 133423 and clarify the correct dimensions for the maintenance shed.
    Answer: See updated specification for correct dimensions. Maintenance shed to be 16'x20'.

30. Prefab structure Spec 133423, 1.02 H. calls for Bullet Resistant Certification by independent structural engineer. Will this be required?
    Answer: This will not be required.

31. Will you allow a second site visit for subcontractors who missed the last walk-through?
    Answer: Refer to question #10 response.

32. Civil C-610-R.2, Is there a spec section for the Shade Structure shown on page C-610-R.2?

Answer: A written specification is not provided. Product to be 20' octagon shelter as manufactured by Poligon. Model #OTC20. Refer to poligon.com for cut sheet of product.

33. Hazardous Materials G-101-R.2, Demo General Note#1 on G-101 R.2 refers to abatement work plan and specifications, but we couldn't locate them in the bid documents. Can you please provide specifications for Hazardous material abatement and share the Hazardous survey report?
    Answer: Abatement of asbestos has been completed- this is not in Bid Package 2 scope. Report provided for reference only.

34. Lead abatement G-101-R.2, Demo General Note#1 on G-101 R.2 indicates lead paint is also present at work areas. Please clarify the scope and extent of lead abatement required.
    Answer: Contractor to assume all paint contains lead. Per note, disturbance activities to comply with all Federal, State, and Local regulations and OSHA.

35. Spec 002113, Section 002113 - 1.1 indicates the construction duration as 550 calendar days, but bid form indicates 250 calendar days. Please clarify the estimated construction duration for Package 2 work.
    Answer: 550 CCDs. See revised Bid Form section.

36. We seek clarification on whether Section 32 9113 SOIL PREPARATION remains within the Division 32 – Exterior Improvements scope of work for the Kingsessing Recreation Center Building & Site Improvements RFP."
    Answer: Soil Preparation remains in the Division 32 Section and is in the scope of work for Base Scope and Add Alternates.

37. UG Basin liner material "Or equal" UG Basin liner material "Or equal" - Will you consider 2 layers of fabric over a 30 or 40 mill liner in lieu of Bentomat DN liner for the UG basin?
    Answer: We will consider alternate impermeable liner options for the UG Basin.

38. 40' MBS netting 40' MBS netting - Plan CS608 has AAE plan 2 of 14 showing 60 LF of one single run of 40' H safety net. However, site improvement plan North C-102 does not contain note tags pointing to the location of 40' high safety nets. Please provide clear direction as to quantity & location(s) of where the 40' H safety nets are to be located for the athletic field.
    Answer: See updated C-102-R.2 for location of 40' high safety nets. Safety nets to be installed behind football goalposts. Plan north safety net to be 95' in length. Plan south safety net to be 60' in length.

39. Maintenance shed dimensions Maintenance shed dimensions - Plan C-102 maintenance shed note calls out 16'L x 20'W shed dimensions. However, CS602 maintenance shed detail calls out 20'-0" x 20'-0". What is to be the correct dimensions for the shed?
    Answer: Maintenance shed to be 16' L x 20' W. See updated written specification.

40. Alternate S1 - Natural turf Vs. Synthetic turf Alternate S1 - Natural turf Vs. Synthetic turf - Plans CS604 & CS605 plans both provide typical cross section details for the synthetic turf assembly.
    1A. Please provide assembly detail for the natural turf alternate.
    1.B Provide specification section for the natural turf for a playing field.
    2. Are there special watering requirements for the natural turf alternate?
    3. Issue an updated underground basin plan & details to show basin reduction by 50% (length, depth(s).
    4. Provide updated plan to match CS606 Site details showing the reduced basin to include top & bottom basin elevations.
    Answer to 1.A, 1.B, 2, 3 and 4: All reference for Natural Grass Alternate shall be omitted from BP #02 scope of work.

41. Alternate R4 Architectural drawings show an alternate R4, however there is no section on the Bid Form for R4. Please clarify.
    Answer: Alternate R4 refers to the stage curtains. See revised Bid Form.

42. Specification 08 5210 Window Security Screens spec section 08 5210 is listed in the table of contents, but not present in the spec book. Please send if available.
    Answer: Please refer to question #7 response.

43. Plan CS102 - Site plan improvements - North Plan CS102 - Site plan improvements - North - Please re-issue plan and tag what the line with dots is to represent for both ends of the field. On the Kingsessing Ave. side, the dots are at 20' C-C, on the opposite side of the field, the dots are 10' C-C.
    Answer: The correct spacing is 20' O.C. for both sides of the field for the 40' tall ball control net system.

44. The Page 1 of the Instructions To Bidders notes a 550 consecutive calendar day duration while page 7 of the Bid Form note 220 consecutive calendar days. Which one is correct?
    Answer: 550 CCDs – see revised bid form

45. What is the due date for the hand delivery of the USB flash drive & 3 original copies of the proposal?
    Answer: Please read RFP guidance under 'Submission Process' on PHDC's Opportunity website. All bid proposals are to be turned in via PHDC's electronic portal.

    https://phdcphila.org/rfps-rfqs-sales/construction-rfps/

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ADDENDUM NO. 1

PROJECT: KINGSESSING REC CENTER BUILDING AND SITE IMPROVEMENTS PACKAGE 2: INTERIOR RENOVATIONS AND SITE IMPROVEMENTS

DATE OF ISSUANCE: 10/19/2023

OWNER: Rebuild Philadelphia / Philadelphia Parks and Recreation

These drawings, specifications and instructions form a part of and modify the Drawings, Specifications, and Instructions issued for Packages to the extent noted herein:

Careful note of these Drawings, Specifications, and Instructions shall be taken by all parties of interest so that proper allowance is made in all computations, estimates, and contracts so that all trades affected are fully advised in the performance of Work that will be required of them.

These Drawings, Specifications, and Instructions supersede all previous Drawings, Specifications, and Instructions pertaining to these items.

All Drawings, Specifications and Instructions not reissued as part of Addendum No. 1 dated 19 OCT 23 remain valid.

DRAWINGS:

SK_2023-10-19_REC PKG 2_LAND	SITE PLANTING PLAN (TEMP. PLANT PROTECTION)	REF: Bidder Question 20. Temporary plant protection.
EL001.R2 thorugh EL400.R2	ELECTRICAL INDEX SHEET (FIELD LIGHTING)	ADDED “EL-:” SERIES NEW SHEETS FOR EXTERIOR FIELD LIGHTING SCOPE OF WORK.
EL002-R.2	ELECTRICAL SPECIFICATIONS (FIELD LIGHTING)	ADDED “EL-:” SERIES NEW SHEETS FOR EXTERIOR FIELD LIGHTING SCOPE OF WORK.
EL100-R.2	ELECTRICAL DEMOLITION SITE PLAN (FIELD LIGHTING)	ADDED “EL-:” SERIES NEW SHEETS FOR EXTERIOR FIELD LIGHTING SCOPE OF WORK.
EL200-R.2	ELECTRICAL PROPOSED SITE PLAN (FIELD LIGHTING)	ADDED “EL-:” SERIES NEW SHEETS FOR EXTERIOR FIELD LIGHTING SCOPE OF WORK.
EL300-R.2	ELECTRICAL SCHEDULES (FIELD LIGHTING)	ADDED “EL-:” SERIES NEW SHEETS FOR EXTERIOR FIELD LIGHTING SCOPE OF WORK.
EL400-R.2	ELECTRICAL DETAILS AND DIAGRAMS (FIELD LIGHTING)	ADDED “EL-:” SERIES NEW SHEETS FOR EXTERIOR FIELD LIGHTING SCOPE OF WORK.
EL500-R.2 through EL509-R.2	MUSCO FIELD LIGHTING PLANS AND SPECIFICATIONS	FIELD LIGHTING PLANS FROM SUBCONSULTANT
E101.R2	EXISTING EXTERIOR LIGHTING CONTROLLER	LOCATION OF EXTERIOR LIGHTING CONTROLLER ADDED TO PLANS.
E200.R2	NEW WALKWAY LIGHTING TIMER	WALKWAY AND GAZEBO LIGHTING INTERMATIC TIMER ADDED TO PLANS.

E204.R2	UPDATED SIZING ON SHED PANEL	CAPACITY INCREASED TO MATCH NEW FIELD LIGHTING LOADS. REFERENCE EL-SERIES.
E502.R2	WALKWAY AND GAZEBO LOADS	ADDED WALKWAY AND GAZEBO LOADS TO PANEL PBW.
CS100-R.2	OVERALL SITE KEY PLAN	Updated Wrought Iron Fence locations and callouts
CS102-R.2	SITE IMPROVEMENT PLAN NORTH	Included callouts for location and length of 40’ ht. ball control net system
CS603-R.2	SITE DETAILS	Updated basin OCS detail inverts in and out
CS605-R.2	SITE DETAILS	Clarifications of turf detail and detail reorganization
CS606-R.2	SITE DETAILS	Clarified basin bottom to show the required 6” of base stone
CS607-R.2	SITE DETAILS	Detail organization and handrail updates
CS601-R.2	SITE DETAILS	Updated receptacle mounting detail to be 8’-0” above floor elevation

SPECIFICATIONS:

00 4114	CONSTRUCTION BID PROPSAL BID PACKAGE	Added R4 Add Alternate line item. Corrected Duration to 550 consecutive days.
13 3423	FABRICATED STRUCTURES	Updated proposed building size
26 5668	EXTERIOR ATHLETIC LIGHTING (LIGHT STRUCTURE SYSTEM LED RETROFIT)	New Section
32 1813	SYNTHETIC TURF	Updated sports striping and field maintenance equipment

This is the last page of Addendum No. 1.

PHILADELPHIA REDEVLOPMENT AUTHORITY

KINGSESSING RECREATION CENTER BUILING AND SITE IMPROVEMENTS
1201 S 51ST ST
PHILADELPHIA, PA 19143

THIS BID FORM IS COMPLETE AND MUST NOT BE SEPARATED. IF ANY SHEET OR SHEETS ARE DETACHED WHEN SUBMITTED AS A BID, THE PHILADELPHIA REDEVELOPMENT AUTHORITY RESERVES THE RIGHT TO REJECT YOUR BID.

_____
FIRM NAME

_____
FIRM ADDRESS

_____ _____
FEDERAL EIN **TOTAL BASE BID**

_____
PHILADELPHIA BUSINESS TAX ID

To the Philadelphia Redevelopment Authority:

I, the undersigned Bidder, hereby propose to furnish all the labor, materials and equipment, perform the whole of the work, and submit to all conditions, as represented, intended and implied, both particularly and generally, by the Plans, Special Specifications, Standard Specifications, Standard Details, Standard Contract Requirements, Form of Agreement, the Ordinance authorizing the work and this bid at the prices herein stated, and agrees that each item bid shall be complete in itself, and the Philadelphia Redevelopment Authority may increase or diminish the amount of work thereunder, or omit the item without invalidating the unit price bid for it or any other item, on the following terms to wit:

BID AMOUNT

We will complete the Work in accordance with the Contract Documents for the following Bid Amount as defined in Section 00700, Standard Contract Requirements. (Insert Bid Amount in words as well as figures.)

Div 01	General Conditions	$
Div 02	Interior Demolition	$
Div 02	Site Demolition	$
Div 03	Concrete	$
Div 04	Masonry	$
Div 05	Metals	$
Div 05	Metals – Structural Steel (Material Only)	$
Div 05	Metals – Cold Formed Metal Framing (Material Only)	$
Div 05	Metals – Exterior Stairs (Materials Only)	$
Div 05	Metals – Ext. Mechanical Enclosures	$
Div 06	Wood, Plastics, and Composites	$
Div 07	Thermal and Moisture Protection	$
Div 08	Openings	$
Div 08	Openings – Doors/Frames/Hardware (Material Only)	$
Div 08	Openings – Window Security Screens (Material Only)	$
Div 08	Openings – Glazing (Material Only)	$
Div 08	Openings – Louvers (Material Only	$
Div 09	Finishes – Plastering (Gyp + Cement)	$
Div 09	Finishes – Tiling	$
Div 09	Finishes – Resinous Flooring	$
Div 09	Finishes – Resilient Flooring	$
Div 09	Finishes – Resilient Athletic Flooring	$
Div 09	Finishes – Paints & Coatings	$

Div 10	Specialties – Interior/Exterior Signage	$
Div 10	Specialties – Toilet Compartments/Accessories	$
Div 10	Specialties – Fire Extinguishers/Cabinets	$
Div 10	Specialties – Wall Mounted Standards/Closet + Utility Shelving	$
Div 10	Specialties – Wire Mesh Partitions/Ext. Enclosures	$
Div 11	Equipment	$
Div 11	Equipment – Play Equipment + Structures	$
Div 12	Furnishings	$
Div 13	Special Construction - Fabricated Structures	$
Div 14	Hydraulic Elevator & Wheelchair Lift	$
Div 14	Conveying Equipment – Elevator (Material Only)	$
Div 14	Conveying Equipment – Wheelchair Lifts (Material Only)	$
Div 21	Fire Protection – Sprinkler System	$
Div 22	Plumbing	$
Div 22	Plumbing – Equipment (Material Only)	$
Div 22	Plumbing – Fixtures (Material Only)	$
Div 23	HVAC	$
Div 23	HVAC – Ductwork	$
Div 23	HVAC – Equipment AHU's, Condensing Units, (Material Only)	$
Div 26	Electrical	$
Div 26	Electrical – Light Fixtures (Material Only)	$
Div 26	Electrical – Switchgear (Material Only)	$
Div 27	Telecom	$
Div 28	Electronic Security Systems - Video Surveillance	$
Div 28	Electronic Security Systems - Fire Alarms	$
Div 31	Earthwork	$
Div 32	Exterior Improvements – Asphalt Paving	$
Div 32	Exterior Improvements – Concrete Paving	$
Div 32	Exterior Improvements – Protective Playground Surfacing	$
Div 32	Exterior Improvements – Site Furnishings	$
Div 32	Exterior Improvements – Synthetic Turf	$
Div 32	Exterior Improvements – Gazebo	$
Div 32	Exterior Improvements – Soil Prep/Turfs & Grass	$
Div 33	Site Utilities	$

TOTAL BASE BID AMOUNT $ _____

(in words)_____

_____DOLLARS

1. ALLOWANCE No. 1: Bidders are to include the amount equal to Two Percent (2%) of their base bid amount for payment of Permit and License fees to all regulatory agencies. Refer to Allowances, Section 01210 for more details. ALLOWANCE AMOUNT _____ DOLLARS, $_____

2. ALLOWANCE No. 2: Bidders are to include the amount of $30,000.00 to their base bid amount for new site signage. Refer to Allowances, Section 012100 for more details. THIRTY THOUSAND DOLLARS, $30,000.00.

3. ALLOWANCE No. 3: Bidders are to include the amount of $50,000.00 to their base bid amount for site security. Refer to Allowances, Section 012100 for more details. ALLOWANCE AMOUNT _____ DOLLARS, $_____

4. ALLOWANCE No. 4: Bidders are to include the amount of $25,000.00 to the base bid amount for Moving and Storage. Refer to Allowances, Section 012100 for more details. TWENTY-FIVE THOUSAND DOLLARS, $25,000.00.

5. ALLOWANCE No. 5: Bidders are to include the amount of $___TBD___to the base bid amount for unforeseen coordination issues that may arise between Package 1 contract and Package 2 contract. Refer to Allowances, Section 012100 for more details.

6. ALLOWANCE No. 6: Bidders are to include the amount of $50,000 to the base bid amount for window roller shades.
AMOUNT _____ DOLLARS, $_____

TOTAL BASE BID PLUS ALLOWANCES. $_____

(in words) _____ DOLLARS

SCHEDULE OF ALTERNATES (*please refer to spec section 012300 UNIT PRICES for description*)

A. Alternate No. R1: DEDUCT ALT - Architectural Reductions (Lower Level)
   1. Base Bid: Interior renovations at the Lower Level per Package 2 set,
   2. Alternate: See also drawing AD101B-R.2, A101B-R.2; Respective MEP/FP/IT drawings
      a. Reduction of scope at Lower Level (LL) as shown on drawings
      b. Do not demolish existing walls except as required for (LL) restrooms and elevator modifications.
      c. Provide abuse resistant GWB on furring at interior side of exterior walls in lieu of plaster repair at LL areas to be renovated.
      d. Elec: same as base bid, except provide new lighting only at areas to be renovated and

at stairs and as needed for egress/exits. See Electrical drawings.

e. Mech: No change from Base Bid. See Mech. drawings.
f. Plumb: No change from Base Bid. See Plumbing drawings
g. Fire Protection: No change from Base Bid. See Fire Protection drawings.
h. Fire Alarm: No change from Base Bid. See FA drawings
i. Telecom: No change from Base Bid. See Telecom drawings.

AMOUNT _____ DOLLARS, $_____

B. Alternate No. R2: ADD ALT – Additional scope at Lower Level
1. Base Bid: Interior renovations at the Lower Level per Package 2 set
2. Alternate: See also drawing AD101C-R.2, A101C-R.2; Respective MEP/FP/IT drawings per Base Bid.
a. Full lower-level renovation: Remove additional walls / reconfigure space at lower level as shown on drawings.

AMOUNT _____ DOLLARS, $_____

C. Alternate No. R3: ADD ALT – Electrical localized lighting control.
1. Base Bid: Centralized lighting control
2. Alternate: Provide localized lighting control at public spaces as noted on drawings.

AMOUNT _____ DOLLARS, $_____

D. Alternate No. R4: ADD ALT – New Stage Curtains
1. Base Bid: Existing curtains to remain. GC to remove, clean, repair and reinstall.
2. Alternate: Remove existing curtains; provide and install new curtains.

AMOUNT _____ DOLLARS, $_____

~~E. Alternate No. S1: DEDUCT ALT – Playing Fields~~
~~1. Base Bid: Artificial turf field including underground storm water management.~~
~~2. Alternate: Provide Natural Turf Field; reduce storm basin by 50%~~
~~AMOUNT _____ DOLLARS, $_____~~

F. Alternate No. S2: DEDUCT ALT – Rec Center Frontage Paving
1. Base Bid:
a. New concrete vehicular paving – extent as indicated on drawings.
b. Repairs to existing brick paving – extent as indicated on drawings.
2. Alternate:
a. Provide asphalt vehicular paving in lieu of concrete.

AMOUNT _____ DOLLARS, $_____

G. Alternate No. **S3**:ADD ALT – Tennis Courts
1. Base Bid: No Scope

2. Alternate:
   a. Color coating and white line striping only.

AMOUNT _____ DOLLARS, $_____

H. Alternate No. **S4**: ADD ALT – Diagonal path from 51st and Chester to playground
   1. Base Bid:
      a. Diagonal Vehicular path: asphalt paving
      b. Lighting: Install (5) PPR Standard pedestrian light posts

AMOUNT _____ DOLLARS, $_____

   2. Alternate (Add):
      a. Install concrete pads, PPR Standard backless benches – (3) location as shown on landscape drawings L100-R.2
      b. Trash (1) and recycling (1) receptacles
      c. Install (5) Canopy trees

AMOUNT _____ DOLLARS, $_____

SCHEDULE OF UNIT PRICES (*please refer to spec section 012200 UNIT PRICES for description*)

A. Unit Price No. 1: Repair of plaster – level 1 repair
Description: Hairline cracks, small holes/bubbles:
Unit of Measurement: Square foot of damage. $ _____

B. Unit Price No. 2: Repair of plaster – level 2 repair
Description: Large cracks, loose plaster, water damage
Unit of Measurement: Square foot of damage. $ _____

C. Unit Price No. 3: New openings in masonry walls
Description: Provide opening and steel lintel per structural drawings.
Unit of Measurement: Square foot of opening. $ _____

D. Unit Price No. 4: New furring over masonry walls
Description: metal stud wall and 5/8" abuse-resistant GWB, installed full height to underside of structure.
Unit of Measurement: Square foot of wall$ _____

E. Unit Price No. 5: Wood Floor repair
Description: Repair of wood floors at gyms, and 2nd floor
Unit of Measurement: Square foot of surface. $ _____

F. Unit Price No. 6: Underlayment
Description: Provide new underlayment; remove deteriorated underlayment and install new.

Unit of Measurement: Square foot of surface. $ _____

G. Unit Price No. 7: Brick Replacement – Site wall and select areas indicated on drawings.
Description: Remove damaged brick and replace with new matching brick according to:
Unit of Measurement: Each brick replaced. $ _____

H. Unit Price No. 8: Crack and spall repair - Brick – Site wall
Description: Repairs per detail 1/S304-R.2
Unit of Measurement: Lineal foot of crack. $ _____

I. Unit Price No. 9: Mortar joint crack repair - Brick – Site wall
Description: Repairs per detail 2/S304-R.2
Unit of Measurement: Lineal foot of crack. $ _____

J. Unit Price No. 10: Dutchman repair – Limestone
Description: Remove damaged stone and replace with new limestone dutchman with profiled and flat surfaces to match existing limestone according to the following Section and as indicated on structural Drawings.
Unit of Measurement: Square foot of dutchman repair. $ _____

K. Unit Price No. 11: Dutchman repair – Granite.
Description: Remove damaged stone and replace with new Granite dutchman with profiled and flat surfaces to match existing Granite according to the following Section and as indicated on structural Drawings.
Unit of Measurement: Square foot of dutchman repair. $ _____

L. Unit Price No. 12: Repair of cracks with composite patching material – Granite.
Description: Cut out material in surface crack and apply composite patching material and crushed granite to fill crack and shed water away from surface of building according to:
Unit of Measurement: Lineal foot of crack repaired. $ _____

M. Unit Price No. 13: Repair of cracks with composite patching material – Granite.
Description: Cut out material in surface crack and apply composite patching material and crushed granite to fill crack and shed water away from surface of building according to:
Unit of Measurement: Lineal foot of crack repaired. $ _____

B. I will substantially complete the Work, ready for final payment, in accordance with the Contract Documents within 550 consecutive calendar days counting from the date stated in the Notice to Proceed.

C. ADDENDA

Bidder must attach Addendum Acknowledgement sheets for all Addenda, if applicable.

EXECUTION OF CONTRACT

This contract consists of the Standard Contract Requirements; the Department's Standard Details and Specifications, as they apply; the Department's General Bidding and Contract Requirements; the Technical Specifications; the Bid; the Plans with all of the notes thereon (excluding any records or reports of test borings, underground structures, and test piles); any additional exhibits or attachments to any of the foregoing; and any addenda thereto issued by the PRA/City (collectively, the "Contract").

NOTE: ANY CONTRACT THAT IS NOT EXECUTED IN ACCORDANCE WITH THE INSTRUCTIONS PROVIDED BELOW, MAY, IN THE SOLE DISCRETION OF THE PHILADELPHIA REDEVELOPMENT AUTHORITY, BE REJECTED.

SIGNING OF CONTRACT

If Contractor is an INDIVIDUAL or a PARTNERSHIP, date and sign the Contract here, with original signatures, in ink.

This _____day of _____ 2019

_____ _____

(Signature of Owner, Partner) (Type or Print Name and Title)

_____

(Business Name of Bidder)

If Contractor is a CORPORATION, date and sign the Contract here with original signatures, in ink, by (a) President or Vice-President of the corporation AND (b) Secretary, Assistant Secretary, Treasurer or Assistant Treasurer of the corporation; and (c) affix the seal of the corporation. If the Contract is not signed by the President or Vice-President; and Secretary, Assistant Secretary; Treasurer or Assistant Treasurer, attach a duly certified corporate resolution authorizing the person signing in place of such officers to execute this Contract for the corporation.

This_____day of _____2019

CORPORATE SEAL _____

(Corporate or Business Name of Bidder)

_____

(Address, Including Zip Code)

_____

(Telephone Number)

_____ _____

(Signature of President or Vice President) (Signature of Secretary, Asst. Secretary, Treasurer or Assistant Treasurer

_____ _____

(Type or Print Name and Title) (Type or Print Name and Title)

SECTION 133423 FABRICATED STRUCTURES

Part 1 – GENERAL

1.01 SUMMARY

Contractor to furnish transportable precast concrete building components. Building to be delivered and placed on Owner's prepared foundation in accordance with Manufacturer's recommendations. Precast building to be EASI-SET™ Model 1214 as manufactured by M&W PRECAST LLC – Ottsville, PA (610-847-1423). Building is to be provided by Manufacturer with all necessary openings as specified by Contractor in conformance with Manufacturer's structural requirements.

1.02 REFERENCES

A. American Society for Testing and Materials

1. ASTM A185; Standard Specification for Steel Welded Wire Reinforcement, Plain for Concrete
2. ASTM A615; Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement

B. American National Standards Institute (ANSI):

1. ANSI A115.1; Preparation for Mortise Locks for 1-3/4" Doors
2. ANSI A156.1; Butts and Hinges
3. ANSIA156.13; Mortise Locks and Latches Series 1000

C. BOCA, Building Officials& Code Administrators International, Inc.

D. ACI-318-02, "Building Code Requirements for Reinforced Concrete".

E. Concrete Reinforcing Institute, "Manual of Standard Practice".

F. ANSI/ASCE-7-2 "Building Code Requirements for Minimum Design Loads in Buildings and Other Structures".

G. International Building Code (IBC) - 2015

H. UL-752 test method level 4 for bullet resistance certified by an independent structural engineer.

1.03 SYSTEM DESCRIPTION

A. Design Requirements: Provide a building designed in accordance with ACI-318 and local prevailing building codes for reinforced concrete and manufactured under Pre-stressed Concrete Institute (PCI) standards and Quality Control Manual MNL-116.

B. Dimensions:

1. Exterior: 16'-0" x 20'-0" x 11'-3" high
2. Interior: 15'-8" x 19'-4" x 8'-0" minimum ceiling height

C. Design Loads:

1. Seismic Load Performance Category 'C', Exposure Group III
2. Standard Live Roof Load – 60 psf
3. Standard Floor Load – 250 psf
4. Standard Wind Loading – 130 mph

D. Gabled Concrete Roof: Roof panels shall slope from approximately 33" above center of long-sided direction toward left and right long-sided walls. Exterior surface to be cast with smooth steel trowel finish. The roof shall extend a minimum of 2-½" beyond the vertical wall panel on each side and have a turndown design which extends ½" below the top edge of the wall panels to prevent water migration into the building along the top of wall panels. Roof shall also have a smooth edge.

E. Roof, floor and walls panels must each be produced as single component monolithic panels. No roof, floor or vertical wall joints will be allowed, except at corners. Wall panels shall set on top of floor panel.

F. Floor panel must have ½" step-down around the entire perimeter to prevent water migration into the building along the bottom of wall panels.

1.04 QUALITY ASSURANCE

A. Manufacturer must be producer member of the National Precast Concrete Association (NPCA) and participate in its Plant Certification Program.

B. Manufacturer Qualifications: A manufacturer who has experience in the fabrication of pre-engineered manufactured buildings for a period of 5 years minimum.

C. No alternate building designs to the pre-engineered EASI-SET building will be allowed unless pre-approved by the owner ten (10) days prior to bid date.

1.05 SUBMITTALS

A. Building engineering calculations that are designed and sealed by a State licensed Professional Engineer in which the building will be installed, shall be submitted for approval.

Part 2 – PRODUCTS

2.01 MATERIALS

A. Concrete: Steel-reinforced, 5000 psi minimum 28-day compressive strength, air-entrained (ASTM-C260)

B. Reinforcing Steel: ASTM A615, grade 60 unless otherwise indicated.

C. Post-tensioning Strand: 41K Polystrand CP50, .50, 270ksi, 7-wire strand, enclosed within a greased plastic sheath, (ASTM A416). Roof and floor each to be post-tensioned by a single, continuous tendon. Said tendon shall form a substantially rectangular configuration having gently curving corners wherein the positioning of the cable member results in a pattern of one or more loops and a bisecting of the loop(s). The cable member starts from one corner of the concrete building panel, forms a gentle perimeter loop(s) returning to a point where the cable member entered the concrete building panel. The tendon then turns 90 degrees and follows the cable member(s) to a point midway along the “Y” axis of the concrete building panel and then turns 90 degrees along the “X” axis of the concrete building panel. This bisects the concrete building panel and crosses the opposite parallel portion of the cable member and exits from an adjacent side of the concrete building panel.

1. If post-tensioning is not used in the roof panel, the following guidelines must be followed to ensure a watertight roof design.

a. The entire precast concrete roof panel surface must be cleaned and primed with a material that prepares the concrete surface for proper adherence to the coating material.
b. The entire precast concrete roof panel surface shall be sealed with a .045 EPDM continuous membrane cemented to the concrete with a compound designed for this purpose.

D. Caulking: All joints between panels shall be caulked on the exterior and interior surface of the joints. Caulking shall be SIKAFLEX-1A elastic sealant for exterior joints. SIKAFLEX-15LM elastic sealant for interior joints.

E. Panel Connections: All panels shall be securely fastened together with 3/8” thick steel brackets. Steel is to be of structural quality, hot-rolled carbon complying with ASTM A283, Grade C and powder coated after fabrication. All fasteners to be ½” diameter bolts complying with ASTM A307 for low-carbon steel bolts. Cast-in anchors used for panel connections to be Meadow-Burke #FX-19, or equal. All inserts for corner connections must be fastened directly to form before casting panels. No-floating-in of connection inserts shall be allowed.

2.02 ACCESSORIES

A. Doors and Frames: Shall comply with Steel Door Institute “Recommended Specifications for Standard Steel Doors and Frames” (SDI-100) and as herein specified. The building shall be equipped with one (1) double set 3’-0” x 7’-0” x 1 ¾”, 18 gauge galvanized active metal doors with 16 gauge galvanized frame. Doors and frame shall be bonderized and painted one coat of rust inhibitive primer and one finish coat of enamel paint, Owner to select standard available color.

B. Door Hardware:

1. Hinges: McKinney TA2314 4-1/2" x 4-1/2" NRP (non-removable pin) x 32D, 3 per door, or equal
2. Lock Set: Schlage B660P6 x 12-296 x 10-087 x 626 Heavy Duty Commercial Grade Cylinder Deadbolt, or equal
3. Pull Plate: Rockwood 107 x 70C x Type 1 x US32D, or equal
4. Push Plate: Rockwood 70C-RKW x US32D, or equal
5. Door Holder: Rixson 9-326 x 630, or equal (inactive door)
6. Door Closer: Norton 8501 x 689, or equal (Restrooms)
7. Threshold: Pemko 171A x 72"w x A, or equal
8. Drip Cap: Pemko 346C x 76"w x C, or equal
9. Door Sweep: Pemko 315CN x 36"w x C, or equal
10. Surface Bolts: Rockwood 580-8 x US26D, or equal
11. Astragal: Pemko 357C84 x C, or equal

2.03 PLUMBING

A. The following fixture shall be wall mounted with piping through the wall into the building interior. A penetration will be provided in the building floor for entrance of plumbing utilities. The fixtures shall be as follows:

1 – Woodford B26-1/2- RB Mild Climate recessed hose bib with locking cover, or equal

2.04 ELECTRICAL

A. All equipment and conduit shall be surfaced mounted. The load center will be located in an area designated by Owner. All branch conduit and wiring shall be run to the load center. The connection of electrical utilities to the load center is by others. A penetration will be provided for entrance of electrical utilities into the building interior. The electrical components shall be as follows:

1 – Square-D Q0140M100 load center single phase, 100-amp, 120/240 volt, or equal
4 – Columbia Lighting LAW4-40ML-EDU 4' non-vandal resistant light fixture, or equal
4 – Raab Lighting Slim 12/PC Exterior light with photocell, or equal
1 – Leviton 1221-21 Single Pole Switch, or equal
3 – Leviton GFNT2-I 15-amp GFCI Receptacle, or equal

2.05 FINISHES

A. Interior of Building: Smooth steel trowel finish on all interior panel surfaces. The interior surfaces shall remain natural color concrete.

B. Exterior of Building: Smooth steel form finish on all exterior panel surfaces. The exterior surfaces shall remain natural color concrete.

C. Floor finish: Smooth steel form finish. The surface shall remain natural color concrete.

PART 3 – EXECUTION

3.01 SITE PREPARATION (Standard Preassembled Building)

A. Foundation shall be designed in accordance with local building code and soil conditions. The building shall bear fully on firm undisturbed soils with an approved fill or pad. The EASI-SET™ Building shall at a minimum bear fully on a crushed stone base that is at least two feet larger than the length and width of building

B. Stone shall be a minimum of 8” thick down to firm subgrade. The vertical soil capacity under stone shall be compacted to have minimum bearing of 1,500 pounds per square foot. Stone shall be ¾” clean or smaller, and topped with 2” of sand or screenings; and must be screed level within ¼” in both directions. Stone shall be placed within a perimeter form with flat and level top edge for screeding. Forming material shall remain around stone until after the building is set.

C. The crushed stone base shall be kept within the confines of the soil or perimeter form. Do not allow the base to become unconfined so that it may wash, erode or otherwise be undermined.

D. Or if the building is placed on pavement or a concrete slab, substrate below pavement or slab must have a vertical soil capacity of 1,500 pounds per square foot. Place stone or sand to 1” above highest point of area where building will be placed and at least 1’-0” wide all-around building footprint. Retain stone or sand with a perimeter form to prevent the material from washing out.

E. No building shall bear directly on rock. Where rock is closer than 2 feet from the bottom of the building floor slab or foundation slab, it shall be undercut to a minimum of 2 feet below the building and replaced with approved fill material.

F. Provide positive drainage for the fill, pad, or slab as required.

G. A vapor barrier of 6 mil polyethylene shall be placed between the fill, pad, or foundation slab, and the floor slab where moist conditions exist.

3.02 ACCESS

A. Contractor to provide level unobstructed area large enough for crane and tractor-trailer to park adjacent to pad. Crane must be able to place outriggers within 3’-0” of edge of pad and truck and crane must be able to get side-by-side under their own power. No overhead lines may be within 75’ radius of center of pad. Firm roadbed with turns that allow 65’ low-bed tractor and trailer access must be provided directly to site. No building shall be placed closer than 2”-0” to an existing structure.

END OF SECTION 321313

SECTION 26 56 68 – EXTERIOR ATHLETIC LIGHTING

Retrofit Lighting System with LED Upgrade

PART 1 – GENERAL

1.1 SUMMARY

A. Work covered by this section of the specifications shall conform to the contract documents, engineering plans as well as state and local codes.

B. The purpose of these specifications is to define the lighting system performance and design standards for Kingsessing Rec Center using an LED Lighting source. The manufacturer / contractor shall supply lighting equipment to meet or exceed the standards set forth in these specifications.

C. The sports lighting will be for the following venues:

1. Baseball
2. Multipurpose

D. The primary goals of this sports lighting project are:

1. Energy Efficient Lighting Design – Upgrade by replacing existing HID luminaires with the same number of LED luminaires (or fewer), maintaining existing minimum required light levels and achieving the greatest possible amount of energy savings.

    a. Guaranteed Light Levels: Selection of appropriate light levels impact the safety of the players and the enjoyment of spectators. Therefore, light levels are guaranteed to not drop below specified target values for a period of 10 years.

    b. Environmental Light Control: It is the primary goal of this project to minimize spill light to adjoining properties and glare to the players, spectators and neighbors.

    c. Cost of Ownership: In order to reduce the operating budget, the preferred lighting system shall be energy efficient and cost effective to operate. All maintenance costs shall be eliminated for the duration of the warranty.

2. Control and Monitoring – To allow for optimized use of labor resources and avoid unneeded operation of the facility, customer requires a remote on/off control system for the lighting system. Fields should be proactively monitored to detect luminaire outages over a 10-year life cycle. All communication and monitoring costs for 10-year period shall be included in the bid.

    a. Control and monitoring system shall provide contactor control of all existing circuits, replacing existing contactor cabinets. Key switches shall be provided to provide field-level control of existing circuit groups.

1.2 ONFIELD LIGHTING PERFORMANCE

A. Illumination Levels and Design Factors: Playing surfaces shall be lit to an average target illumination level and uniformity as specified in the chart below. Lighting manufacturers will provide a guarantee that light levels will be sustained over the life of the warranty period. Lighting calculations shall be developed and field measurements taken on the grid spacing with the minimum number of grid points specified below.

Manufacturers will provide lumen maintenance data of the LED luminaires used per TM-21-11 and will Incorporate the lumen maintenance projections Into the lighting designs to ensure target light levels are achieved throughout the guaranteed period of the system. Per IES guidelines, lumen maintenance hours should be reported based on the 6x multiplier of testing hours.

Area of Lighting	Average Target Illumination Levels	Maximum to Minimum Uniformity Ratio	Grid Points	Grid Spacing
Baseball	30fc Infield 20fc Outfield	2.5:1 Infield 3:1 Outfield	25 Infield 72 Outfield	30’ x 30’
Multipurpose	30fc	2.5:1	72	30’ x 30’

B. Color Temperature: The lighting system shall have a minimum color temperature of 5700K and a CRI of 75.

C. Playability: Lighting design and luminaire selection should be optimized for playability by reducing glare onfield and providing sufficient uplight.

1. Aiming Angles: To reduce glare, luminaire aiming should ensure the top of the luminaire field angle (based on sample photometric reports) is a minimum of 10 degrees below horizontal.
2. Glare control technology – Luminaires selected should have glare control technology including, but not limited to: external visors, internal shields and louvres. No symmetrical beam patterns are acceptable.
3. Aerial lighting – Adequate illumination must be provided above the field in order to see the ball in flight. It is recommended that a lighting analysis be performed above the field of play to evaluate the visibility of the ball over its typical trajectory to ensure the participants will adequately see the ball. Calculation planes should be evaluated up to the maximum anticipated height for the level of play.

1.3 ENVIRONMENTAL LIGHT CONTROL

A. Light Control Luminaires: All luminaires shall utilize spill light and glare control devices including, but not limited to, internal shields, louvers and external shields. No symmetrical beam patterns are accepted.

B. Spill Light and Glare Control: The lighting equipment manufacturer shall assess both spill and glare at all areas of concern on adjacent properties. To minimize impact, values must not exceed the following levels taken at 3 feet above grade. Field measurements of spill light and glare shall be taken at the areas of concern.

	Average	Maximum
150’ Specified Spill Line Horizontal Footcandles	0.04 fc	0.18 fc
150’ Specified Spill Line Vertical Footcandles	0.14 fc	0.46 fc
150’ Specified Spill Line Candela (taken at 5’ AG)	5915 cd	23237 cd

E. Spill Scans: Spill scans must be submitted indicating the amount of horizontal and vertical footcandles along the specified lines. Light levels shall be taken at 30-foot intervals along the boundary line. Readings shall be taken with the meter orientation at both horizontal and aimed towards the most intense bank of lights. Illumination level shall be measured in accordance with the IESNA RP-6-22 after 1 hour warm up.

F. Sample Photometry: The first page of a photometric report for all luminaire types proposed showing horizontal and vertical axial candle power shall be provided to demonstrate the capability of achieving the specified performance. Reports shall be certified by a qualified testing laboratory with a minimum of five years experience or by a manufacturer’s laboratory with a current accreditation under the National Voluntary Laboratory Accreditation Program for Energy Efficient Lighting Products. A summary of the horizontal and vertical aiming angles for each luminaire shall be included with the photometric report.

G. Field Verification – Lighting manufacturer shall supply field verification of environmental light control using a meter calibrated within the last 12 months:

1. Spill verification: The light sensing surface of the light meter should be held 36 inches above the playing surface with the sensing surface horizontal (for horizontal readings) or vertically pointed at the brightest light bank (for max vertical readings)

1.4 Cost of Ownership

A. Manufacturer shall submit a 10 year Cost of Ownership summary that includes energy consumption, anticipated maintenance costs, and control costs. All costs associated with faulty luminaire replacement - equipment rentals, removal and installation labor, and shipping - are to be included in the maintenance costs.

PART 2 – PRODUCT

2.2 SPORTS LIGHTING SYSTEM CONSTRUCTION

A. Manufacturing Requirements: All components shall be designed and manufactured as a system. All luminaires, wire harnesses, drivers and other enclosures shall be factory assembled, aimed, wired and tested.

B. Durability: All exposed components shall be constructed of corrosion resistant material and/or coated to help prevent corrosion. All exposed carbon steel shall be hot dip galvanized per ASTM A123. All exposed aluminum shall be powder coated with high performance polyester or anodized. All exterior reflective inserts shall be anodized, coated, and protected from direct environmental exposure to prevent reflective degradation or corrosion. All exposed hardware and fasteners shall be stainless steel, passivated and coated with aluminum-based thermosetting epoxy resin for protection against corrosion and stress corrosion cracking. Structural fasteners may be carbon steel and galvanized meeting ASTM A153 and ISO/EN 1461 (for hot dipped galvanizing), or ASTM B695 (for mechanical galvanizing). All wiring shall be enclosed within the cross-arms, pole, or electrical components enclosure.

C. System Description: Lighting system is intended to mount to existing structures and shall reuse existing foundations, poles and underground supply wiring. The system shall consist of the following:

1. Existing equipment: Lighting manufacturer is required to provide an analysis and inspection of existing poles and foundations to ensure poles are strong enough to handle weight and windloading of new lighting equipment.
2. Poletop luminaire assembly: Galvanized steel poletop luminaire assemblies to replace existing poletop by slip fit over the pole sections, bolting to top flange, or clamping to pole. Lighting manufacturer must supply new crossarms, or supply calculations that show crossarms are strong enough to support new loads without deflection.
3. All luminaires, visors, and poletop luminaire assemblies shall withstand 150 mi/h winds and maintain luminaire aiming alignment.
4. Manufacturer will supply all drivers and supporting electrical equipment
    a. Remote drivers and supporting electrical equipment shall be mounted approximately 10 feet above grade in aluminum enclosures. The enclosures shall be touch-safe and include drivers and fusing with indicator lights on fuses to notify when a fuse is to be replaced for each luminaire. Disconnect per circuit for each pole structure will be located in the enclosure. Integral drivers are not allowed.
    b. Manufacturer shall provide surge protection at the pole equal to or greater than 40 kA for each line to ground (Common Mode) as recommended by IEEE C62.41.2_2002.
5. Wire harness complete with an abrasion protection sleeve, strain relief and plug-in connections for fast, trouble-free installation.
6. Control cabinet to provide remote on-off control, and monitoring of the lighting system. See Section 2.3 for further details.
8. Manufacturer shall provide lightning grounding as defined by NFPA 780 and be UL Listed per UL 96 and UL 96A.
    a. Manufacturer or installer shall supply grounding electrodes, down conductors, and exothermic weld kits. For steel poles, down conductor required from bottom of steel. For concrete poles full length down conductor is required. Electrodes and conductors shall be sized as required by NFPA 780.

D. Safety: All system components shall be UL listed for the appropriate application.

2.2 ELECTRICAL

A. Electric Power Requirements for the Sports Lighting Equipment:
1. Electric power: 208 Volt, Single Phase
2. Maximum total voltage drop: Voltage drop to the disconnect switch located on the poles shall

not exceed three (3) percent of the rated voltage.

B. Energy Consumption: The kW consumption for the field lighting system shall be 36.77.

2.3 CONTROL

A. Instant On/Off Capabilities: System shall provide for instant on/off of luminaires.

B. Lighting contactor cabinet(s) constructed of NEMA Type 4 aluminum, designed for easy installation with contactors, labeled to match field diagrams and electrical design. Manual off-on-auto selector switches shall be provided.

C. Contactor control of lights: To minimize wear on drivers and other electrical components and prevent lights from turning on due to communication loss, circuits must be controlled via contactor switching, not dimming driver output to zero.

D. Dimming: System shall provide for 3-stage dimming (high-medium-low). Dimming will be set via scheduling options (Website, app, phone, fax, email).

E. Remote Lighting Control System: System shall allow owner and users with a security code to schedule on/off system operation via a web site, phone, fax or email up to ten years in advance. Manufacturer shall provide and maintain a two-way TCP/IP communication link. Trained staff shall be available 24/7 to provide scheduling support and assist with reporting needs.

The owner may assign various security levels to schedulers by function and/or fields. This function must be flexible to allow a range of privileges such as full scheduling capabilities for all fields to only having permission to execute “early off” commands by phone. Scheduling tool shall be capable of setting curfew limits.

Controller shall accept and store 7-day schedules, be protected against memory loss during power outages, and shall reboot once power is regained and execute any commands that would have occurred during outage.

F. Remote Monitoring System: System shall monitor lighting performance and notify manufacturer if individual luminaire outage is detected so that appropriate maintenance can be scheduled. The controller shall determine switch position (manual or auto) and contactor status (open or closed).

G. Management Tools: Manufacturer shall provide a web-based database and dashboard tool of actual field usage and provide reports by facility and user group. Dashboard shall also show current status of luminaire outages, control operation and service. Mobile application will be provided suitable for IOS, Android and Blackberry devices.

Hours of Usage: Manufacturer shall provide a means of tracking actual hours of usage for the field lighting system that is readily accessible to the owner.

1. Cumulative hours: shall be tracked to show the total hours used by the facility
2. Report hours saved by using early off and push buttons by users.

H. Communication Costs: Manufacturer shall include communication costs for operating the control and monitoring system for a period of 10 years.

I. Communication with luminaire drivers: Control system shall interface with drivers in electrical components enclosures by means of powerline communication.

2.4 STRUCTURAL PARAMETERS

A. Wind Loads: Wind loads shall be based on the 2018 International Building Code. Wind loads to be calculated using ASCE 7-16, an ultimate design wind speed of 115 mi/h and exposure category C.

B. Pole Structural Analysis: The stress analysis and safety factor of the poles shall conform to 2013 AASHTO Standard Specification for Structural Supports for Highway Signs, Luminaires, and Traffic Signals (LTS-6).

PART 3 – EXECUTION

3.1 DELIVERY TIMING

B. Delivery Timing Equipment On-Site: The equipment must be on-site 8 – 10 weeks from receipt of approved submittals and receipt of complete order information.

3.2 FIELD QUALITY CONTROL

A. Illumination Measurements: Upon substantial completion of the project and in the presence of the Contractor, Project Engineer, Owner's Representative, and Manufacturer's Representative, illumination measurements shall be taken and verified. The illumination measurements shall be conducted in accordance with IESNA RP-6-22.

B. Field Light Level and offsite Glare Accountability

1. Light levels are guaranteed not to fall below the target maintained light levels for the entire warranty period of 10 years. These levels will be specifically stated as “guaranteed” on the illumination summary provided by the manufacturer.

2. The contractor/manufacturer shall be responsible for conducting initial light level and glare (candela) testing and an additional inspection of the system, in the presence of the owner, one year from the date of commissioning of the lighting.

3. The contractor/manufacturer will be held responsible for any and all changes needed to bring these fields back to compliance for light levels and uniformities. Contractor/Manufacturer will be held responsible for any damage to the fields during these repairs.

C. Correcting Non-Conformance: If, in the opinion of the Owner or his appointed Representative, the actual performance levels including footcandles, uniformity ratios, uplight for aerial visibility, and offsite candela readings are not in conformance with the requirements of the performance specifications and submitted information, the Manufacturer shall be required to make adjustments to meet specifications and satisfy Owner.

3.4 WARRANTY AND GUARANTEE

A. 10-Year Warranty: Each manufacturer shall supply a signed warranty covering the entire system for 10 years from the date of shipment. Warranty shall guarantee specified light levels. Manufacturer shall maintain specifically-funded financial reserves to assure fulfillment of the warranty for the full term. Warranty does not cover weather conditions events such as lightning or hail damage, improper installation, vandalism or abuse, unauthorized repairs or alterations, or product made by other manufacturers.

B. Maintenance: Manufacturer shall monitor the performance of the lighting system, including on/off status, hours of usage and luminaire outage for 10 years from the date of equipment shipment. Parts and labor shall be covered such that individual luminaire outages will be repaired when the usage of any field is materially impacted. Manufacturer is responsible for removal and replacement of failed luminaires, including all parts, labor, shipping, and equipment rental associated with maintenance. Owner agrees to check fuses in the event of a luminaire outage.

PART 4 – DESIGN APPROVAL

4.0 PRE-BID SUBMITTAL REQUIREMENTS (Non-Musco)

A. Design Approval: The owner / engineer will review pre-bid submittals per section 4.0.B from all the manufacturers to ensure compliance to the specification 10 days prior to bid. If the design meets the design requirements of the specifications, a letter and/or addendum will be issued to the manufacturer indicating approval for the specific design submitted.

B. Approved Product: Musco’s SportsCluster System with TLC for LED™ is the approved product. All substitutions must provide a complete submittal package for approval as outlined in Submittal Information at the end of this section at least 10 days prior to bid. Special manufacturing to meet the standards of this specification may be required. An addendum will be issued prior to bid listing any other approved lighting manufacturers and designs.

C. All listed manufacturers not pre-approved shall submit the information at the end of this section at least 10 days prior to bid. An addendum will be issued prior to bid; listing approved lighting manufacturers and the design method to be used.

D. Bidders are required to bid only products that have been approved by this specification or addendum by the owner or owner's representative. Bids received that do not utilize an approved system/design, will be rejected.

REQUIRED SUBMITTAL INFORMATION FOR ALL MANUFACTURERS (NOT PRE-APPROVED) 10 DAYS PRIOR TO BID

All items listed below are mandatory, shall comply with the specification and be submitted according to pre-bid submittal requirements. Complete the Yes/No column to indicate compliance (Y) or noncompliance (N) for each item. ***Submit checklist below with submittal.***

Yes/ No	Tab	Item	Description
	A	Letter/ Checklist	Listing of all information being submitted must be included on the table of contents. List the name of the manufacturer's local representative and his/her phone number. Signed submittal checklist to be included.
	B	Equipment Layout	Drawing(s) showing field layouts with pole locations
	C	On Field Lighting Design	Lighting design drawing(s) showing: a. Field Name, date, file number, prepared by b. Outline of field(s) being lighted, as well as pole locations referenced to the center of the field (x & y), Illuminance levels at grid spacing specified c. Pole height, number of fixtures per pole, horizontal and vertical aiming angles, as well as luminaire information including wattage, lumens and optics d. Height of light test meter above field surface. e. Summary table showing the number and spacing of grid points; average, minimum and maximum illuminance levels in foot candles (fc); uniformity including maximum to minimum ratio, coefficient of variance (CV), coefficient of utilization (CU) uniformity gradient; number of luminaries, total kilowatts, average tilt factor; light loss factor.
	D	Off Field Lighting Design	Lighting design drawing showing initial spill light levels along the boundary line (defined on bid drawings) in footcandles. Lighting design showing glare along the boundary line in candela. Light levels shall be taken at 30-foot intervals along the boundary line. Readings shall be taken with the meter orientation at both horizontal and aimed towards the most intense bank of lights.
	E	Photometric Report	Provide first page of photometric report for all luminaire types being proposed showing candela tabulations as defined by IESNA Publication LM-35-02. Photometric data shall be certified by laboratory with current National Voluntary Laboratory Accreditation Program or an independent testing facility with over 5 years experience.
	F	Performance Guarantee	Provide performance guarantee including a written commitment to undertake all corrections required to meet the performance requirements noted in these specifications at no expense to the owner. Light levels must be guaranteed to not fall below target levels for warranty period. Glare values in candela must be guaranteed to not be exceeded.
	G	Control & Monitoring System	Manufacturer of the control and monitoring system shall provide written definition and schematics for automated control system package. They will also provide ten (10) references of customers currently using proposed system in the state of Pennsylvania.
	H	Warranty	Provide written warranty information including all terms and conditions. Provide ten (10) references of customers currently under specified warranty in the state of Pennsylvania.
	I	Project References	Manufacturer to provide a list of ten (10) projects where the technology and specific fixture proposed for this project has been installed in the state of Pennsylvania. Reference list will include project name, project city, installation date, and if requested, contact name and contact phone number.
	J	Product Information	Complete bill of material and current brochures/cut sheets for all product being provided.

	K	Delivery	Manufacturer shall supply an expected delivery timeframe from receipt of approved submittals and complete order information.
	L	Non-Compliance	Manufacturer shall list all items that do not comply with the specifications. If in full compliance, tab may be omitted.
	M	Cost of Ownership	Document cost of ownership as defined in the specification. Identify energy costs for operating the luminaires. Maintenance cost for the system must be included. All costs should be based on 10 Years
	N	Environmental Light Control Design	Environmental glare impact scans must be submitted showing the maximum candela from the field edge on a map of the surrounding area until 500 candela or less is achieved.

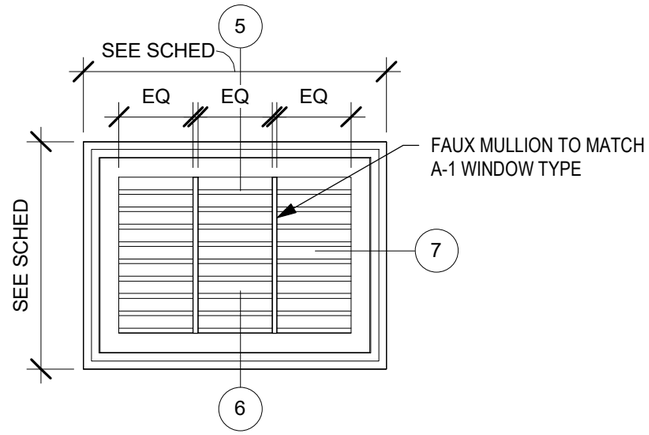
The information supplied herein shall be used for the purpose of complying with the specifications for Kingsessing Rec Center. By signing below, I agree that all requirements of the specifications have been met and that the manufacturer will be responsible for any future costs incurred to bring their equipment into compliance for all items not meeting specifications and not listed in the Non-Compliance section.

Manufacturer: _____ **Signature:** _____

Contact Name: _____ **Date:** _____/_____/_____

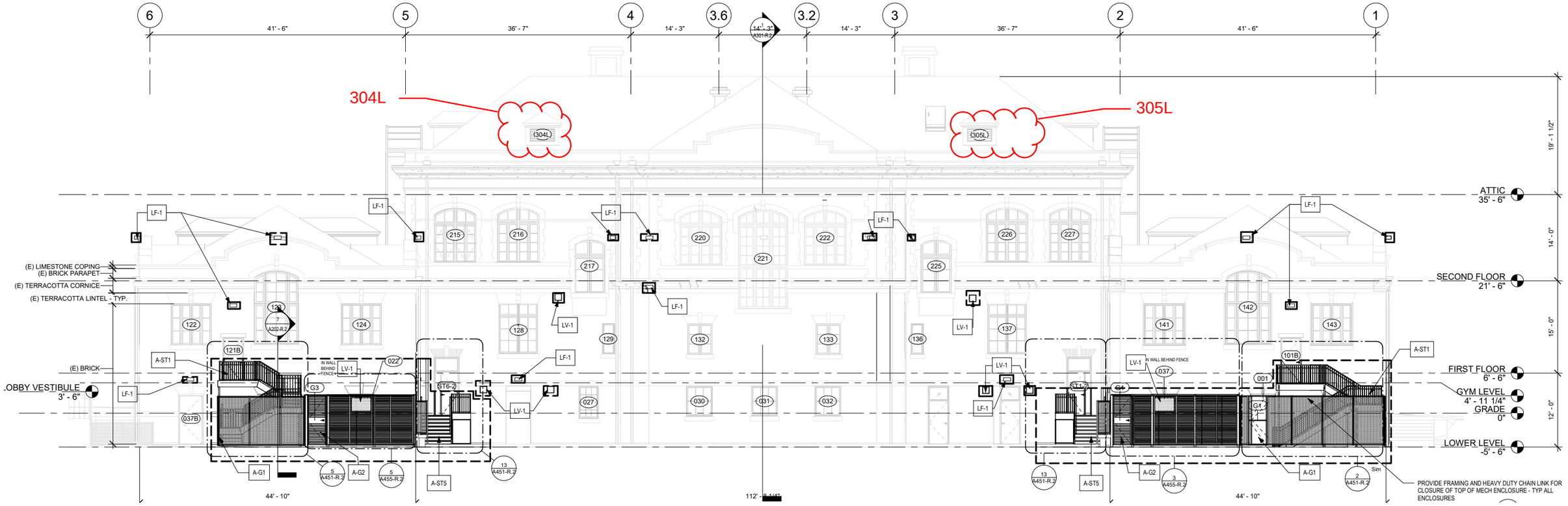
Contractor: _____ **Signature:** _____

NO.	TYPE	DIMENSION		HEAD	JAMB	Sill	HORIZ. MULLION(S)	MATERIAL	GLAZING	NOTES
		HEIGHT	WIDTH							
231L	L-1	3' - 0"	5' - 4"	5 / A904-R.1	7 / A904-R.1	6 / A904-R.1	N/A	N/A		SEE MEP DWGS
232L	L-1	3' - 0"	5' - 4"	5 / A904-R.1	7 / A904-R.1	6 / A904-R.1	N/A	N/A		SEE MEP DWGS
233L	L-1	3' - 0"	5' - 4"	5 / A904-R.1	7 / A904-R.1	6 / A904-R.1	N/A	N/A		SEE MEP DWGS
234L	L-1	3' - 0"	5' - 4"	5 / A904-R.1	7 / A904-R.1	6 / A904-R.1	N/A	N/A		SEE MEP DWGS
303L	L-1	2' - 0"	4' - 0"	5 / A904-R.1	7 / A904-R.1	6 / A904-R.1	N/A	N/A		SEE MEP DWGS
304L	L-1	2' - 0"	4' - 0"	5 / A904-R.1	7 / A904-R.1	6 / A904-R.1	N/A	N/A		SEE MEP DWGS
305L	L-1	2' - 0"	4' - 0"	5 / A904-R.1	7 / A904-R.1	6 / A904-R.1	N/A	N/A		SEE MEP DWGS
306L	L-1	2' - 0"	4' - 0"	5 / A904-R.1	7 / A904-R.1	6 / A904-R.1	N/A	N/A		SEE MEP DWGS



L-1 (DORMER)

SEE A904-R.1 FOR DTLS
SEE MEP DRAWINGS FOR ADDITIONAL INFORMATION



1/A202-R.2 WEST ELEVATION - NEW WORK.2

NTS

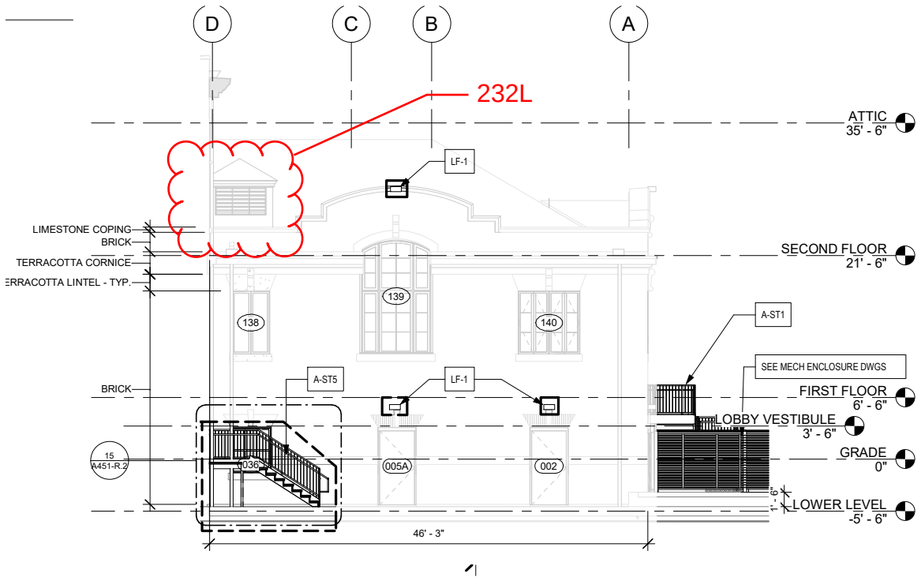
KELLY MAIELLO ARCHITECTS

KINGSESSING RECREATION CENTER BUILDING AND SITE IMPROVEMENTS
PACKAGE 1: EXTERIOR ENVELOPE REPAIRS AND IMPROVEMENTS
1201 S 51ST STREET
PHILADELPHIA, PA 19143

LOUVERS - PACKAGE 2

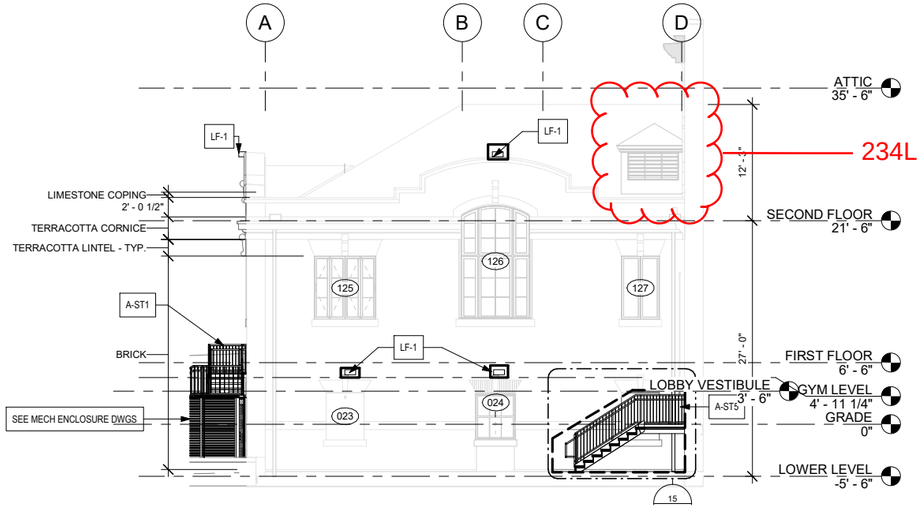
Proj. No.: 21070
Date: 10/20/23
Ref. Dwg: A202-R.2

SK-231020 01B



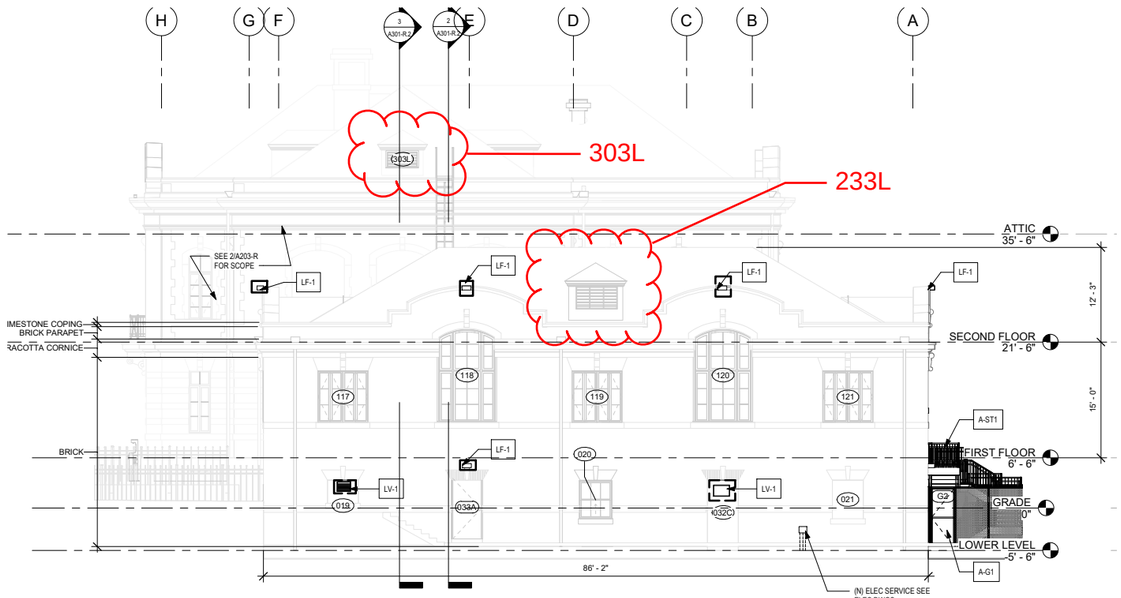
3/A203-R.2 PARTIAL NORTH ELEVATION - SOUTH WING NEW WORK.2

NTS



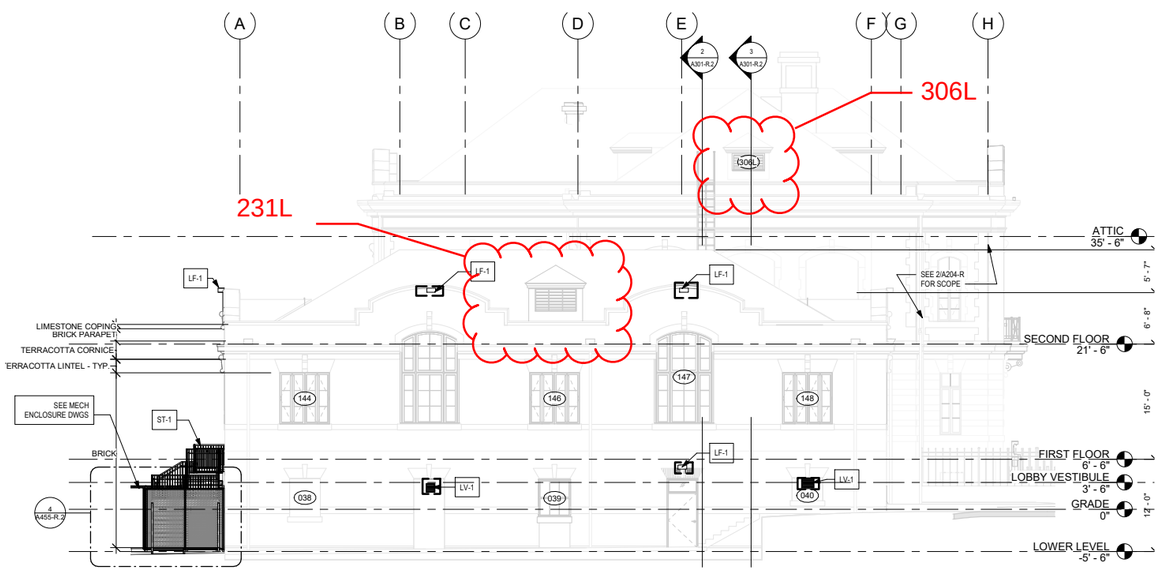
3/A204-R.2 PARTIAL SOUTH ELEVATION - NORTH WING NEW WORK.2

NTS



1/A203-R.2 NORTH ELEVATION - NEW WORK.2

NTS



1/A204-R.2 SOUTH ELEVATION - NEW WORK.2

NTS

KMA

KELLY MAIELLO ARCHITECTS

KINGSESSING RECREATION CENTER BUILDING AND SITE IMPROVEMENTS
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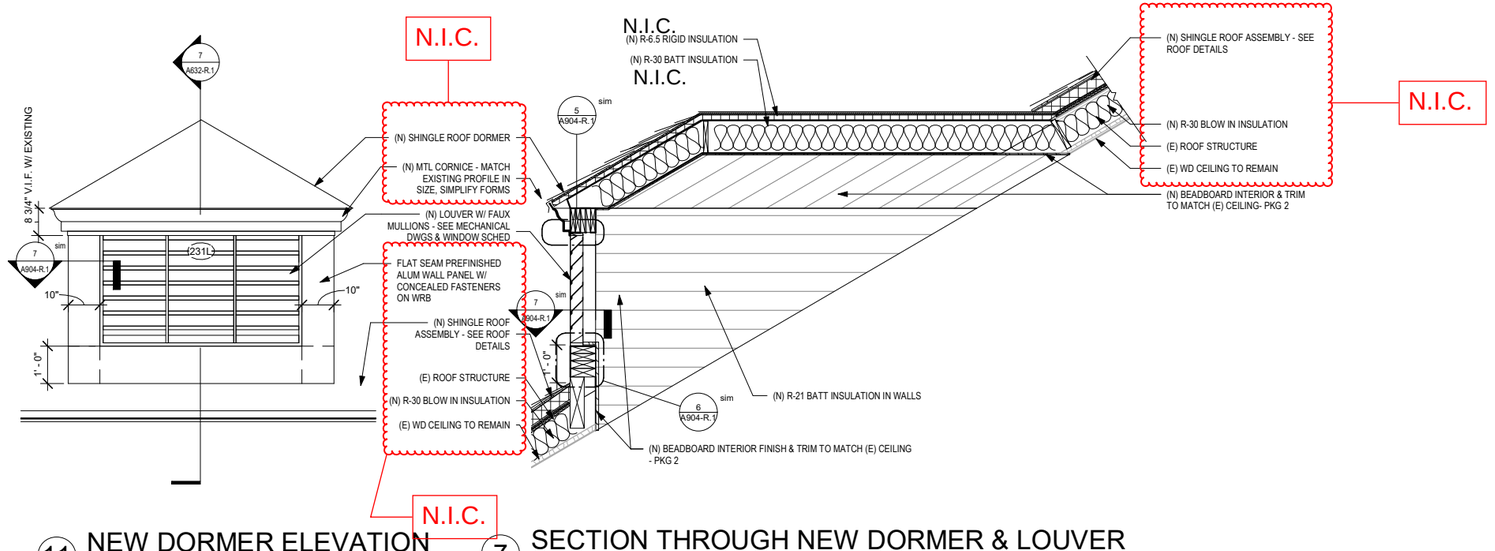
PHILADELPHIA, PA 19143

LOUVERS - PACKAGE 2

Proj. No.: 21070
Date: 10/20/23
Ref. Dwg: A203-R.2
A204-R.2

SK-231020
01C



11 NEW DORMER ELEVATION
1/4" = 1'-0"

7 SECTION THROUGH NEW DORMER & LOUVER
1/4" = 1'-0"

KELLY MAIELLO ARCHITECTS

KINGSESSING RECREATION CENTER BUILDING AND SITE IMPROVEMENTS
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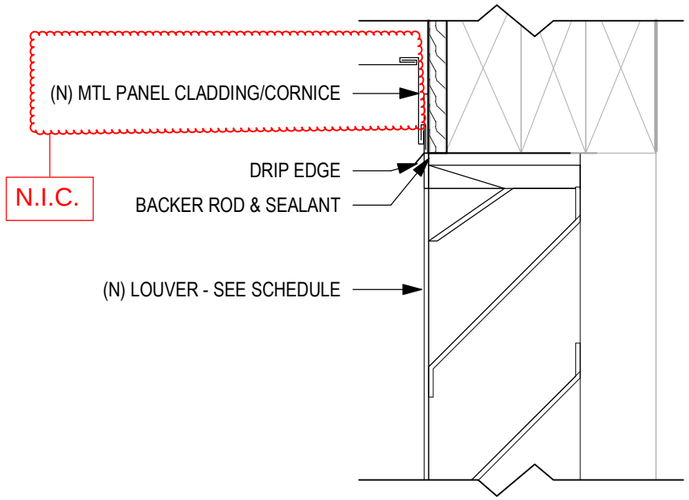
1201 S 51ST STREET
PHILADELPHIA, PA 19143

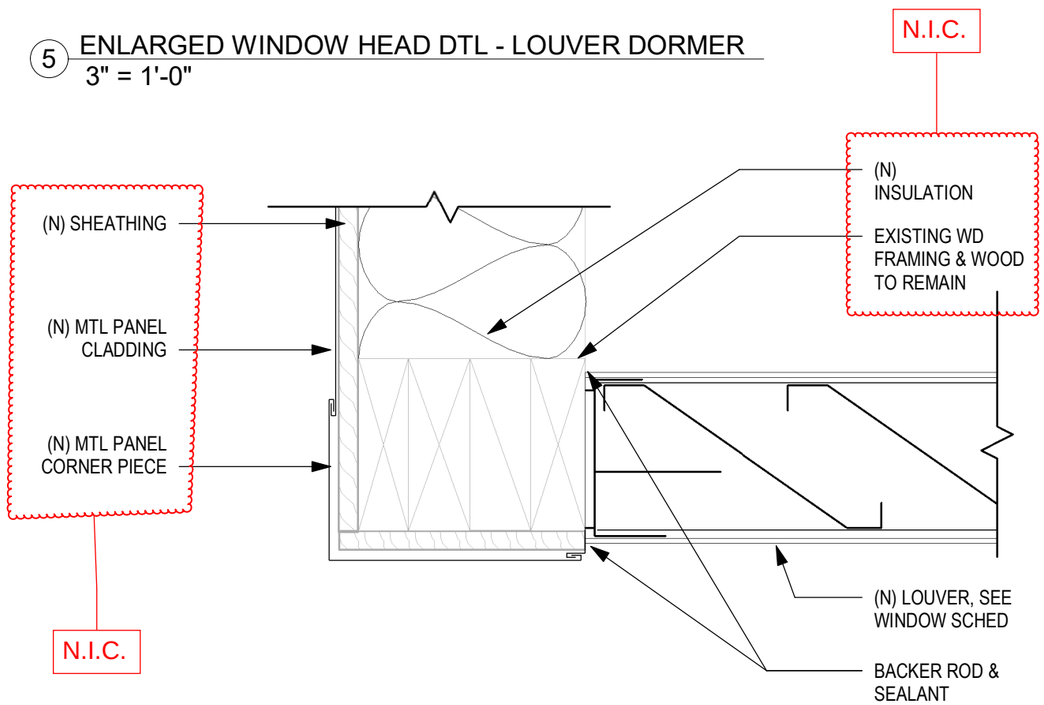
LOUVERS - PACKAGE 2

Proj. No.: 21070
Date: 10/20/23
Ref. Dwg: A632-R.1

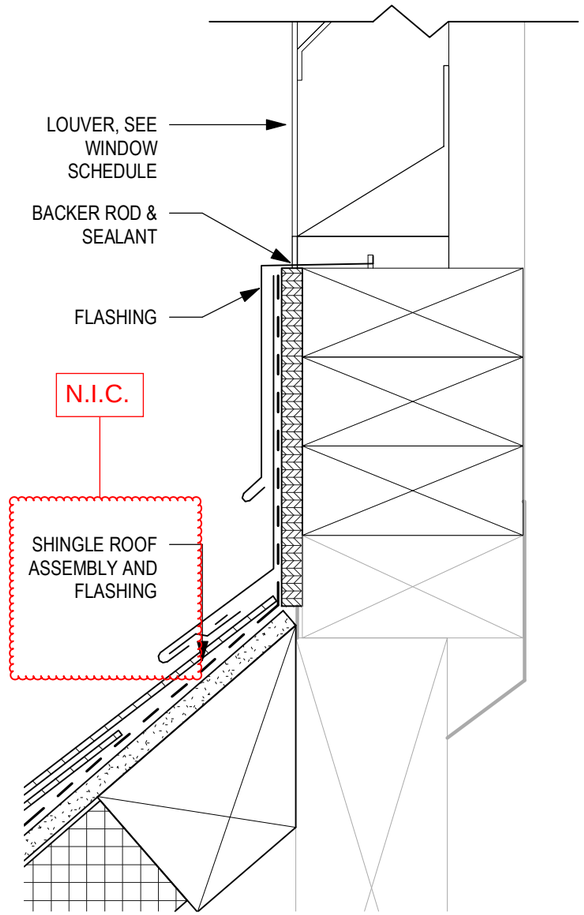
SK-231020
01D



5 ENLARGED WINDOW HEAD DTL - LOUVER DORMER
3" = 1'-0"



7 ENLARGED JAMB DETAIL - LOUVER DORMER
3" = 1'-0"



6 ENLARGED SILL DETAIL - LOUVER DORMER
3" = 1'-0"

NOTE: PKG 1 CONTRACTOR TO INSTALL TEMPORARY CLOSURE, SEALANT TO PROVIDE PROTECTION FROM WEATHER / WATER INTRUSION, ETC.

PKG 2 CONTRACTOR TO REMOVE OF TEMPORARY CLOSURE, CLEAN AND PREP FOR INSTALLATION OF NEW LOUVERS. ASSUME NEW SILL FLASHING.

KMA
KELLY MAIELLO ARCHITECTS

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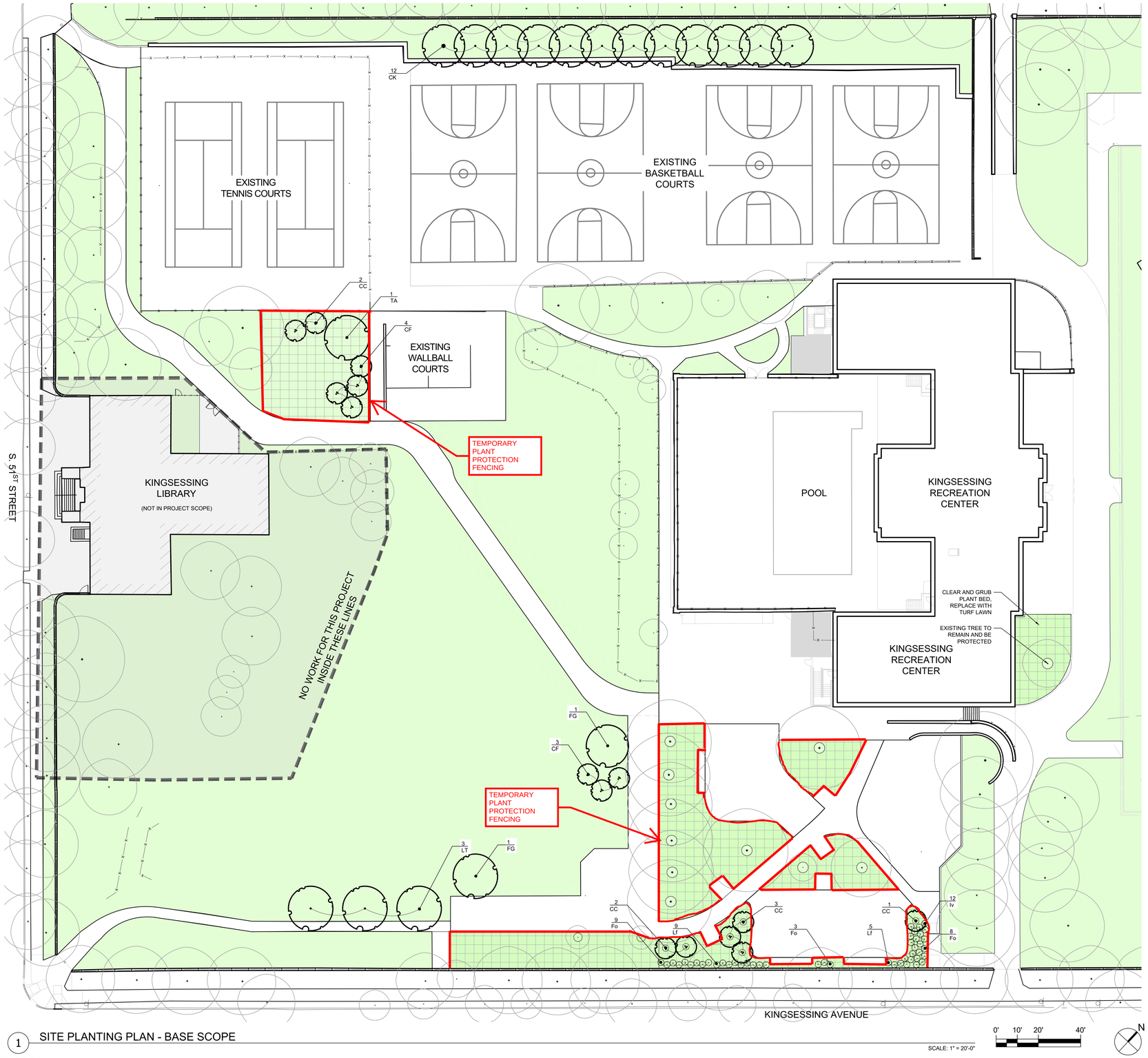
PHILADELPHIA, PA 19143

LOUVERS - PACKAGE 2

Proj. No.: 21070
Date: 10/20/23
Ref. Dwg: A904-R.1

SK-231020
01E



1 SITE PLANTING PLAN - BASE SCOPE

SCALE: 1" = 20'-0"

STAMP AREA

LEGEND:

- EXTENTS OF KINGSESSING LIBRARY IMPROVEMENTS
- CANOPY TREE (1 / L-502-R.2)
- UNDERSTORY TREE (2 / L-502-R.2)
- SHRUBS (3 / L-502-R.2)
- EXISTING LAWN TO REMAIN; SEE NOTE #14 BELOW
- TURF LAWN; SEE SPECS (4 / L-502-R.2)
- EXISTING TREE TO REMAIN; SEE TREE PROTECTION FENCING DETAIL ON L-502
- EXISTING FENCE TO REMAIN

PLANTING NOTES:

1. SITE SURVEY DATA WAS PROVIDED BY AMERICAN ENGINEERS GROUP, LLC TO SALT DESIGN STUDIO ON MAY 10, 2021.
2. ALL CONSTRUCTION SHALL CONFORM TO CITY, STATE, AND FEDERAL REGULATIONS.
3. CONTRACTOR SHALL FIELD VERIFY LOCATIONS AND ELEVATIONS OF ALL UTILITIES AND SUBTERRANEAN ELEMENTS PRIOR TO COMMENCING WORK. CONTRACTOR SHALL NOTIFY LANDSCAPE ARCHITECT FOR RELOCATION INSTRUCTIONS IF A PLANT IS LOCATED WITHIN 3'-0" OF AN UNDERGROUND UTILITY.
4. CONTRACTOR SHALL NOTIFY LANDSCAPE ARCHITECT OF ANY DISCREPANCIES PRIOR TO BEGINNING OR CONTINUING WORK.
5. THERE WILL BE NO PLANT SUBSTITUTIONS, DELETIONS, OR ADDITIONS WITHOUT THE APPROVAL OF LANDSCAPE ARCHITECT.
6. CONTRACTOR SHALL NOTIFY LANDSCAPE ARCHITECT IF SUBSOIL CONDITIONS SHOW EVIDENCE OF UNEXPECTED WATER RETENTION IN TREE OR SHRUB PITS.
7. CONTRACTOR SHALL PROVIDE EROSION CONTROL MEASURES TO PREVENT SOIL LOSS AS INDICATED ON CIVIL ENGINEERING DRAWINGS.
8. ALL IMPORTED PLANTING SOIL MUST BE TESTED AND APPROVED BY LANDSCAPE ARCHITECT PRIOR TO INSTALLATION. SEE SPECIFICATIONS.
9. SEE PLANT SCHEDULE FOR PLANT SIZES, QUANTITIES, SPECIES AND CONDITION.
10. TREE AND SHRUB LOCATIONS SHALL BE STAKED OR FLAGGED IN FIELD FOR REVIEW AND APPROVAL BY LANDSCAPE ARCHITECT PRIOR TO STARTING PLANT INSTALLATION.
11. ALL TREES SHALL HAVE AT LEAST 24" APPROVED PLANTING SOIL AROUND ROOTBALL. ALL SHRUBS SHALL HAVE AT LEAST 18" APPROVED PLANTING SOIL AROUND ROOTBALL.
12. CONTRACTOR SHALL INSTALL IRRIGATION BAGS FOR ALL NEW TREES IMMEDIATELY UPON COMPLETION OF INSTALLATION. SEE SPECIFICATIONS.
13. MULCH, COMPOST AND/OR LEAF LITTER IS TO BE INSTALLED AS INDICATED ON DETAILS AND IN SPECIFICATIONS.
14. TEMPORARY DRIP IRRIGATION TO BE INSTALLED AND MAINTAINED FOR ONE FULL YEAR FROM PROJECT CLOSEOUT. SUBMIT SHOP DRAWINGS OF TEMPORARY DRIP IRRIGATION LAYOUT AND INFORMATION SUBMITTALS FOR REVIEW AND APPROVAL BY LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.
15. TEMPORARY PLANT PROTECTION FENCING TO BE INSTALLED IMMEDIATELY UPON COMPLETION OF PLANT INSTALLATION. PROTECTION FENCING TO BE LOCATED ALONG ALL PLANT BED EDGES TO PROTECT PERENNIAL AND SHRUB PLANTINGS, SEE 8/L-5002-R.2 FOR DETAIL.
14. ANY EXISTING TURF LAWN THAT IS DISTURBED BY EARTHWORK OR OTHER CONSTRUCTION ACTIVITY SHALL BE REPAIRED OR REPLACED PER SPECIFICATIONS.

PLANT SCHEDULE:

KEY	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONDITION	SPACING
CANOPY TREES						
CK	12	*Cladrastis kentuckea*	Yellowwood	3"-3.5" CAL.	B&B or CONTAINER	AS SHOWN
FG	2	*Fagus grandifolia*	American Beech	3"-3.5" CAL.	B&B	AS SHOWN
LT	3	*Liriodendron tulipifera*	Tulip Poplar	3"-3.5" CAL.	B&B	AS SHOWN
TA	1	*Tilia americana 'Redmond'*	American Basswood	3"-3.5" CAL.	B&B	AS SHOWN
	18	**TOTAL CANOPY TREES**				
UNDERSTORY TREES						
CC	8	*Cercis canadensis*	Eastern Redbud	8'-10' HT.	B&B OR CONTAINER	AS SHOWN
CF	7	*Cornus florida 'Appalachian Spring'*	Flowering Dogwood	8'-10' HT.	B&B OR CONTAINER	AS SHOWN
	15	**TOTAL UNDERSTORY TREES**				
SHRUBS						
Iv	12	*Itea virginica 'Merlot'*	Dwarf Virginia Sweetspire	#3	CONTAINER	AS SHOWN
Fo	20	*Fothergilla gardenii 'Blue Mist'*	Dwarf Fothergilla	#3	CONTAINER	AS SHOWN
Lf	14	*Leucothoe fontanesiana 'Zeblid' Scarletta*	Drooping Laurel	#3	CONTAINER	AS SHOWN
	46	**TOTAL SHRUBS**				

SK_2023-10-19_REC PKG 2_LAND

PACKAGE 2 - IFB
NOT FOR CONSTRUCTION
08/28/2023

REVISIONS

ISSUE	DATE	DESCRIPTION

REVIEWED BY:

PROJECT COORDINATOR

SEALS

KELLY MAIELLO ARCHITECTS
1420 Walnut Street, 15th Floor
Philadelphia, PA 19102
www.kmarchitects.com

LANDSCAPE ARCHITECT:
SALT DESIGN STUDIO
161 Leverington Avenue, Suite 1005
Philadelphia, PA 19127
www.saltdesignstudio.com

M.E.P./F.P./SITE CIVIL ENGINEERS:
Pennoni Associates
1900 Market Street Suite 300
Philadelphia PA 19103
www.pennoni.com

LEED CONSULTANT:
Verde Architecture Consulting
1635 Market Street Suite 1600
Philadelphia PA 19103

CITY OF PHILADELPHIA
DEPARTMENT OF PUBLIC PROPERTY
1515 ARCH STREET
11TH FLOOR, ONE PARKWAY BUILDING
PHILADELPHIA PENNSYLVANIA

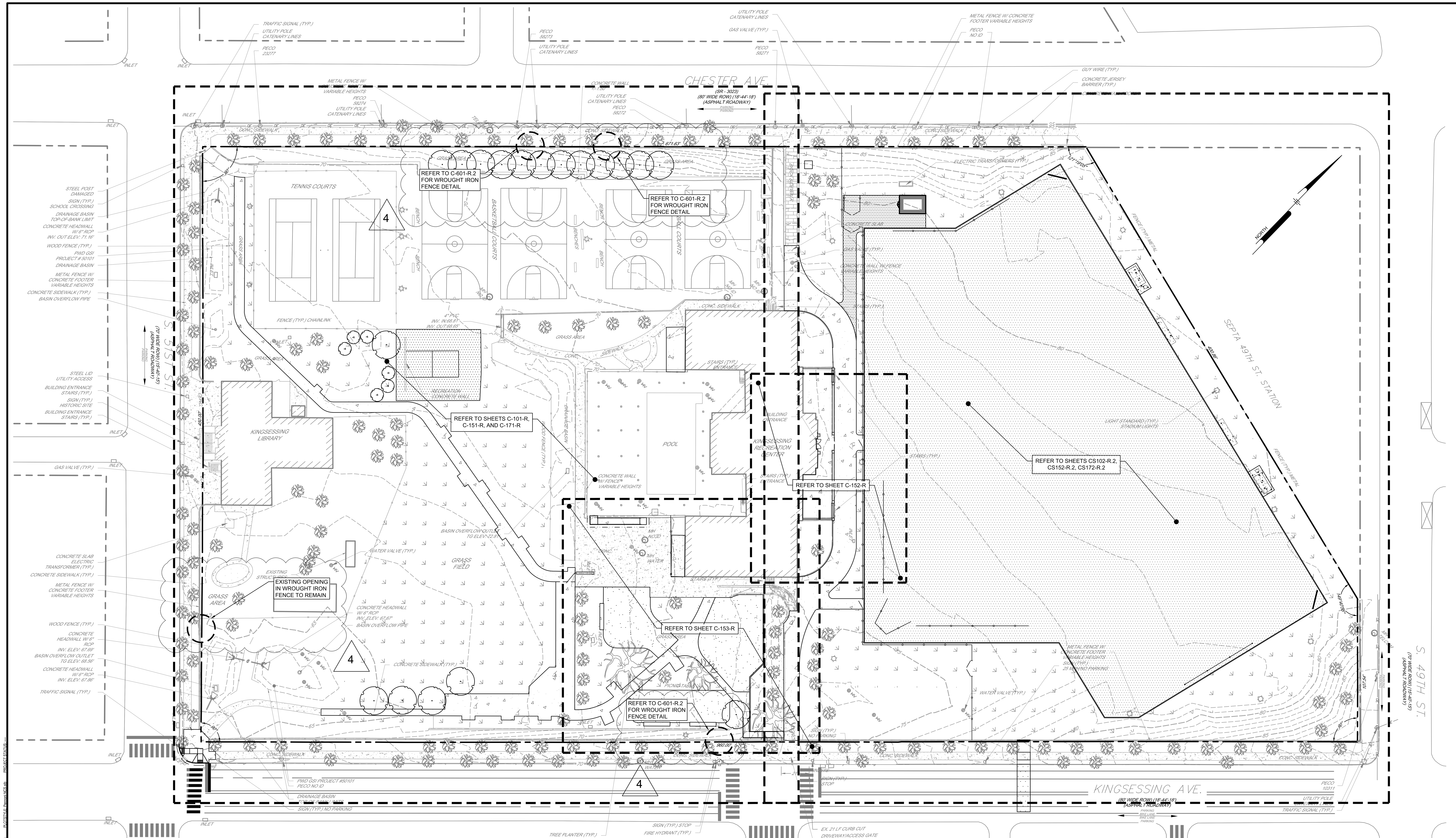
PROJECT TITLE
KINGSSESSING RECREATION CENTER BUILDING AND SITE IMPROVEMENTS - PACKAGE 2

KEY PLAN

DRAWING TITLE
SITE PLANTING PLAN - BASE SCOPE

KMA PROJECT NO: 21070
DRAWING NO: L-106-R.2
DATE: 08/28/2023
SCALE: AS SHOWN
DRAWN BY: RH / AF
CHECKED BY: SPT

NOTE: ALL DIMENSIONS AND CONDITIONS SHALL BE VERIFIED BY THE CONTRACTOR AT THE SITE BEFORE PROCEEDING WITH THE WORK.



GENERAL INFORMATION:

SITE:

4901 KINGSESSING AVE
PHILADELPHIA, PA 19143
OPA#783249500

CLIENT:

CITY OF PHILADELPHIA
PARKS AND RECREATION
1515 ARCH STREET, 10TH FLOOR
PHILADELPHIA, PA 19102

ENGINEER:

PENNONI ASSOICATES
1900 MARKET STREET, SUITE 300
PHILADELPHIA, PA 19103

SITE INFORMATION:

MUNICIPAL ZONING INFORMATION:

THE SITE IS LOCATED IN THE FOLLOWING ZONES IN THE CITY OF PHILADELPHIA:

ACTIVE PARKS AND OPEN SPACE (SP-PO-A)
ACCESSORY SIGN CONTROLS - SPECIAL CONTROLS FOR COBBS CREEK, ROOSEVELT BOULEVARD, AND DEPARTMENT OF PARKS AND RECREATION LAND

FOR COMPLETE ZONING INFORMATION PLEASE REFER TO THE ZONING CODE OF THE CITY OF PHILADELPHIA AS CURRENTLY AMENDED

FLOOD ZONE INFORMATION:

BY GRAPHIC PLOTTING ONLY, BASED UPON THE THE FLOOD INSURANCE RATE COMMUNITY MAP NO. 4207570184H WHICH BEARS AN EFFECTIVE DATE OF NOVEMBER 18, 2015, THE SITE IS LOCATED IN THE FOLLOWING AREAS:

ZONE X — AREA OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN

NO FIELD SURVEYING WAS PERFORMED TO DETERMINE THIS ZONE

REFERENCES:

1. TOPOGRAPHIC INFORMATION TAKEN FROM A PLAN BY AMERICAN ENGINEERS GROUP, LLC ENTITLED "KINGSESSING RECREATION CENTER TOPOGRAPHIC SURVEY", SHEET NO. 1, DATED 03/12/2021.
2. BOUNDARY INFORMATION FROM GIS. BOUNDARY SURVEY NOT PERFORMED

SITE NOTES:

1. PWD TRACKING #FY22-KING-6800-01
2. UNLESS SPECIFICALLY STATED OR SHOWN HEREON TO THE CONTRARY, THIS SURVEY IS MADE SUBJECT TO AND DOES NOT LOCATE OR DELINEATE:
   - 2.A. RIGHTS OR INTERESTS OF THE UNITED STATES OF AMERICA OR COMMONWEALTH OF PENNSYLVANIA OVER LANDS NOW OR FORMERLY FLOWED BY TIDEWATER BUT NO LONGER VISIBLE OR PHYSICALLY EVIDENT, OR LANDS CONTAINING ANY ANIMAL, MARINE, OR BOTANICAL SPECIES REGULATED BY OR UNDER THE JURISDICTION OF ANY FEDERAL, STATE, OR LOCAL AGENCY.
   - 2.B. BUILDING SETBACK LINES, ZONING REGULATIONS OR LINES ESTABLISHED BY ANY FEDERAL, STATE OR LOCAL AGENCY WHICH MAY AFFECT THE BUILDING OR DEVELOPMENT POTENTIAL OF THE SUBJECT PROPERTY.
   - 2.C. ANY SUBSURFACE OR SUBTERRANEAN CONDITION, EASEMENTS OR RIGHTS INCLUDING BUT NOT LIMITED TO MINERAL OR MINING RIGHTS, OR THE LOCATION OF OR RIGHTS TO ANY SUBSURFACE STRUCTURES, CONTAINERS OR FACILITIES OR ANY OTHER NATURAL OR MAN-MADE SUBSURFACE CONDITION WHICH MAY OR MAY NOT AFFECT THE USE OR DEVELOPMENT POTENTIAL OF THE SUBJECT PROPERTY.
3. LOCATIONS OF ON AND OFF SITE UTILITIES AS SHOWN ARE APPROXIMATE AND MAY OR MAY NOT BE COMPLETE. THE NATURE AND EXACT LOCATION OF EXISTING UTILITIES SHOULD BE VERIFIED PRIOR TO INITIATING ANY ACTIVITY THAT MAY AFFECT THEIR USE OR LOCATION.
   - 3.A. THE LOCATION OF THE EXISTING UNDERGROUND UTILITIES SHOWN ON THIS PLAN HAVE BEEN TAKEN FROM EXISTING UTILITY RECORDS AVAILABLE AT THE TIME THESE PLANS WERE PREPARED AND FROM SURFACE OBSERVATION OF THE SITE.
   - 3.B. COMPLETENESS OR ACCURACY OF LOCATION AND DEPTH OF UNDERGROUND UTILITIES AND STRUCTURES IS NOT GUARANTEED.
   - 3.C. IN ACCORDANCE WITH PA ACT 287 OF 1974 AS AMENDED BY PA ACT 121 OF 2008 ENTITLED "UNDERGROUND UTILITY LINE PROTECTION LAW". THE CONTRACTOR SHALL NOTIFY ALL UTILITIES WITHIN THE WORK AREA VIA THE PENNSYLVANIA ONE CALL SYSTEM INC, (800-242-1776) A MINIMUM OF 3 WORKING DAYS BEFORE THE START OF EXCAVATION.
   - 3.D. THE CONTRACTOR SHALL VERIFY LOCATIONS AND DEPTHS OF ALL UNDERGROUND UTILITIES AND STRUCTURES BEFORE THE START OF WORK.
4. ALL BOUNDARY DIMENSIONS SHOWN ARE IN CITY OF PHILADELPHIA DISTRICT STANDARD MEASURE (DS) UNLESS DESIGNATED (US) TO DENOTE U.S. SURVEY FOOT.
5. THE HORIZONTAL DATUM FOR THIS PROJECT REFERENCES THE PENNSYLVANIA STATE PLANE COORDINATE SYSTEM, SOUTH ZONE, NORTH AMERICAN DATUM OF 1983
6. THE VERTICAL DATUM FOR THIS PROJECT REFERENCES THE CITY OF PHILADELPHIA VERTICAL DATUM.

EXISTING LEGEND

EXISTING PROPERTY LINE (APPROXIMATE)
EXISTING RIGHT OF WAY LINE (APPROXIMATE)
EXISTING BUILDING
EXISTING CURB
EXISTING SIDEWALK
EXISTING EDGE OF MACADAM/GRAVEL
EXISTING TRAFFIC MARKING
EXISTING FENCE
EXISTING TREE
EXISTING MAJOR CONTOUR
EXISTING MINOR CONTOUR
EXISTING SIGN
EXISTING BOLLARD
EXISTING UTILITY POLE
EXISTING LIGHT
EXISTING INLET
EXISTING SEWER
EXISTING STORM SEWER
EXISTING WATER LINE
EXISTING UNDERGROUND TELEPHONE LINE
EXISTING GAS LINE
EXISTING UNDERGROUND ELECTRIC
EXISTING OVERHEAD WIRES
EXISTING UTILITY STRUCTURES

PROPOSED BUILDING
PROPOSED DOOR
PROPOSED CONCRETE PAVEMENT
PROPOSED ASPHALT PAVEMENT
PROPOSED LANDSCAPED AREA
PROPOSED UNIT PAVERS
PROPOSED POROUS PLAYGROUND SAFETY SURFACE (DIC)
PROPOSED SYNTHETIC TURF FIELD
PROPOSED ADA RAMP
PROPOSED CURB
PROPOSED DEPRESSED CURB
PROPOSED WALL
PROPOSED STOP BAR/PAVEMENT MARKING
PROPOSED FENCE
PROPOSED SIGN
PROPOSED LIMIT OF DISTURBANCE

PACKAGE 2 - IFB
NOT FOR CONSTRUCTION
08/28/23
NPDES PERMIT #PAC510302
PWD TRACKING #FY22-KING-6800-01

REVISIONS

ISSUE	DATE	DESCRIPTION
1	01/09/23	PWD PCSM/NPDES SUBMISSION
2	02/14/23	PWD PCSM RESUBMISSION
3	05/24/23	PWD PCSM RESUBMISSION
4	10/19/23	ADDENDUM 1

REVIEWED BY:

PROJECT COORDINATOR

SEALS

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LEED CONSULTANT:
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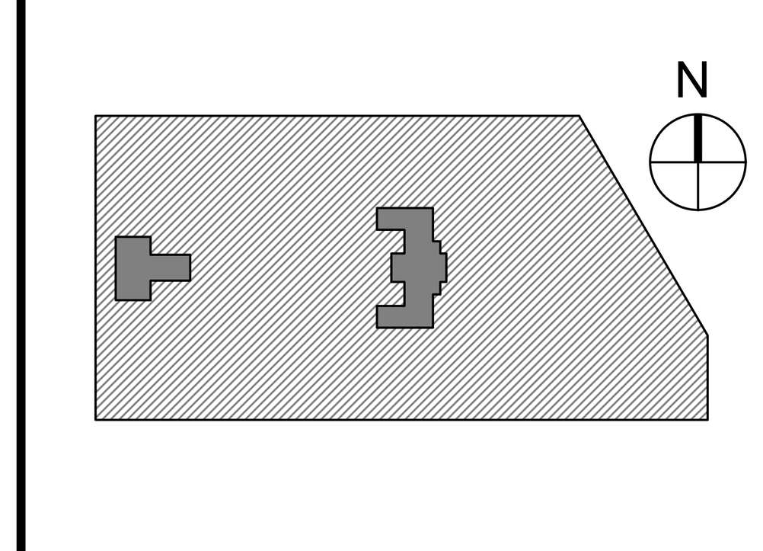
CITY OF PHILADELPHIA
DEPARTMENT OF PUBLIC PROPERTY
1515 ARCH STREET
11TH FLOOR, ONE PARKWAY BUILDING
PHILADELPHIA PENNSYLVANIA

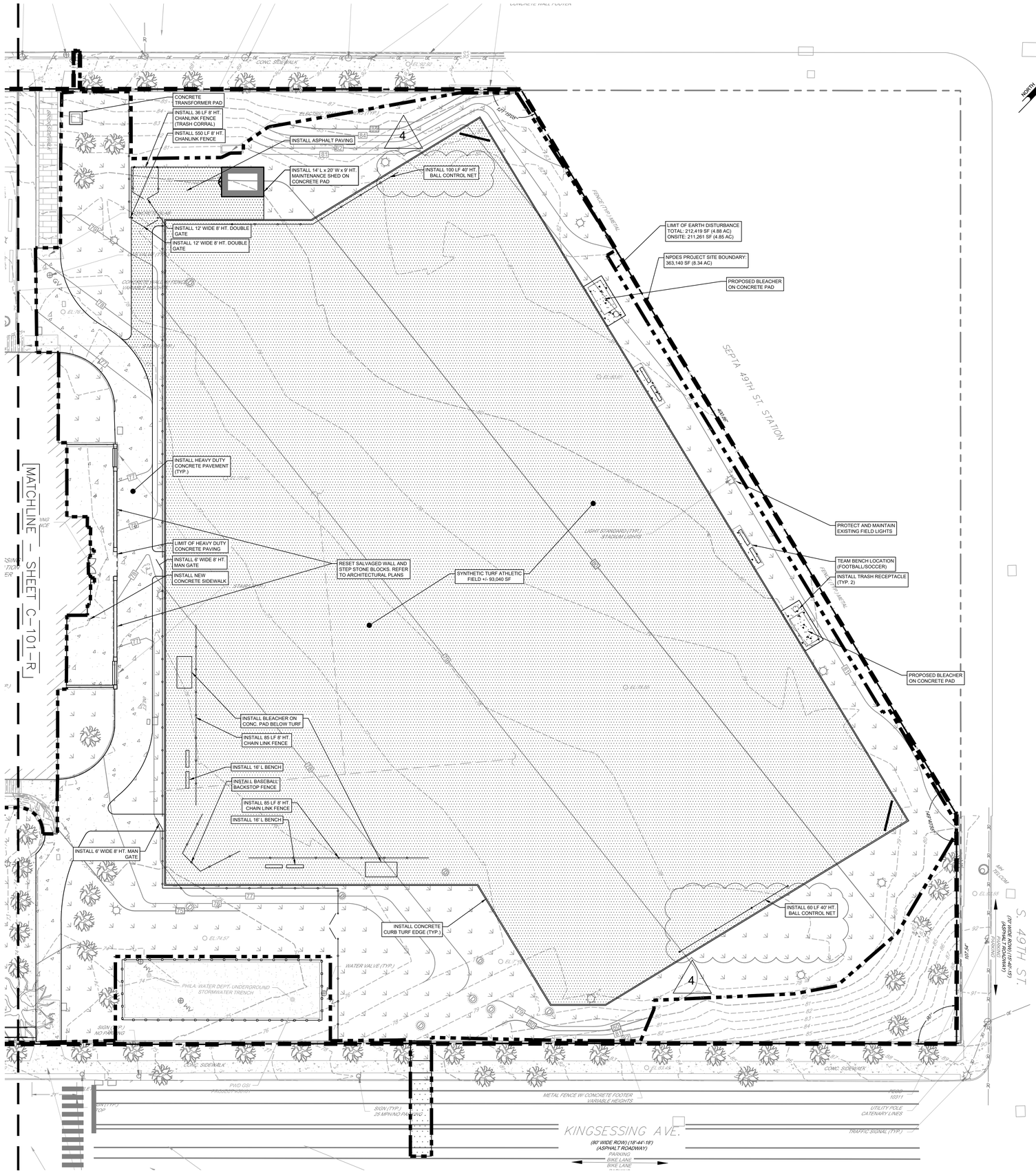
PROJECT TITLE
KINGSESSING RECREATION CENTER

KEY PLAN



DRAWING TITLE
OVERALL SITE KEY PLAN

PROJECT NO. KLMLX21003
DRAWING NO. CS100-R.2
DATE 08/28/23
SCALE 1" = 30'
DRAWN BY: SDL
CHECKED BY: MJM
NOTE: ALL DIMENSIONS AND CONDITIONS SHALL BE VERIFIED BY THE CONTRACTOR AT THE SITE BEFORE PROCEEDING WITH THE WORK.



SITE PLAN DETAIL - NORTH

SCALE: 1"=20'-0"

NORTH

EXISTING LEGEND

- EXISTING PROPERTY LINE (APPROXIMATE)
- EXISTING RIGHT OF WAY LINE (APPROXIMATE)
- EXISTING BUILDING
- EXISTING CURB
- EXISTING SIDEWALK
- EXISTING EDGE OF MACADAM/GRAVEL
- EXISTING TRAFFIC MARKING
- EXISTING FENCE
- EXISTING TREE
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING SIGN
- EXISTING BOLLARD
- EXISTING UTILITY POLE
- EXISTING LIGHT
- EXISTING INLET
- EXISTING SEWER
- EXISTING STORM SEWER
- EXISTING WATER LINE
- EXISTING UNDERGROUND TELEPHONE LINE
- EXISTING GAS LINE
- EXISTING UNDERGROUND ELECTRIC
- EXISTING OVERHEAD WIRES
- EXISTING UTILITY STRUCTURES

PROPOSED LEGEND

- PROPOSED BUILDING
- PROPOSED DOOR
- PROPOSED CONCRETE PAVEMENT
- PROPOSED ASPHALT PAVEMENT
- PROPOSED LANDSCAPED AREA
- PROPOSED UNIT PAVERS
- PROPOSED POROUS PLAYGROUND SAFETY SURFACE (DIC)
- PROPOSED SYNTHETIC TURF FIELD
- PROPOSED ADA RAMP
- PROPOSED CURB
- PROPOSED DEPRESSED CURB
- PROPOSED WALL
- PROPOSED STOP BAR/PAVEMENT MARKING
- PROPOSED FENCE
- PROPOSED SIGN
- PROPOSED LIMIT OF DISTURBANCE

PACKAGE 2 - IFB
NOT FOR CONSTRUCTION
08/28/23
NPDES PERMIT #PAC510302
PWD TRACKING #FY22-KING-6800-01

REVISIONS

ISSUE	DATE	DESCRIPTION
1	01/09/23	PWD PCSM/NPDES SUBMISSION
2	02/14/23	PWD PCSM RESUBMISSION
3	05/24/23	PWD PCSM RESUBMISSION
4	10/19/2023	ADDENDUM 1

REVIEWED BY:

PROJECT COORDINATOR

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KMA

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PROJECT TITLE

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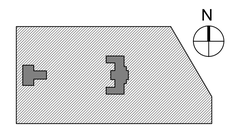
KEY PLAN

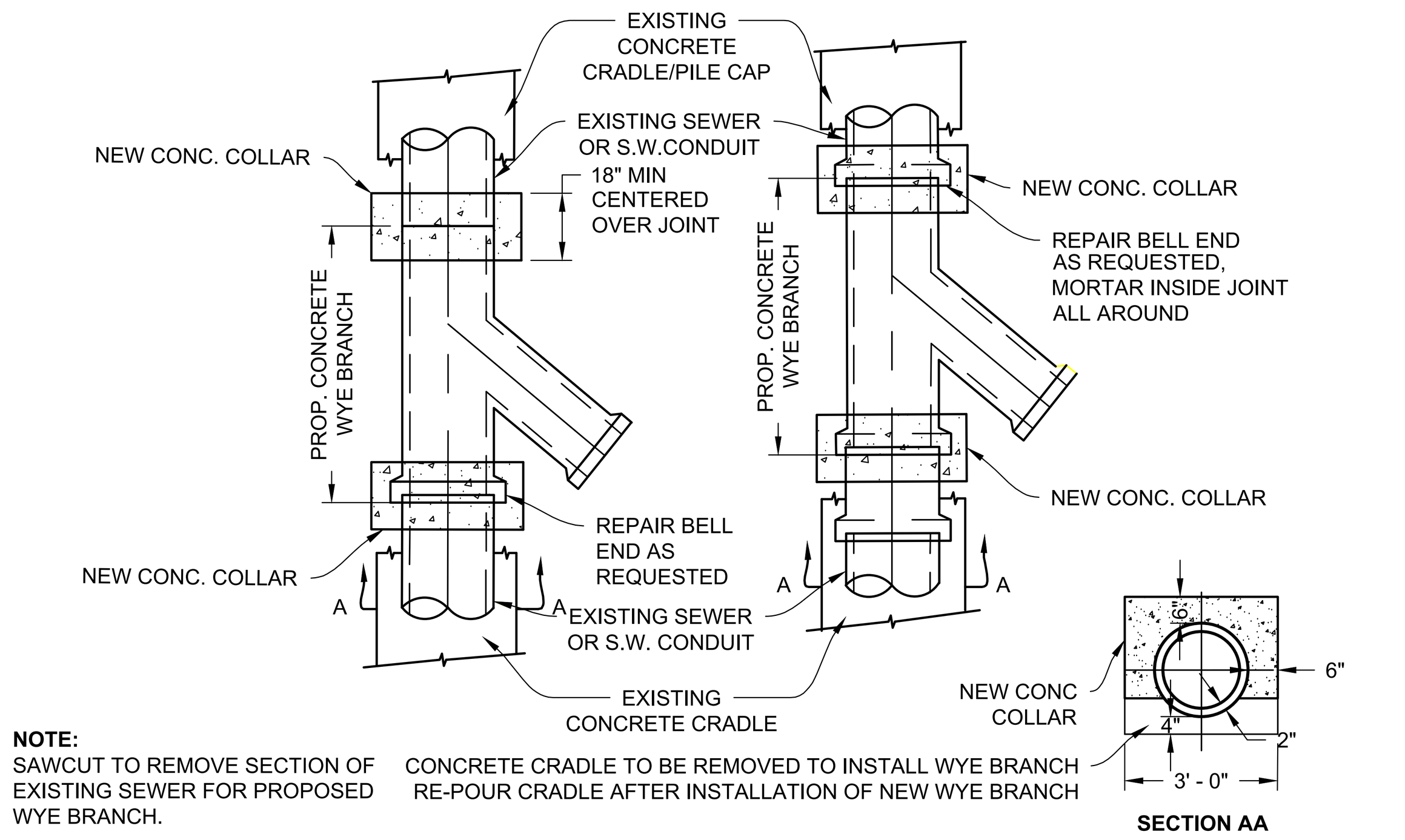


DRAWING TITLE

SITE IMPROVEMENT PLAN NORTH

PROJECT NO.	DRAWING NO.
KLMLX21003	CS102-R.2
DATE: 08/28/23	
SCALE: 1" = 20'	
DRAWN BY: SDL	
CHECKED BY: MJM	

NOTE: ALL DIMENSIONS AND CONDITIONS SHALL BE VERIFIED BY THE CONTRACTOR AT THE SITE BEFORE PROCEEDING WITH THE WORK.

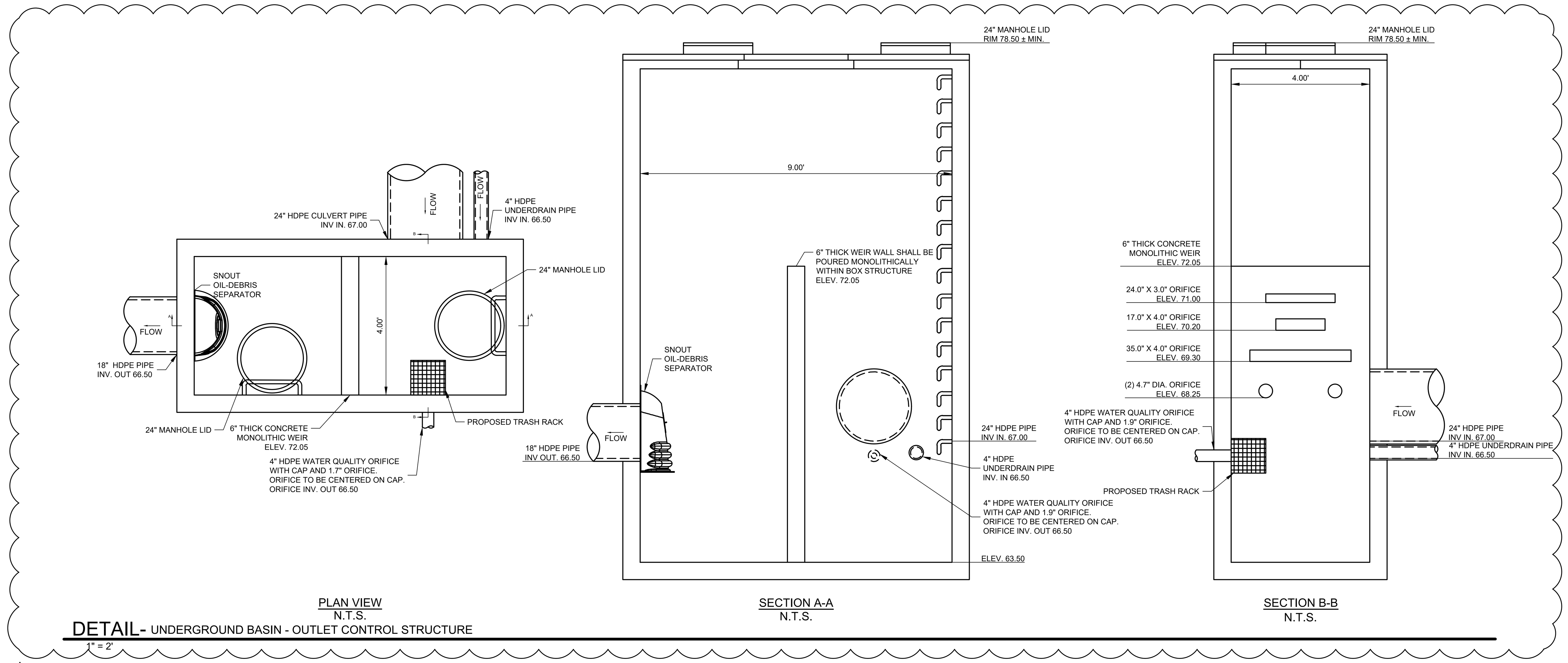


NOTE:
SAWCUT TO REMOVE SECTION OF EXISTING SEWER FOR PROPOSED WYE BRANCH.

WYE BRANCH INSTALLATION PROCEDURE:

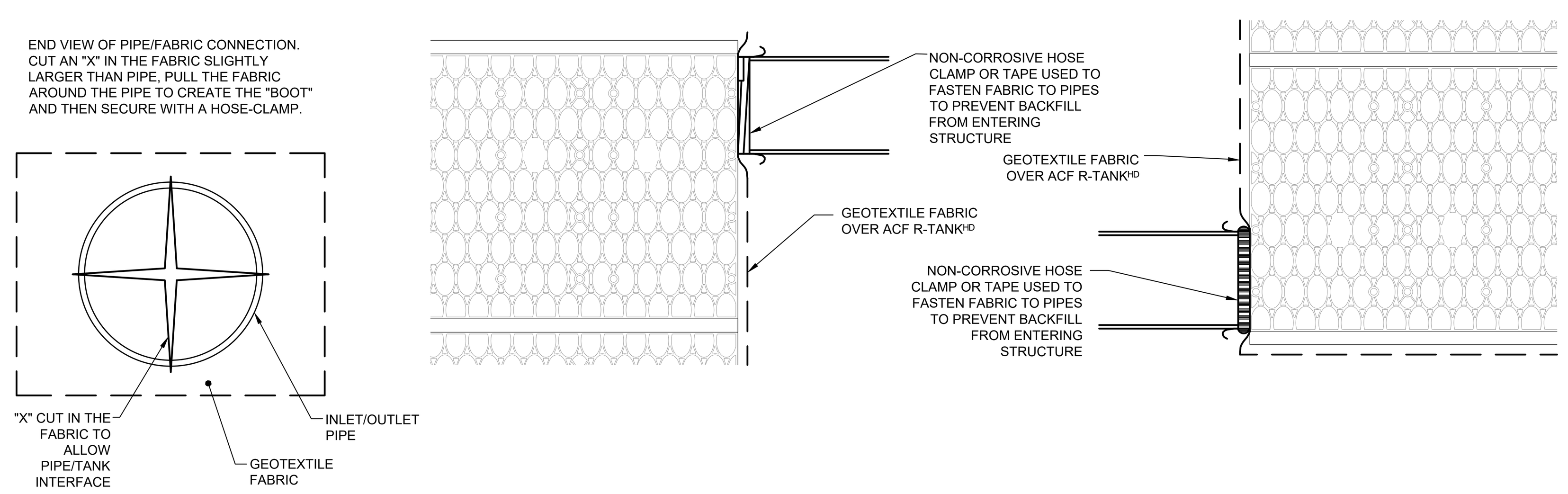
1. CONTRACTOR IS RESPONSIBLE FOR CONTROLLING THE FLOW DURING THE CONNECTION.
2. THE CONTRACTOR IS TO OBTAIN INFORMATION ABOUT THE FLOW RATE PRIOR TO COMMENCING THE CONNECTION. THIS MAY BE OBTAINED BY OPENING A MANHOLE AND MEASURING THE FLOW (FLOW CAN VARY).
3. FOR HIGH FLOW RATE THE CONTRACTOR SHALL SUBMIT A BY-PASS METHOD FOR APPROVAL.
4. FOR LOW FLOW RATE THE CONTRACTOR MAY BE ABLE TO DIRECT THE FLOW THROUGH THE OPENED SECTION.
5. THE CONTRACTOR MUST SELECT THE PROPER SIZE WYE AND ALIGN THE INVERTS.
6. EXCAVATE SAFELY TO EXPOSE THE EXISTING SEWER PIPE WITHOUT DAMAGING IT.
7. EXCAVATE A DITCH WIDE ENOUGH TO ACCOMMODATE THE WYE AND THE CUT-OFF WALLS.
8. CONTRACTORS SHOULD PERFORM THE CONNECTION IN A SAFE MANNER AND PER OSHA REGULATIONS.
9. SHORING SHALL BE INSTALLED IN DITCHES AND TRENCHES AS PER OSHA REGULATIONS OR AS REGULATED BY PWD. VIOLATION OF THIS PROVISION WILL RESULT IN A STOP WORK ORDER AND/OR PENALTIES PRESCRIBED BY LAW. (REFER TO PHILADELPHIA PLUMBING CODE 2004 SECTION P- 1503.2 SHORING).
10. FOR CONNECTIONS TO BRICK SEWER, CONSTRUCT A 2-FOOT WIDE BY 8-INCH HIGH, CONCRETE CUTOFF WALL TO THE SPRING LINE, ON BOTH SIDES OF THE WYE, 12-INCH FROM THE LOCATION TO CUT THE SEWER PIPE.
11. USE A MINIMUM OF 3,500 PSI CONCRETE FOR THE CONCRETE CUT-OFF WALL.
12. ALLOW AT LEAST 24 HOURS FOR THE CONCRETE TO CURE BEFORE CUTTING THE SEWER PIPE.
13. CUT THE SEWER PIPE SO THAT THE WYE SECTION WILL FIT IN TIGHTLY.
14. PREVENT ANY DEBRIS FROM FLOWING INTO THE SEWER.
15. CLEAN THE BOTTOM OF THE OPENED AREA FROM LOOSE AND SOFT SOIL IF NO CRADLE, AND PLACE STONE IN THE MIDDLE LEAVING 12 INCH BELOW THE JOINTS FOR CONCRETE COLLAR.
16. INSERT THE WYE SECTION IN PLACE IMMEDIATELY, SEAL THE JOINTS AND CONSTRUCT A 24-INCH CONCRETE COLLAR AROUND BOTH JOINTS.
17. USE A MINIMUM OF 3,500 PSI CONCRETE COLLAR, 12 INCH DEEP AND EXTENDING 24 INCH WIDE AROUND THE JOINT.
18. ALLOW AT LEAST 24 HOURS FOR THE CONCRETE TO CURE BEFORE BACKFILLING.
19. ANY OTHER PIPELINE EXPOSED AND UNDERMINED DURING THIS OPERATION MUST BE SUPPORTED IMMEDIATELY AND BACKFILLED WITH CONTROLLED LOW STRENGTH MATERIAL (CLSM) AFTER THE COMPLETION OF THE CONNECTION.

DETAIL- WYE CONNECTION
N.T.S.

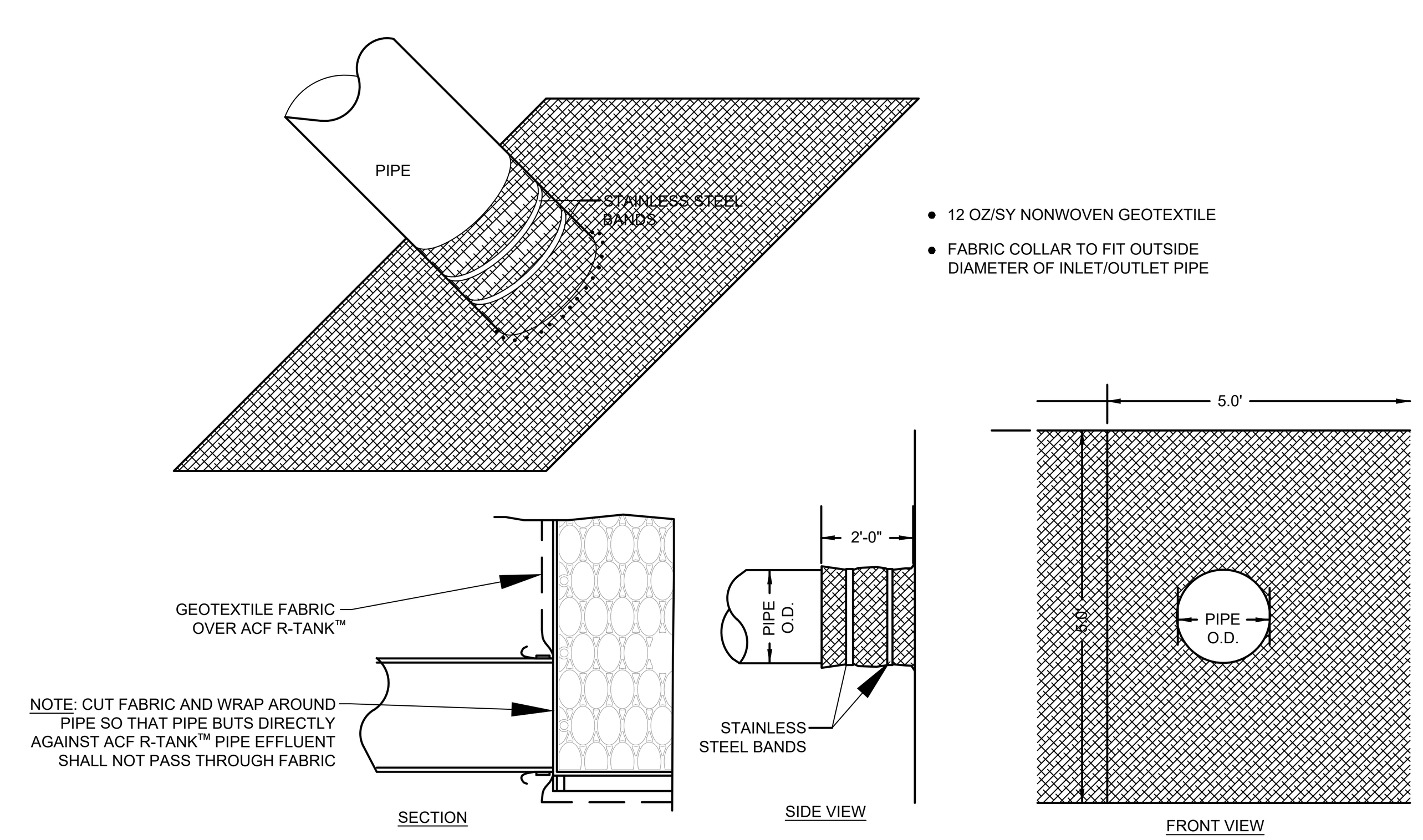


DETAIL- UNDERGROUND BASIN - OUTLET CONTROL STRUCTURE
1" = 2'

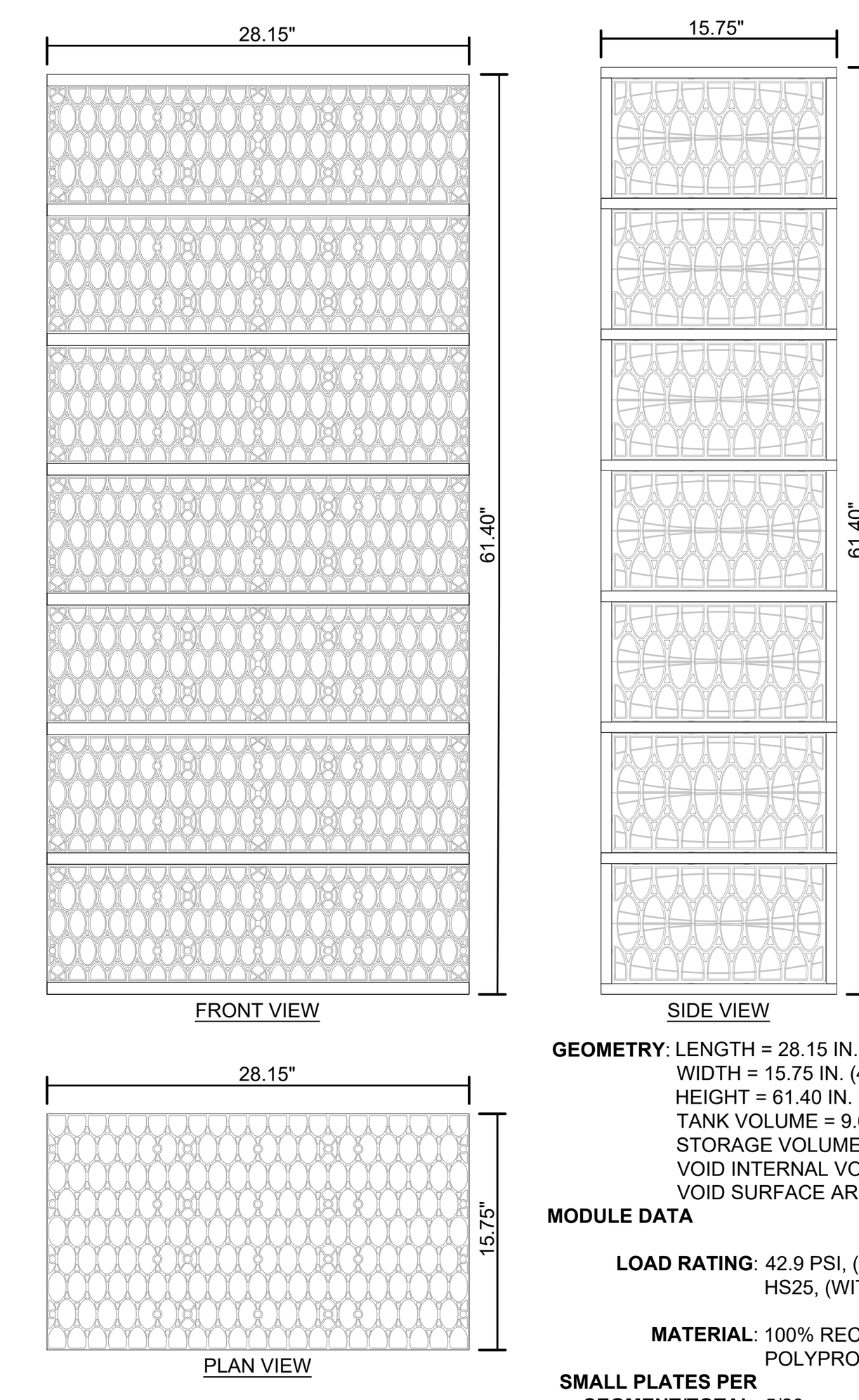
4



DETAIL- R-TANK INLET/OUTLET
N.T.S.



DETAIL- R-TANK PIPE BOOT
N.T.S.



GEOMETRY: LENGTH = 28.15 IN. (715 MM)
WIDTH = 15.75 IN. (400 MM)
HEIGHT = 61.40 IN.
TANK VOLUME = 9.08 CF
STORAGE VOLUME = 8.63 CF
VOID INTERNAL VOLUME: 95%
VOID SURFACE AREA: 90%

MODULE DATA

LOAD RATING: 42.9 PSI, (MODULE ONLY)
HS25, (WITH ACF COVER SYSTEM)

MATERIAL: 100% RECYCLED POLYPROPYLENE

SMALL PLATES PER SEGMENT/TOTAL: 5/20

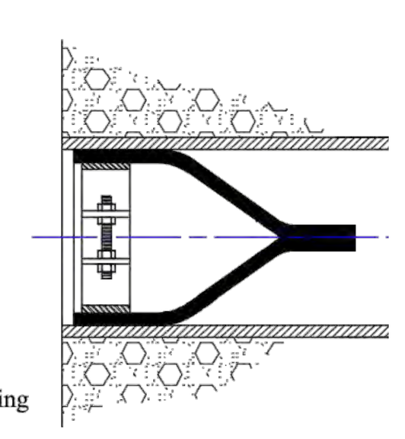
DETAIL- RTANK SD 7 MODULE
N.T.S.

Series DBRS

Reverse Slip-In Check Valve

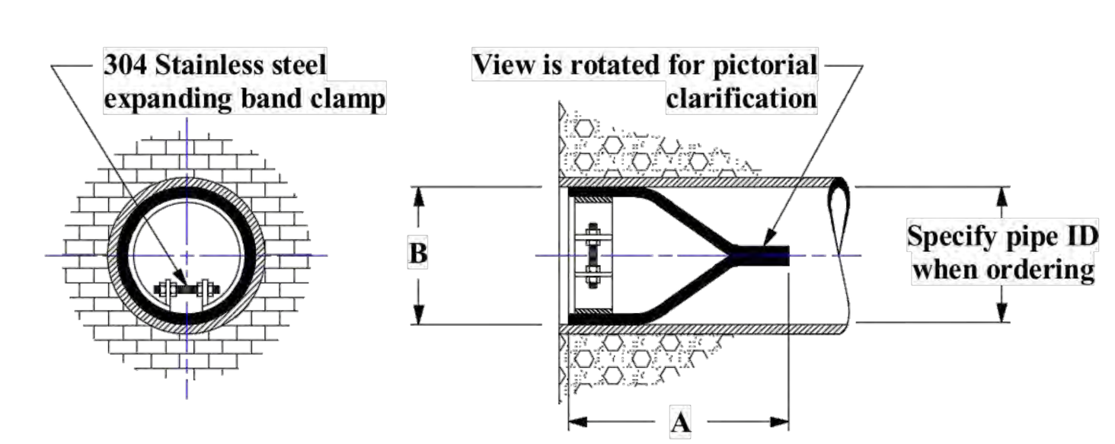
The series DBRS slip-in check valve, like the series DBCP, offers a cost effective method of backflow prevention.
It is designed for installation inside of a non-flanged pipe secured by expanding band clamp.

The series DBRS slip-in check valve eliminates the mechanical parts which can wear and jam in conventional check



Performance Features:
- Low pressure drop
- Frost proof
- Silent operation
- Corrosion resistant

Options:
- Sleeve Elastomer
- 316 Stainless steel expanding band clamp



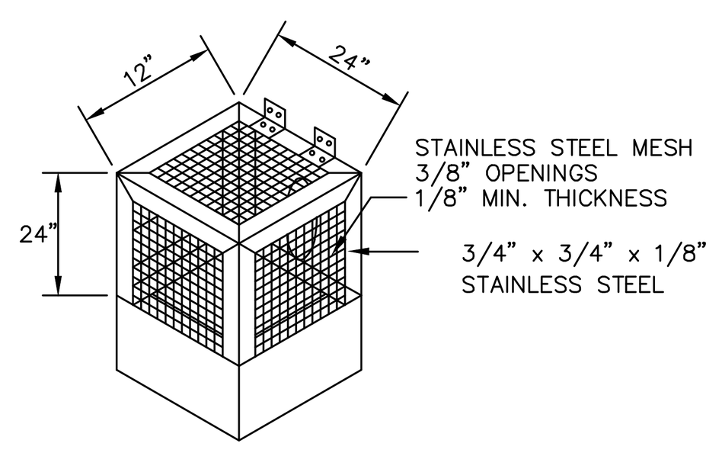
All Dimensions are in Inches.

Size	2	2.5	3	4	5	6	8	10	12	14
A	6.00	6.00	8.50	12.00	15.00	15.00	17.00	19.00	20.00	20.00
B	1.87	2.25	2.75	3.75	4.75	5.75	7.62	9.62	11.50	13.50
Wt, lb	5	8	10	15	17	20	25	35	60	90

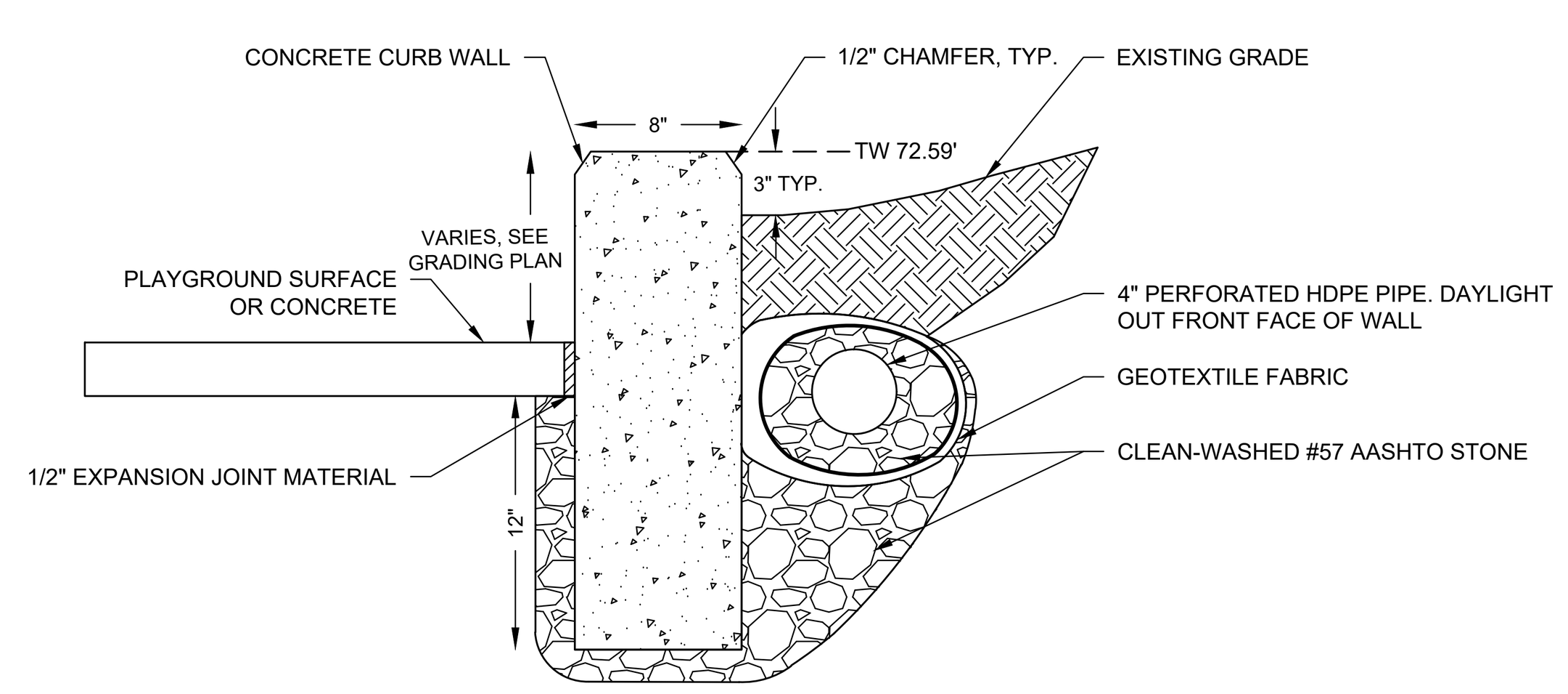
Size	16	18	20	24	30	32	36	42	48	60
A	23.00	26.00	29.00	32.00	51.00	57.00	63.00			
B	15.50	17.50	19.50	23.00	29.00	31.00	35.00			
Wt, lb	120	200	300	400	550	600	650			

ONYX VALVE CO
835 Industrial Hwy
P: 856-829-2888
www.onyxvalve.com
Cinnaminson NJ 08077
Fax: 856-829-3080

DETAIL- BACKFLOW PREVENTER



DETAIL- ORIFICE PROTECTION
N.T.S.



DETAIL- CONCRETE CURB WALL AT PLAYGROUND
N.T.S.

PACKAGE 2 - IFB
NOT FOR CONSTRUCTION
08/28/23
NPDES PERMIT #PAC510302
PWD TRACKING #FY22-KING-6800-01

REVISIONS

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4	10/19/2023	ADDENDUM 1

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PROJECT TITLE
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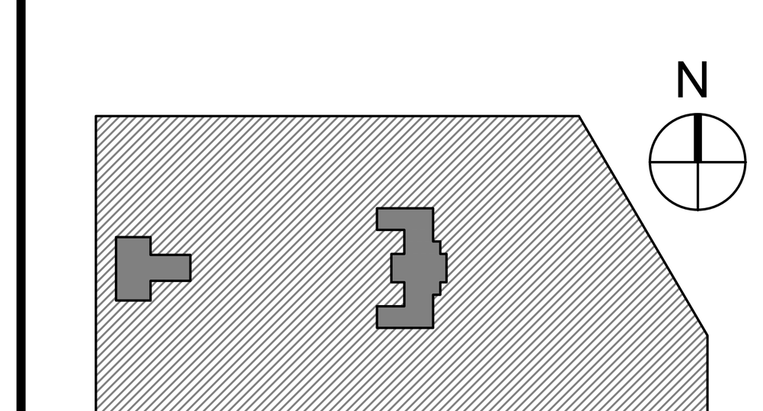
KEY PLAN



DRAWING TITLE
SITE DETAILS

PROJECT NO. KLMLX21003	DRAWING NO. CS603-R.2
DATE 08/28/23	
SCALE AS NOTED	
DRAWN BY: SDL	
CHECKED BY: MJM	

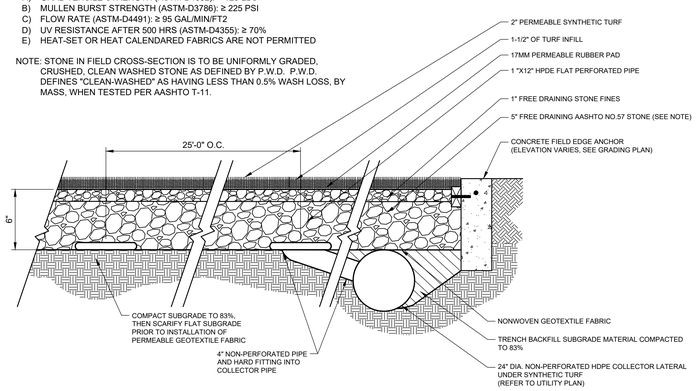
NOTE: ALL DIMENSIONS AND CONDITIONS SHALL BE VERIFIED BY THE CONTRACTOR AT THE SITE BEFORE PROCEEDING WITH THE WORK.

U:\Accounts\KLMLX\KLMLX21003 - Kingsessing Building & Site Improvements\DESIGN\ SHEETS\CONSTRUCTION DOCUMENTS\CS603-R.2.dwg PLOTTED: 10/19/2023 12:13 PM, BY: Shane D. Leinhart PLOTSTYLE: Pennoni NCS.stb PROJECT STATUS: ----

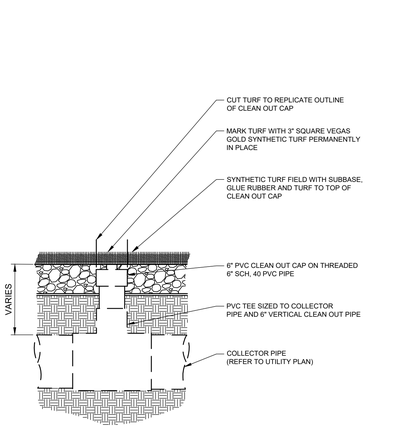
NOTE: GEOTEXTILE IS TO CONSIST OF POLYPROPYLENE FIBERS AND TO MEET THE FOLLOWING SPECIFICATIONS:

A) GRAB TENSILE STRENGTH (ASTM-D4632): ≥ 120 LBS
B) MULLEN BURST STRENGTH (ASTM-D3786): ≥ 225 PSI
C) FLOW RATE (ASTM-D4491): ≥ 95 GAL/MIN/FT2
D) UV RESISTANCE AFTER 500 HRS (ASTM-D4355): ≥ 70%
E) HEAT-SET OR HEAT CALENDARED FABRICS ARE NOT PERMITTED

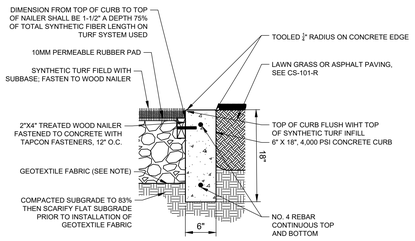
NOTE: STONE IN FIELD CROSS-SECTION IS TO BE UNIFORMLY GRADED, CRUSHED, CLEAN WASHED STONE AS DEFINED BY P.W.D. P.W.D. DEFINES "CLEAN-WASHED" AS HAVING LESS THAN 0.5% WASH LOSS, BY MASS, WHEN TESTED PER AASHTO T-11.



DETAIL- SYNTHETIC FIELD UNDERDRAINAGE
N.T.S.



DETAIL- CLEANOUT PORTAL IN SYNTHETIC TURF
N.T.S.



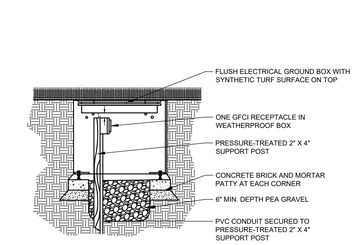
DETAIL- CONCRETE FIELD EDGE ANCHOR
N.T.S.

NOTE: ALL TREATED WOOD TO BE NON-CCA. TOP OF TURF INFILL TO BE FLUSH WITH TOP OF CONCRETE CURB.
EXPANSION JOINTS TO BE INSTALLED AT INTERVALS NOT TO EXCEED 160' - SAWCUT CONTROL JOINTS SHALL OCCUR EVERY 20'.

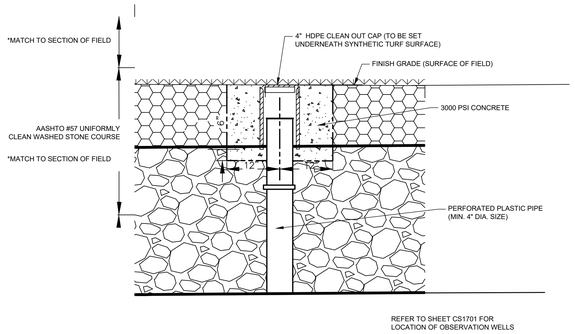
NOTE: NON-WOVEN GEOTEXTILE IS TO CONSIST OF POLYPROPYLENE FIBERS AND TO MEET THE FOLLOWING SPECIFICATIONS:

A) GRAB TENSILE STRENGTH (ASTM-D4632): ≥ 120 LBS
B) MULLEN BURST STRENGTH (ASTM-D3786): ≥ 225 PSI
C) FLOW RATE (ASTM-D4491): ≥ 95 GAL/MIN/FT2
D) UV RESISTANCE AFTER 500 HRS (ASTM-D4355): ≥ 70%
E) HEAT-SET OR HEAT CALENDARED FABRICS ARE NOT PERMITTED

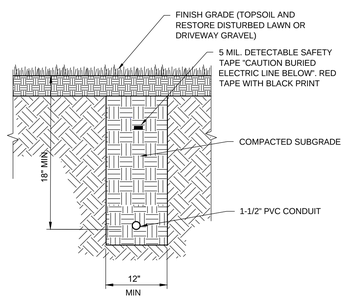
NOTE: STONE IN FIELD CROSS-SECTION IS TO BE UNIFORMLY GRADED, CRUSHED, CLEAN WASHED STONE AS DEFINED BY P.W.D. P.W.D. DEFINES "CLEAN-WASHED" AS HAVING LESS THAN 0.5% WASH LOSS, BY MASS, WHEN TESTED PER AASHTO T-11.



DETAIL- OUTDOOR GROUND BOX RECEPTACLE
N.T.S.



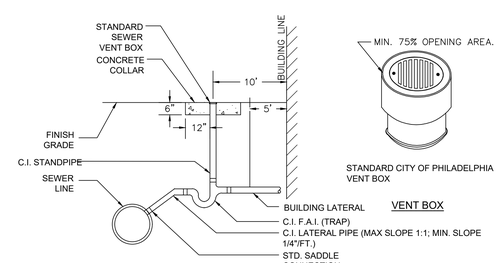
DETAIL- OBSERVATION WELL IN SYNTHETIC TURF
N.T.S.



ELECTRICAL CONDUIT NOTES:

1. PROVIDE 1-1/2" PVC CONDUIT, MINIMUM 18" BELOW GRADE.
2. REFER TO MEP PLANS FOR ELECTRICAL CONNECTION AT EXISTING AND RELOCATED BUILDINGS.
3. PROVIDE APPROPRIATE UNDERGROUND WARNING TAPE.
4. AFTER INSTALLATION, PROVIDE ENGINEER AND CITY AS-BUILT DRAWINGS INDICATING EXACT LOCATION, VERTICAL AND HORIZONTAL, OF CONDUIT.

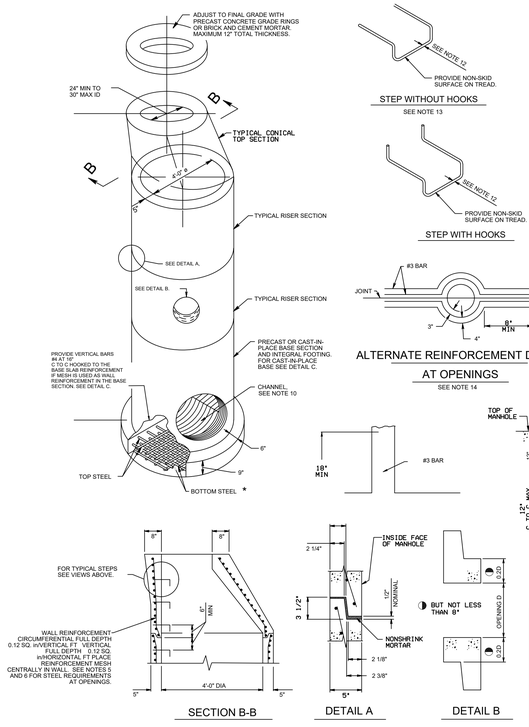
DETAIL-ELECTRICAL CONDUIT
N.T.S.



NOTES:

1. TRAP, STANDPIPE & VENT BOX TO BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF THE PHILADELPHIA PLUMBING CODE - CONNECTION SHALL BE IN ACCORDANCE WITH CITY OF PHILADELPHIA SPECIFICATIONS.
2. LATERAL TRAP AND F.A.I. & C.O. SHALL BE PLACED ON ALL ROOF DRAIN LATERALS, STORM PIPES AND SANITARY SEWER LATERALS.

DETAIL- LATERAL TRAP, FAI, AND CLEANOUT
N.T.S.



NOTE: EITHER ALL METRIC OR ALL ENGLISH VALUES MUST BE USED ON PLANS. METRIC AND ENGLISH VALUES SHOWN MAY NOT BE MIXED.

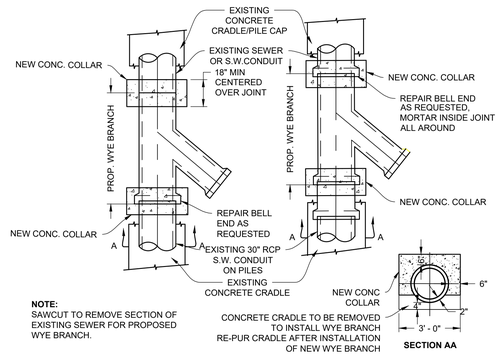
TABLE B

PRECAST MANHOLE HEIGHT	TOP STEEL REQUIREMENTS	BOTTOM STEEL REQUIREMENTS
0'-0" TO 30'-0"	NO.4 BARS AT 6" C TO C OR 0.33 SQ.in/FT WWF 6" MAXIMUM SPACING	NO.4 BARS AT 12" C TO C OR SQ. 0.16 in/FT WWF 6" MAXIMUM SPACING
> 30'-0" TO 60'-0"	NO.5 BARS AT 6" C TO C OR 0.56 SQ.in/FT WWF 6" MAXIMUM SPACING	NO.4 BARS AT 6" C TO C OR 0.27 SQ. in/FT. WWF 6" MAXIMUM SPACING

DETAIL- PRECAST STORM MANHOLE
N.T.S.

PRECAST MANHOLE NOTES

1. PRECAST MANHOLES MEETING THE REQUIREMENTS OF PUBLICATION 408, SECTION 714, MAY BE SUBSTITUTED FOR THE STANDARD CAST-IN-PLACE MANHOLE. FOR DEVIATION OR MODIFICATION OF THE STANDARDS, SUBMIT SHOP DRAWINGS FOR APPROVAL.
2. FOR CONSTRUCTION REQUIREMENTS SEE PUBLICATION 408, SECTION 714.
3. SHOW PERMISSIBLE LOCATION OF PIPES ON SHOP DRAWING.
4. FOR RISERS OR BASE SECTIONS WITH OPENINGS, PROVIDE A MINIMUM HEIGHT OF SECTION SO AS TO PROVIDE AN UNCUT WALL EQUAL OPENING AND THE CLOSEST JOINT BETWEEN RISERS - SEE DETAIL B.
5. FOR PRECAST RISER OR BASE SECTIONS WITH ONE OPENING LOCATED AT DEPTHS TO 60', PROVIDE CIRCUMFERENTIAL REINFORCEMENT IN ACCORDANCE WITH SECTION B-B. FOR SECTIONS WITH TWO OR MORE OPENINGS, LOCATED AT DEPTH OF 10' AND LESS, PROVIDE CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.16 SQ. in /VERTICAL FT. FOR THE HEIGHT OF RISER OR BASE SECTION. FOR RISERS OR BASE SECTIONS WITH TWO OR MORE OPENINGS, LOCATED AT A
6. DEPTH GREATER THAN 10', BUT LESS THAN OR EQUAL TO 25', PROVIDE CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.44 SQ. in /VERTICAL FT. FOR THE HEIGHT OF THE RISER OR BASE SECTION.
7. FOR RISERS OR BASE SECTIONS WITH TWO OR MORE OPENINGS, LOCATED AT DEPTHS GREATER THAN 25', USE A 10" THICK WALL RISER OR BASE SECTION WITH CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.22 in /VERTICAL FT. EACH FACE.
8. MARK RISERS OR BASE SECTIONS WITH HOLES CLEARLY WITH MAXIMUM ALLOWABLE DEPTH.
9. PROVIDE ADDITIONAL REINFORCEMENT BARS AROUND OPENINGS AS SHOWN ON REINFORCEMENT DETAILS AT OPENINGS.
10. SHOW CHANNEL DETAILS IN PRECAST MANHOLE ON SHOP DRAWINGS.
11. PROVIDE MANHOLE STEPS MEETING THE REQUIREMENTS OF PUBLICATION 408, SECTION 605.2(c). ALTERNATE CONFIGURATIONS AND DIMENSIONS, AS APPROVED BY THE ENGINEER, MAY BE USED.
12. PROVIDE MINIMUM 1" SECTION DIMENSION FOR METAL STEPS. PROVIDE MINIMUM 3/4" SECTION DIMENSION FOR NON-DETERIORATING MATERIAL STEPS.
13. MECHANICAL ANCHOR REQUIRED FOR INSTALLATION OF STEPS WITHOUT HOOKS.
14. THE ALTERNATE OPENING REINFORCEMENT DETAIL IS NOT DESIRABLE BY DESIGN. USE IT TO MEET EXISTING PIPE ELEVATIONS.



NOTE:
SAWCUT TO REMOVE SECTION OF EXISTING SEWER FOR PROPOSED WYE BRANCH.

WYE BRANCH CONNECTION

WYE BRANCH INSTALLATION PROCEDURE:

1. CONTRACTOR IS RESPONSIBLE FOR CONTROLLING THE FLOW DURING THE CONNECTION.
2. THE CONTRACTOR IS TO OBTAIN INFORMATION ABOUT THE FLOW RATE PRIOR TO COMMENCING THE CONNECTION. THIS MAY BE OBTAINED BY OPENING A MANHOLE AND MEASURING THE FLOW (FLOW CAN VARY).
3. FOR HIGH FLOW RATE THE CONTRACTOR SHALL SUBMIT A BY-PASS METHOD FOR APPROVAL.
4. FOR LOW FLOW RATE THE CONTRACTOR MAY BE ABLE TO DIRECT THE FLOW THROUGH THE OPENED SECTION.
5. THE CONTRACTOR MUST SELECT THE PROPER SIZE WYE AND ALIGN THE INVERTS.
6. EXCAVATE SAFELY TO EXPOSE THE EXISTING SEWER PIPE WITHOUT DAMAGING IT.
7. EXCAVATE A DITCH WIDE ENOUGH TO ACCOMMODATE THE WYE AND THE CUT-OFF WALLS.
8. CONTRACTORS SHOULD PERFORM THE CONNECTION IN A SAFE MANNER AND PER OSHA REGULATIONS.
9. SHORING SHALL BE INSTALLED IN DITCHES AND TRENCHES AS PER OSHA REGULATIONS OR AS REGULATED BY PWD. VIOLATION OF THIS PROVISION WILL RESULT IN A STOP WORK ORDER AND/OR PENALTIES PRESCRIBED BY LAW. (REFER TO PHILADELPHIA PLUMBING CODE 2004 SECTION P- 1503.2 SHORING).
10. FOR CONNECTIONS TO BRICK SEWER, CONSTRUCT A 2-FOOT WIDE BY 8-INCH HIGH, CONCRETE CUTOFF WALL TO THE SPRING LINE, ON BOTH SIDES OF THE WYE, 12-INCH FROM THE LOCATION TO CUT THE SEWER PIPE.
11. USE A MINIMUM OF 3000 PSI CONCRETE FOR THE CONCRETE CUT-OFF WALL.
12. ALLOW AT LEAST 24 HOURS FOR THE CONCRETE TO HARDEN BEFORE CUTTING THE SEWER PIPE.
13. CUT THE SEWER PIPE SO THAT THE WYE SECTION WILL FIT IN TIGHTLY.
14. PREVENT ANY DEBRIS FROM FLOWING INTO THE SEWER.
15. CLEAN THE BOTTOM OF THE OPENED AREA FROM LOOSE AND SOFT SOIL IF NO CRADLE, AND PLACE STONE IN THE MIDDLE LEAVING 12 INCH BELOW THE JOINTS FOR CONCRETE COLLAR.
16. INSERT THE WYE SECTION IN PLACE IMMEDIATELY, SEAL THE JOINTS AND CONSTRUCT A 24-INCH CONCRETE COLLAR AROUND BOTH JOINTS.
17. USE A MINIMUM OF 3000 PSI CONCRETE COLLAR, 12 INCH DEEP AND EXTENDING 24 INCH WIDE AROUND THE JOINT.
18. ALLOW AT LEAST 24 HOURS FOR THE CONCRETE TO HARDEN BEFORE BACKFILLING.
19. ANY OTHER PIPELINE EXPOSED AND UNDERMINED DURING THIS OPERATION MUST BE SUPPORTED IMMEDIATELY AND BACKFILLED WITH CONTROLLED LOW STRENGTH MATERIAL (CLSM) AFTER THE COMPLETION OF THE CONNECTION.

DETAIL- WYE CONNECTION
N.T.S.

DIVERSION OF FLOWS

A. THE WATER DEPARTMENT DOES NOT GUARANTEE THE ABILITY TO DAM OR DIVERT FLOWS. THE WATER DEPARTMENT SHALL APPROVE ALL DAMMING AND DIVERTING OF FLOWS PRIOR TO INSTALLATION.
B. ONE WEEK PRIOR TO DAMMING AND DIVERTING OF ANY FLOW THE CONTRACTOR SHALL NOTIFY BOTH OF THE FOLLOWING:
   - SEWER MAINTENANCE SUPERINTENDENT AT 215-685-2034.
   - FLOW CONTROL SUPERINTENDENT AT 215-685-2004.
C. IN ADDITION, BOTH SEWER MAINTENANCE AND INTERCEPTOR SERVICES SHALL BE NOTIFIED ONE WEEK PRIOR TO REMOVAL OF ANY DAM AND THE RESUMPTION OF FLOW. UPON COMPLETION OF THE REMOVAL OF THE DAM, THE CONTRACTOR SHALL SCHEDULE AN INSPECTION OF THE SEWER AT THE LOCATION OF THE DAM. ANY DAMAGE FOUND DURING THIS INSPECTION SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE CITY.
D. IF FOR ANY REASON IT BECOMES NECESSARY TO REMOVE THE DAM PRIOR TO COMPLETION OF THE PROJECT, THE CONTRACTOR SHALL REMOVE THE DAM, RESTORE FLOW, AND UTILIZE AN ALTERNATE MEANS OF FLOW CONTROL TO COMPLETE THE PROJECT, AT NO ADDITIONAL COST TO THE CITY.

CONCRETE CUT-OFF WALLS

A. BEFORE REMOVING EARTH FILL OVER ARCH OF THE EXISTING SEWER, CONSTRUCT A CONCRETE CUT-OFF WALL WHERE CALLED FOR ON THE CONTRACT DRAWINGS.
B. THE CUT-OFF WALL SHALL BE CONSTRUCTED ACROSS THE ENTIRE WIDTH OF TRENCH DOWN TO THE SPRING LINE OF THE SEWER. AFTER THE CUT-OFF WALL HAS BEEN CONSTRUCTED AND SET, THE REMAINING PORTION OF EARTH OVER THE SEWER SHALL BE REMOVED DOWN THE SPRING LINE.

FLUMING

A. FLUME THE EXISTING SEWER FLOW DURING CONSTRUCTION. USE ONLY SUCH DAMS AS WILL NOT RESTRICT FULL FLOW DURING STORMS. REPAIR ALL DAMAGE DUE TO RESTRICTION OF FLOW.

PACKAGE 2 - IFB
NOT FOR CONSTRUCTION
08/28/23
NPDES PERMIT #PAC510302
PWD TRACKING #FY22-KING-6800-01

4

REVISIONS

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1	01/09/23	PWD PCSM/NPDES SUBMISSION
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3	05/24/23	PWD PCSM RESUBMISSION
4	10/19/2023	ADDENDUM 1

REVIEWED BY:

PROJECT COORDINATOR

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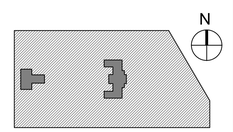
CITY OF PHILADELPHIA
DEPARTMENT OF PUBLIC PROPERTY
1515 ARCH STREET
11TH FLOOR, ONE PARKWAY BUILDING
PHILADELPHIA PENNSYLVANIA

PROJECT TITLE
KINGSESSING RECREATION CENTER

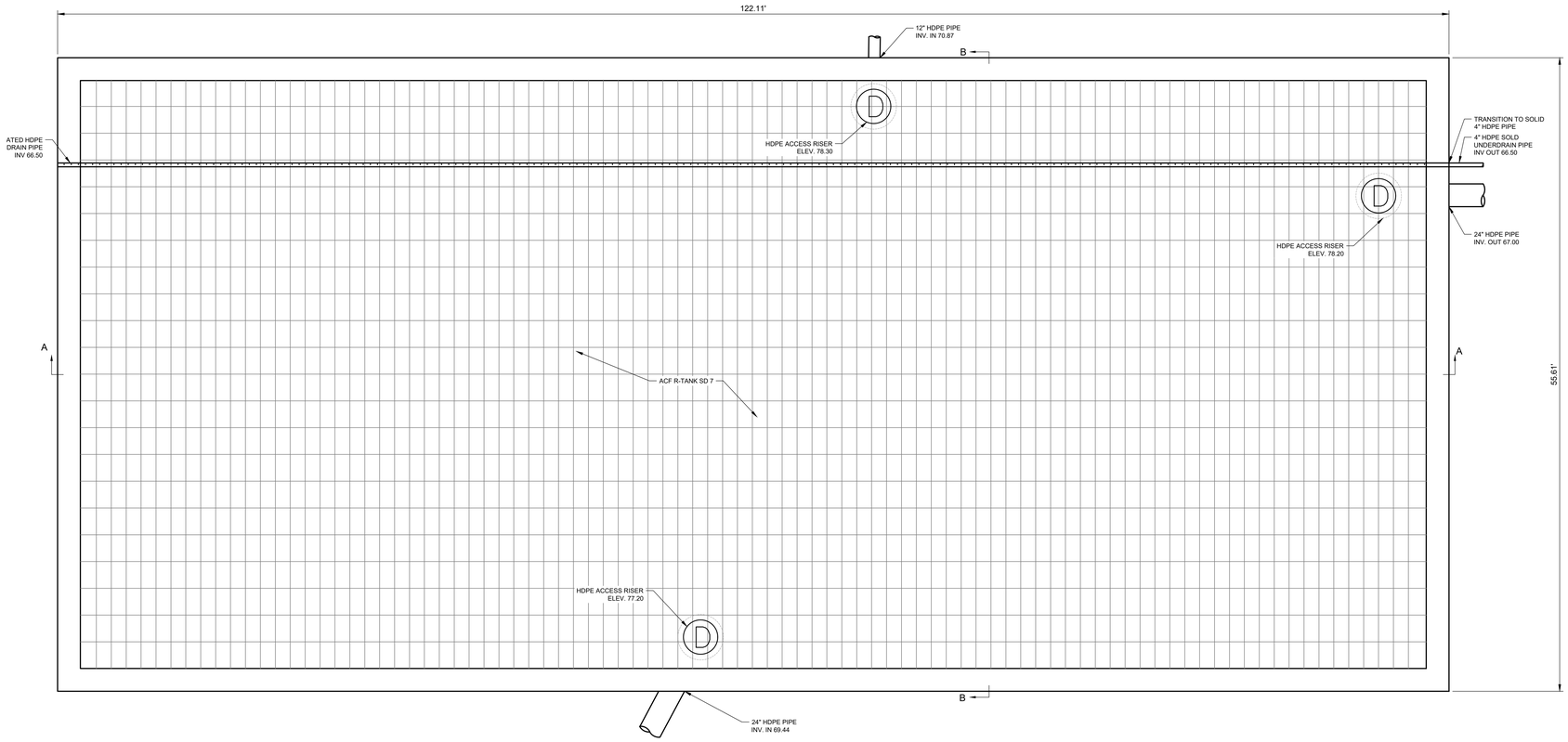
KEY PLAN



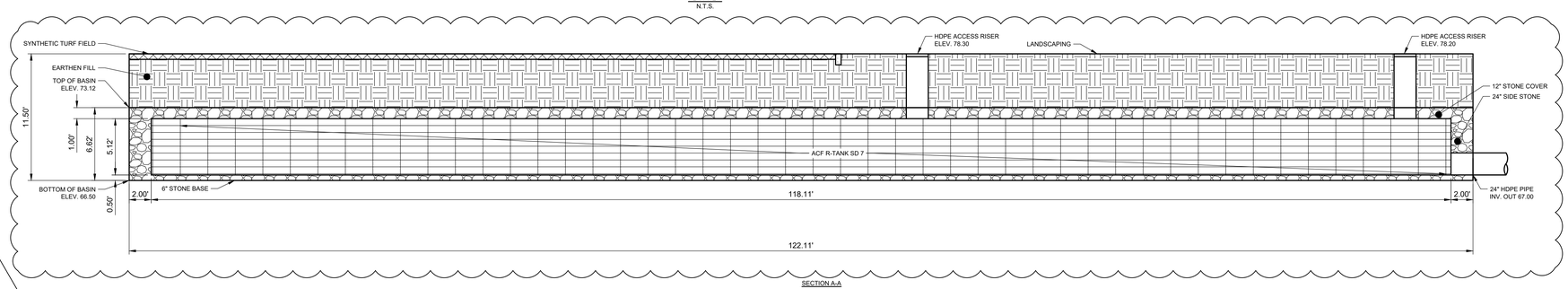
DRAWING TITLE
SITE DETAILS

PROJECT NO.	DRAWING NO.
KLMLX21003	CS605-R.2
DATE: 08/28/23	
SCALE: AS NOTED	
DRAWN BY: SDL	
CHECKED BY: MJM	

NOTE: ALL DIMENSIONS AND CONDITIONS SHALL BE VERIFIED BY THE CONTRACTOR AT THE SITE BEFORE PROCEEDING WITH THE WORK



PLAN VIEW
N.T.S.



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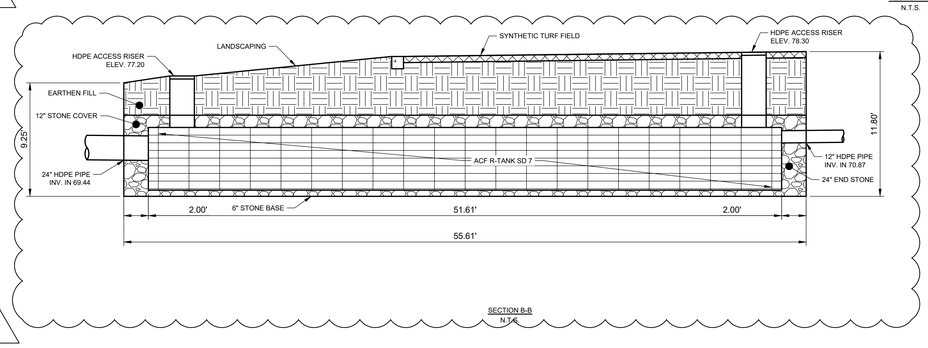
SECTION A-A
N.T.S.



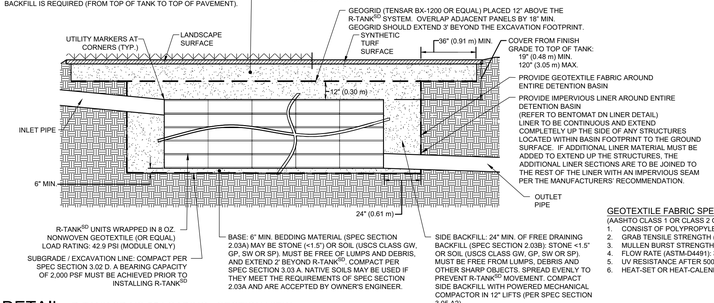
SECTION B-B
N.T.S.

4

DETAIL- UNDERGROUND BASIN
N.T.S.

TOTAL COVER: 19" MINIMUM AND 120" MAXIMUM. FIRST 12" MUST BE FREE DRAINING BACKFILL (SPEC SECTION 2.03B): STONE <1.5" OR SOIL (USCS CLASS GW, GP, SW OR SP). ADDITIONAL FILL MAY BE STRUCTURAL FILL (SPEC SECTION 2.03C): STONE OR SOIL (USCS CLASS SM, SP, SW, GM, GP OR GW) WITH MAX CLAY CONTENT<10%, MAX 25% PASSING NO. 200 SIEVE, AND MAX PLASTICITY INDEX OF 4. A MIN. 12" COVER MUST BE MAINTAINED BETWEEN BACKFILL EQUIPMENT AND THE TOP OF THE R-TANK™ SYSTEM AT ALL TIMES. TOTAL HEIGHT OF TOP BACKFILL SHOULD NOT EXCEED 10'. CONTACT ACF ENVIRONMENTAL IF MORE THAN 10' OR LESS THAN 18" OF TOP BACKFILL IS REQUIRED (FROM TOP OF TANK TO TOP OF PAVEMENT).

NOTES:
1. FOR COMPLETE MODULE DATA, SEE APPROPRIATE R-TANK[SD] MODULE SHEET.
2. INSTALLATIONS PER THIS DETAIL MEET GUIDELINES OF HL-93 LOADING PER THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, CUSTOMARY U.S. UNITS, 7TH EDITION, 2014 WITH 2015 AND 2016 INTERIM REVISIONS.
3. PRE-TREATMENT STRUCTURES NOT SHOWN.
4. FOR INFILTRATION APPLICATIONS, GEOTEXTILE ENVELOPING R-TANK SHALL BE ACF M200 (PER SPEC SECTION 2.02A) AND BASE SHALL BE 4" MIN. UNCOMPACTED FREE DRAINING BACKFILL (SPEC SECTION 2.03A) TO PROVIDE A LEVEL BASE. SURFACE MUST BE SMOOTH, FREE OF LUMPS OR DEBRIS, AND EXTEND 2' BEYOND R-TANK[SD] FOOTPRINT.



GEOTEXTILE FABRIC SPECIFICATIONS
(AASHTO CLASS 1 OR CLASS 2 GEOTEXTILE)
1. CONSIST OF POLYPROPYLENE FIBERS
2. GRAB TENSILE STRENGTH (ASTM-D4632): ≥ 120 LBS
3. MULLEN BURST STRENGTH (ASTM-D3786): ≥ 225 PSI
4. FLOW RATE (ASTM-D4491): ≥ 95 GAL/MIN/FT²
5. UV RESISTANCE AFTER 500 HOURS (ASTM-D4355): ≥ 70%
6. HEAT-SET OR HEAT-CALENDARED FABRICS ARE NOT PERMITTED

DETAIL- R-TANK SD HS-25 LOADING - SECTION VIEW
N.T.S.

PACKAGE 2 - IFB
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08/28/23
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PWD TRACKING #FY22-KING-6800-01

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4	10/19/2023	ADDENDUM 1

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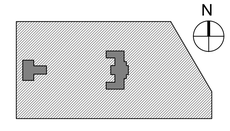
PROJECT TITLE
KINGSESSING RECREATION CENTER

KEY PLAN



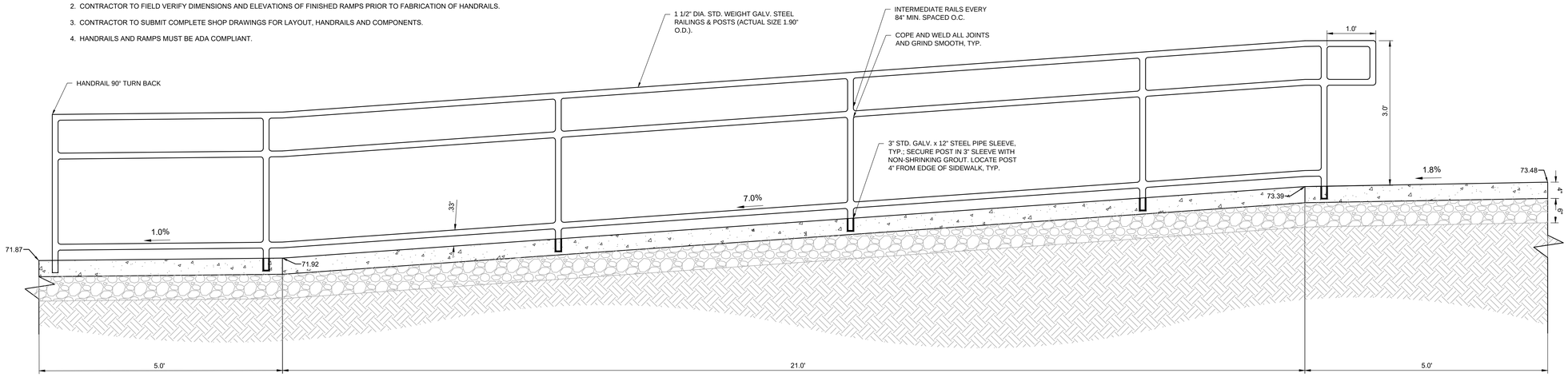
DRAWING TITLE
SITE DETAILS

PROJECT NO. KLMLX21003	DRAWING NO. CS606-R.2
DATE 08/28/23	
SCALE AS NOTED	
DRAWN BY: SDL	
CHECKED BY: MJM	

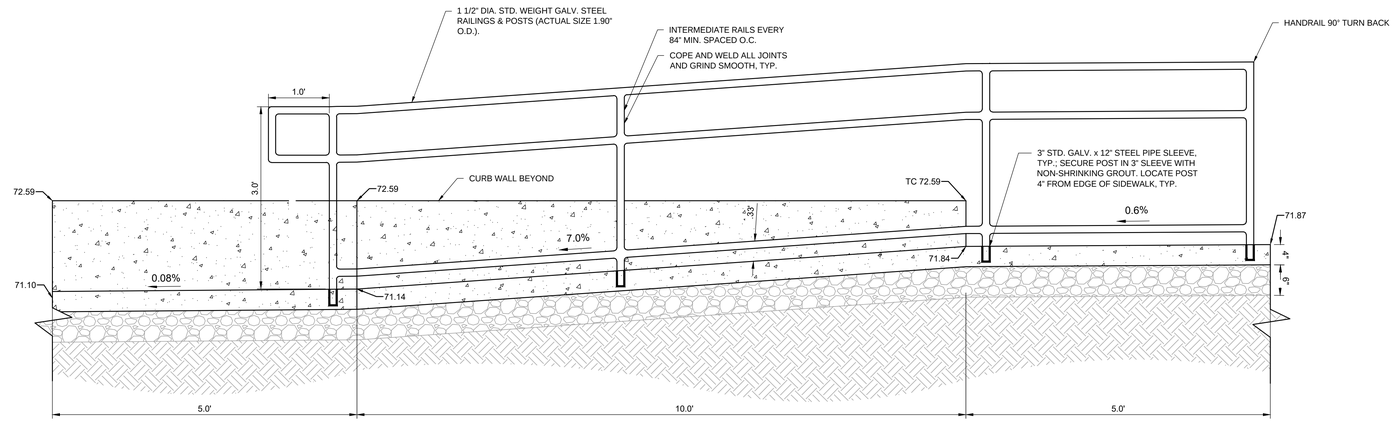
NOTE: ALL DIMENSIONS AND CONDITIONS SHALL BE VERIFIED BY THE CONTRACTOR AT THE SITE BEFORE PROCEEDING WITH THE WORK

HANDRAIL NOTES:

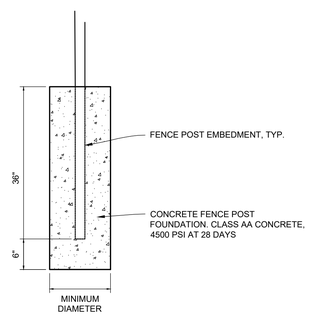
1. ALL HANDRAILS AND HARDWARE TO BE GALVANIZED STEEL.
2. CONTRACTOR TO FIELD VERIFY DIMENSIONS AND ELEVATIONS OF FINISHED RAMPS PRIOR TO FABRICATION OF HANDRAILS.
3. CONTRACTOR TO SUBMIT COMPLETE SHOP DRAWINGS FOR LAYOUT, HANDRAILS AND COMPONENTS.
4. HANDRAILS AND RAMPS MUST BE ADA COMPLIANT.



DETAIL- PLAYGROUND RAMP AND RAILING
1"=1'



DETAIL- PLAYGROUND RAMP AND RAILING
1"=1'.



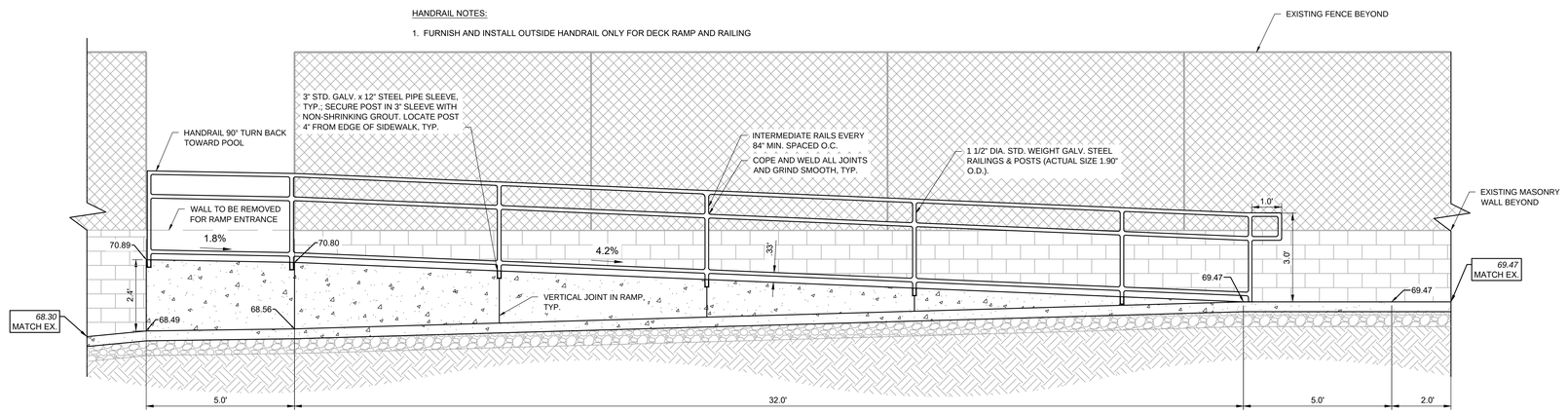
18" DIAMETER: CORNER, END, GATE POSTS, BACKSTOP POSTS, POSTS WITH BALL NET ABOVE

12" DIAMETER: LINE POSTS

DETAIL- FENCE POST FOUNDATION
N.T.S.

HANDRAIL NOTES:

1. FURNISH AND INSTALL OUTSIDE HANDRAIL ONLY FOR DECK RAMP AND RAILING



DETAIL- POOL DECK RAMP AND RAILING
1"=2'

PACKAGE 2 - IFB
NOT FOR CONSTRUCTION
08/28/23
NPDES PERMIT #PAC510302
PWD TRACKING #FY22-KING-6800-01

REVISIONS

ISSUE	DATE	DESCRIPTION
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3	05/24/23	PWD PCSM RESUBMISSION
4	10/19/2023	ADDENDUM 1

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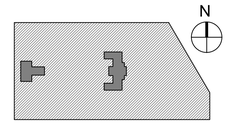
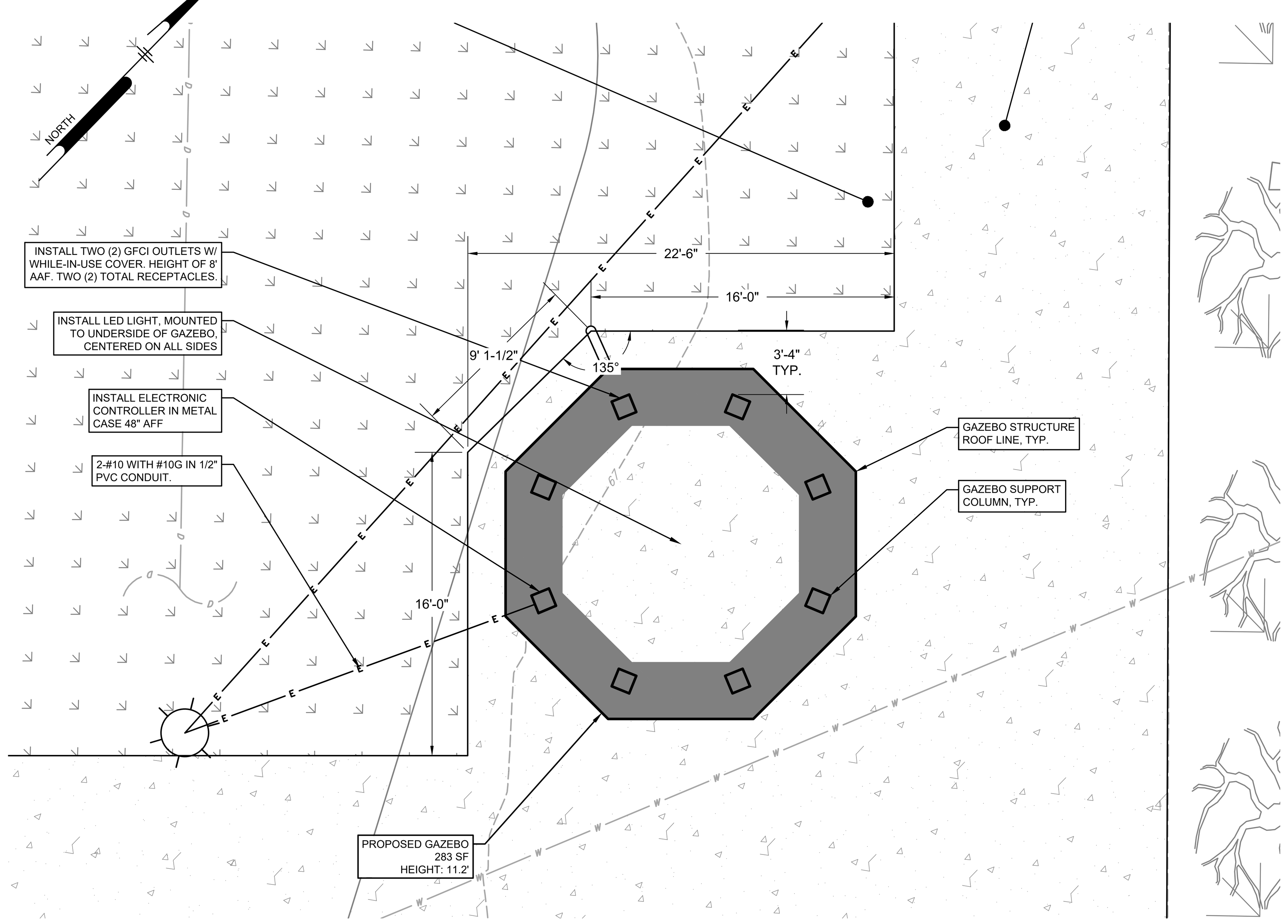


DRAWING TITLE
SITE DETAILS

PROJECT NO.	KLMLX21003
DATE	08/28/23
SCALE	AS NOTED
DRAWN BY:	SDL
CHECKED BY:	MJM
DRAWING NO.	CS607-R.2

NOTE: ALL DIMENSIONS AND CONDITIONS SHALL BE VERIFIED BY THE CONTRACTOR AT THE SITE BEFORE PROCEEDING WITH THE WORK.



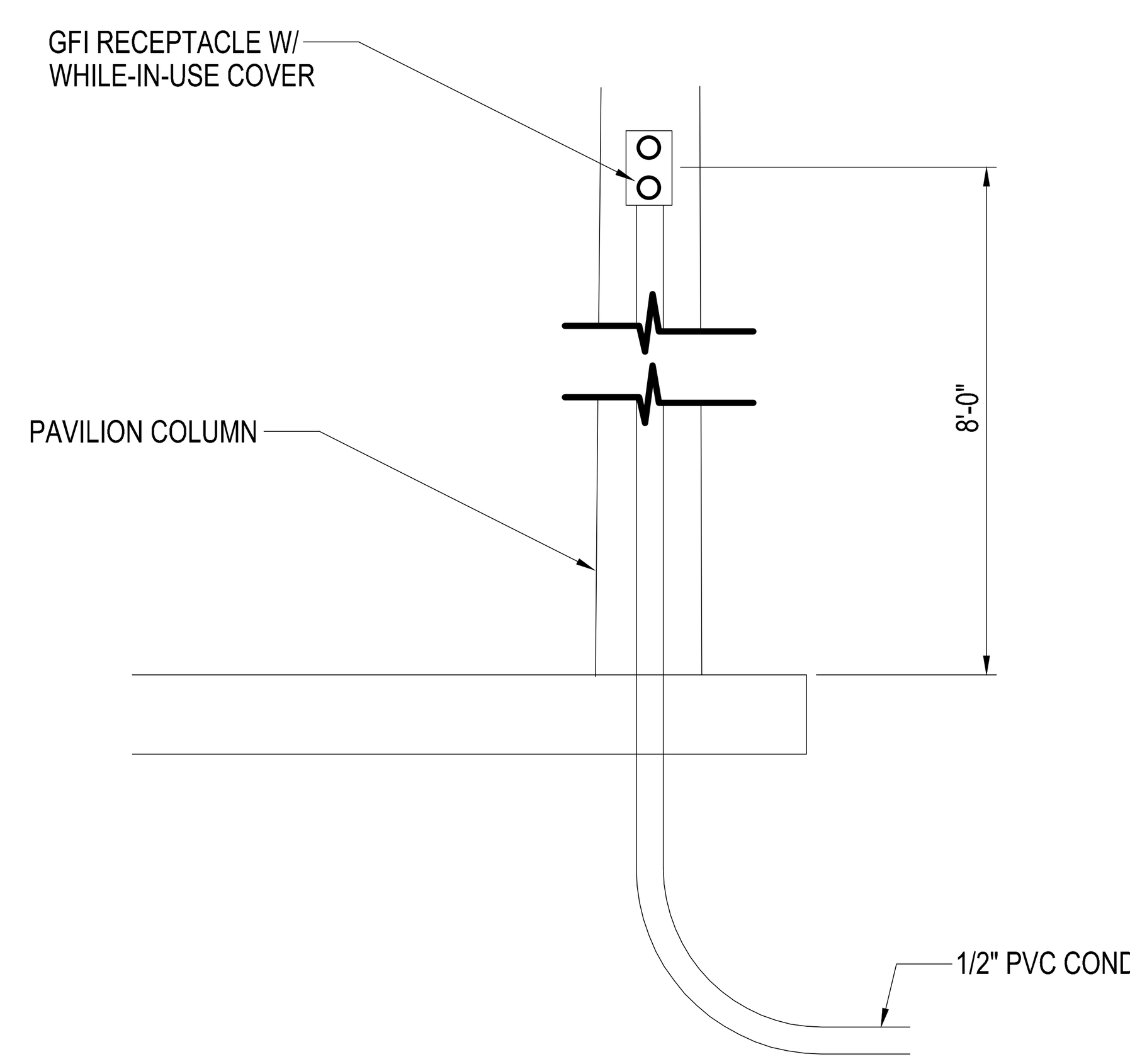
DETAIL PLAN - SHADE STRUCTURE

SCALE: 1"=5'-0"

0 5' 10'

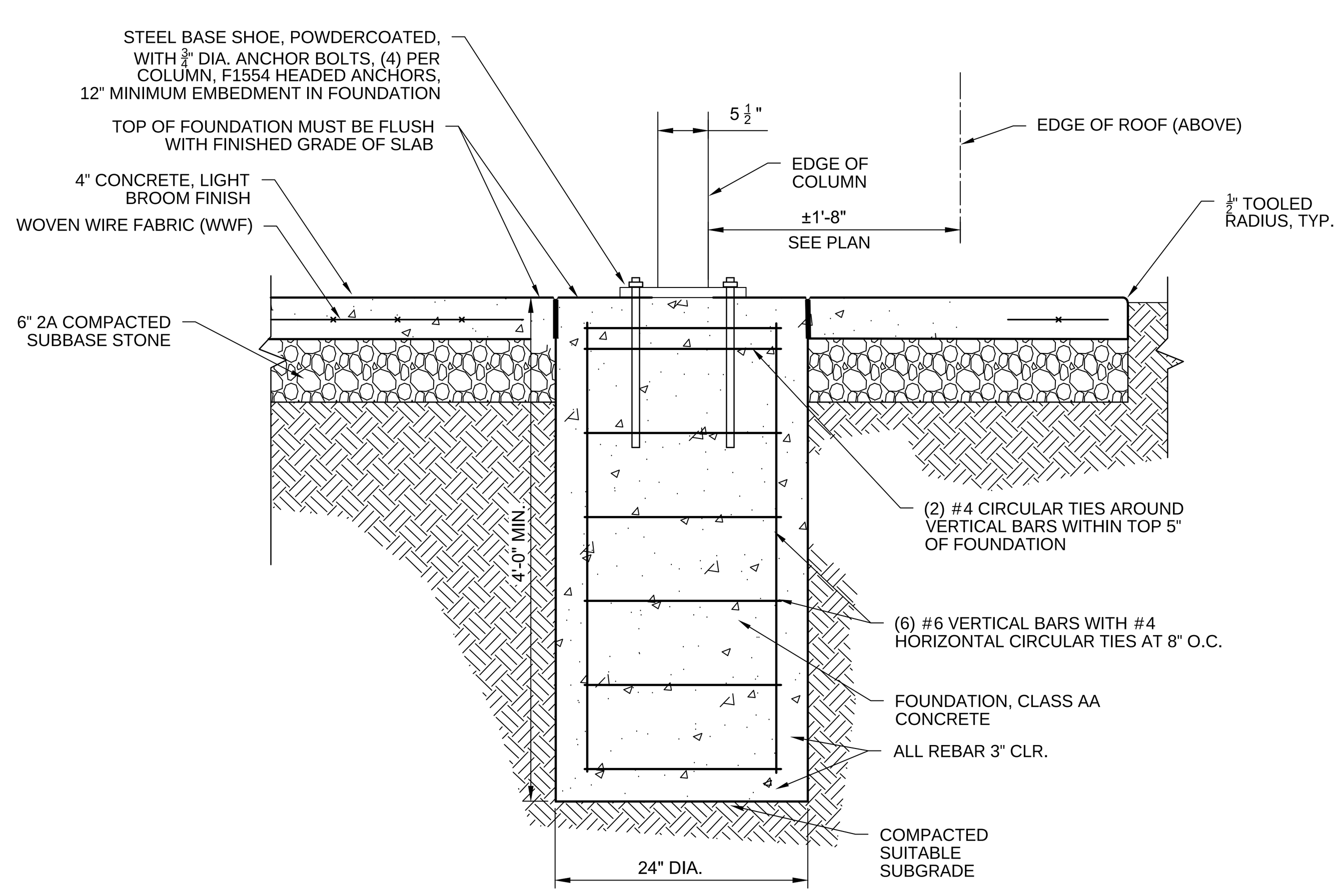
SHADE STRUCTURE NOTES:

1. COMFORT STATION SHADE STRUCTURE IS TO BE 20' OCTAGON SHELTER AS MANUFACTURED BY POLIGON (POLIGON.COM), MODEL #OTC20.
   - SINGLE TIER
   - STANDING SEAM ROOF
2. THE LAYOUT PROVIDED IS FOR INFORMATION ONLY. REFER TO WRITTEN INSTALLATION INSTRUCTIONS FROM POLIGON FOR DETAILED LAYOUT PLAN, COLUMN SPACING, TEMPLATES, AND LAYOUT INSTRUCTIONS FOR THE COLUMNS AND ANCHORS.
3. STEEL POWDERCOAT AND ROOF COLORS TO BE SELECTED BY OWNER.



PAVILION RECEPTACLE MOUNTING DETAIL

SCALE: N.T.S.



SHADE STRUCTURE PAD AND POST FOUNDATIONS

4

Electronic Timer Control - ET1725C

INTERMATIC

Electronic Timer Control - 7-Day 2-Circuit Electronic Control, 120-277 VAC, 2-SPST, Indoor Metal Enclosure

Item ET1725C

PRODUCT DESCRIPTION

This series offers an easy way to upgrade from a basic mechanical time switch to an electronic time switch. These timers will allow for up-to-the-minute programming, battery backup for power loss, up to 28 events total, and automatic daylight saving time corrections without the need of user interaction. They come in standard 24-hour, 7-day and 7-day astronomic versions.

FEATURES

- Selector switch to determine input voltage between 120-277 VAC
- Up to 28 events total
- To-the-minute accuracy
- Temporary override or permanent manual override
- Automatic Daylight Saving Time adjustment
- Astronomic models enable dusk-to-dawn scheduling

APPLICATIONS

- Indoor Lighting Control
- Timing/Scheduling ON/OFF
- Machinery & Pump Controls

TECHNICAL DATA

General	
Model Number	ET1725C
Description	7-Day 2-Circuit Electronic Control, 120-277 VAC, 2-SPST, Indoor Metal Enclosure
UPC Code	078275109865
Brand	Intermatic
Country of Origin (Intermatic)	CHINA
Warranty Period	1-Year limited
Control Specifications	
Minimum ON/OFF Times	1 min
Minimum Pulse Time	2 sec
Maximum Pulse Time	2 sec
Maximum ON/OFF Times	Indefinite
Maximum ON/OFF Operations	28
Setpoint Program Count	28
ON/OFF Operations	28
Operation Mode	7 day
Daylight Savings Adjustment	Automatic
Backup Type	Battery
Battery Type	AAA
Battery Service Type	Field Serviceable
Mechanical Specifications	
Enclosure Type	Indoor type 1 metal
Dimensions	

Technical specifications and other information are subject to change without notice. Images can vary from original. © 02/27/2023 1/4

Electronic Timer Control - ET1725C

INTERMATIC

Product Dimensions (H x W x D) in	7.875 x 5.125 x 3.4375 in
Wire Size Min	#14 AWG
Wire Size Max	#8 AWG
Knockout Dimensions Bottom	(2) combination 1/2" - 3/4"
Knockout Dimensions Back	(1) combination 1/2" - 3/4"
Load Ratings	
Tungsten Range(s)	5 A, 120-240 VAC
Electronic Ballast Load Ratings Ranges	1 A, 120-277 VAC
Magnetic Ballast (NO) Range(s)	20 A, 120-277 VAC
Resistive (NO) Range(s)	20 A, 28 VDC, 30 A, 120/240 VAC
Inductive Load Ratings NO Ranges	30 A, 120/240 VAC
Resistive Load Ratings Ranges	20 A, 28 VDC, 30 A, 120/240 VAC
Tungsten (NO) Range(s)	5 A, 120/240 VAC
Motor Load Ratings Ranges	1 HP, 120 VAC; 2 HP, 240 VAC
Motor Load Ratings NO Ranges	1 HP, 120 VAC; 2 HP, 240 VAC
Electrical Specifications	
Voltage Selection Type	Selector Switch
Wiring Option	Terminals
Input Voltage Range(s)	120-277 VAC, 50/60 Hz
Number of Circuits	2
Switch Type	2xSPST, 1xDPST or Pulse
Maximum Power Consumption (W)	6 W
Electronic Series	ET1700 Series
Packaging	
Unit Carton Dimensions (H x W x L) in	3.131 x 5.251 x 8.001 in
Environmental Specifications	
Temperature (operation)	-40 °F to 104 °F / (-40 °C to 40 °C)
Standards and Certifications	
CSA Certification	cCSAus
Other Certifications and Compatibilities	Title 20
California Proposition 65	Lead

Technical specifications and other information are subject to change without notice. Images can vary from original. © 02/27/2023 2/4

PRODUCT CUT SHEET - LIGHT TIMER/DIMMER

VCPG LED
Parking Garage

DLC BAA TITLE 20

Catalog Number

Notes

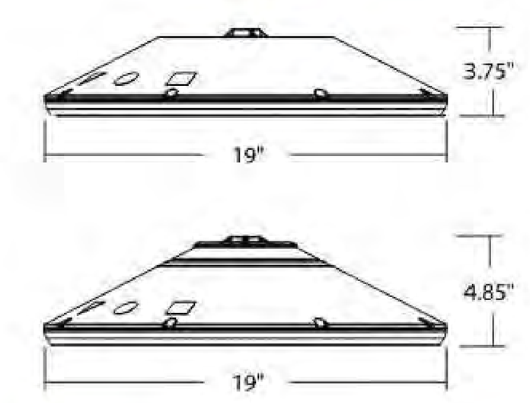
Type

Specifications

Diameter: 19"

Height: 3.75" (4.85" with Up-Light)

Weight (max, with no options): 18 lbs



Introduction

The all new VCPG LED (Visually Comfortable Parking Garage) luminaire is designed to bring glare control, optical performance and energy savings into one package. The recessed lens design of VCPG LED minimizes high angle glare, while its precision molded acrylic lens eliminates LED pixilation and delivers the required minimums, verticals and uniformity. The dedicated up-light module option reduces the contrast between the luminaire and the ceiling creating a more visually comfortable environment.

The VCPG LED delivers up to 87% in energy savings when replacing 175W metal halide luminaires. With over 100,000 hour life expectancy (12+ years of 24/7 continuous operation), the VCPG LED luminaire provides significant maintenance savings over traditional luminaires.

A+ Capable options indicated by this color background.

Ordering Information

EXAMPLE: VCPG LED V4 P4 40K 70CRI T5M MVOLT SRM DNAXD

Series	LED Light Engines	Package	Color temperature	Color Rendering Index	Distribution	Voltage	Mounting
VCPG LED	V4[1] 4 Light Engines V8[1] 8 Light Engines	P1[1] P2[1] P3[1] P4[1] P5[1] P6[1] P7[1]	30K 3000 K 35K 3500 K 40K 4000 K 50K 5000 K	70CRI 80CRI	T5M Type V, medium T5R[2] Type V, rectangular T5W Type V, wide T5E Type V entry LANE[2] Drive lane	MVOLT 347 480 For ordering with fuse: 120, 208, 240, 277, 347, 480	Shipped included PM Pendant mount standard (24-inch length supply leads) SRM Surface mount (24-inch length supply leads) ARM Arm mount (use RSXWBA accessory to mount to a wall) Shipped separately YK Yoke/trunnion mount[3]

Options

Shipped installed
- UPL1 Up-Light: 500 lumens
- UPL2 Up-Light: 700 lumens
- E8WC Emergency battery backup, Certified in CA Title 20 MAEDBS (8W, -20°C min)[4,5,6]
- E10WH Emergency battery backup, Certified in CA Title 20 MAEDBS (10W, 5°C min)[4,5,6]
- HA High ambient (50°C, only P1-P4)
- SF Single fuse (120V, 277V, 347V)
- DF Double fuse (208V, 240V, 480V)
- SPD10KV 10KV Surge Pack
- LDS36 36in (3ft) lead length
- LDS72 72in (6ft) lead length
- LDS108 108in (9ft) lead length
- DMG External 0-10V leads (no controls)[7]
- TP Tamper proof screws

Shipped Separately
- WG Wire Guard
- BDS Bird Shroud
- HS House Side Shield
- BSW Bird Spikes

Standalone Sensors/Controls[2]
- PIR Motion/ambient sensor for 8-15' mounting heights
- PIRH Motion/ambient sensor for 15-30' mounting heights
- PIR3FC3V Motion/ambient sensor for 8-15' mounting heights, pre programmed to 3fc and 35% light output
- PIRH3FC3V Motion/ambient sensor for 15-30' mounting heights, pre programmed to 3fc and 35% light output

Networked Sensors/Controls[7]
- NLTAIR2 PIR nLIGHT AIR Wireless enabled motion/ambient sensor for 8-15' mounting heights
- NLTAIR2 PIRH nLIGHT AIR Wireless enabled motion/ambient sensor for 15'-30' mounting heights
- NLTAIR2 PIR924 nLIGHT AIR Wireless enabled, UL924 Listed motion/ambient sensor for 8-15' mounting heights[8]
- NLTAIR2 PIRH924 nLIGHT AIR Wireless enabled, UL924 Listed motion/ambient sensor for 15'-30' mounting heights[8]

Finish (required)
- DWHXD White
- DNAXD Natural aluminum
- DDBXD Dark bronze
- DBLXD Black

Packaging
- (blank) Job Pack/Units (ships as job pack of 18pcs per; balance in units)
- U Unit packs only

LITHONIA LIGHTING

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VCPG LED Rev. 02/22/23

Ordering Information Cont.

Accessories (Ordered and shipped separately)

VCPGBDS DWHXD U	Bird shroud for PM (specify finish)
VCPGBDS YK DWHXD U	Bird shroud for YK (specify finish)
VCPGUBDS DWHXD U	Bird shroud for PM with Up-Light (specify finish)
VCPGUBDS YK DWHXD U	Bird shroud for YK with Up-Light (specify finish)
VCPGSRM U	Surface mount kit, with no Up-Light
VCPGUSRM U	Surface mount kit, with Up-Light
VCPGSC120	Safety cable 120"
VCPGWG U	Wire guard
SLVSQ	Quick mount pendant swivel kit, square
SLVRD	Quick mount pendant swivel kit, round
VCPG YK DWHXD U	Yoke mount kit (specify finish)
RSXWBA DWHXD U	RSX WBA wall bracket (specify finish)
VCPGHS DWHXD U	House side shield (specify finish)

NOTES
1. P1-P6 not available with V8. P7 not available with V4.
2. Not available with P7.
3. Only vertical height adjustment. No angle adjustment. Use PM and SLVSQ or SLVRD for mounting to angled ceiling or canopies.
4. Not available with 347V or 480V.
5. E8WC and E10WH only rated up to 35°C ambient.
6. E8WC & E10WH only available with P1-P4 packages.
7. DMG option not available with standalone or networked sensors/controls.
8. Needs an nLight Air Normal Power Sensing (NPS) device in the group. VCPG NLTAIR2 PIR and PIRH devices cannot act as NPS devices.

Performance Data

Lumen Output Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Contact factory for performance data on any configurations not shown here.

Performance Package	Watts	Distribution Type	30K (3000K, 70 CRI) Lumens	30K LPW	35K (3500K, 70 CRI) Lumens	35K LPW	40K (4000K, 70 CRI) Lumens	40K LPW	50K (5000K, 70 CRI) Lumens	50K LPW
P1	27W	T5E	3,581	135	3,670	138	3,815	144	3,876	146
		T5M	3,620	136	3,710	140	3,856	145	3,917	147
		T5W	3,592	135	3,681	139	3,827	144	3,888	146
		T5R	3,464	130	3,550	134	3,690	139	3,749	141
		LANE	3,507	132	3,594	135	3,736	141	3,796	143
P2	34W	T5E	4,577	135	4,691	138	4,876	144	4,954	146
		T5M	4,626	136	4,741	140	4,928	145	5,007	147
		T5W	4,591	135	4,705	139	4,891	144	4,968	146
		T5R	4,427	130	4,537	134	4,716	139	4,791	141
		LANE	4,482	132	4,594	135	4,775	141	4,851	143
P3	43W	T5E	5,808	134	5,952	137	6,187	143	6,286	145
		T5M	5,870	135	6,015	139	6,253	144	6,353	146
		T5W	5,825	134	5,970	138	6,205	143	6,304	145
		T5R	5,617	130	5,757	133	5,984	138	6,079	140
		LANE	5,688	131	5,829	134	6,059	140	6,155	142
P4	56W	T5E	7,391	131	7,575	135	7,874	140	7,999	142
		T5M	7,470	133	7,656	136	7,958	141	8,085	144
		T5W	7,414	132	7,597	135	7,898	140	8,023	143
		T5R	7,149	127	7,326	130	7,615	135	7,737	137
		LANE	7,238	129	7,418	132	7,711	137	7,834	139
P5	82W	T5E	10,189	124	10,442	127	10,854	132	11,027	134
		T5M	10,298	125	10,553	128	10,970	134	11,145	136
		T5W	10,220	124	10,473	128	10,887	133	11,060	135
		T5R	9,855	120	10,099	123	10,498	128	10,665	130
		LANE	9,978	121	10,226	124	10,629	129	10,799	131
P6	108W	T5E	12,878	120	13,197	123	13,719	127	13,937	129
		T5M	13,015	121	13,338	124	13,865	129	14,086	131
		T5W	12,917	120	13,237	123	13,760	128	13,979	130
		T5R	12,455	116	12,764	119	13,268	123	13,480	125
		LANE	12,611	117	12,924	120	13,435	125	13,649	127
P7	122W	T5E	15,503	125	15,887	128	16,515	133	16,778	135
		T5M	15,668	126	16,057	129	16,691	135	16,957	137
		T5W	15,549	125	15,935	129	16,564	134	16,828	136

Up-light Lumen Output

Up-light Option	Watts	Lumens
UPL1	6.5W	519
UPL2	8.5W	715

Lumen Multiplier for 80CRI

CCT	Multiplier
30K	0.926
35K	0.945
40K	0.967
50K	0.965

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Ambient		Lumen Multiplier
0°C	32°F	1.03
10°C	50°F	1.02
20°C	68°F	1.01
25°C	77°F	1
30°C	86°F	0.99
40°C	104°F	0.98

Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the platforms noted in a 25°C ambient, based on 10,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).
To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Operating Hours	0	25,000	50,000	100,000
Lumen Maintenance Factor	1.0	0.97	0.94	0.89

Electrical Load

Power Package	System Watts	Current (A) 120V	208V	240V	277V	347V	480V
P1	27W	0.22	0.13	0.12	0.10	0.08	0.06
P2	34W	0.28	0.16	0.14	0.13	0.10	0.08
P3	43W	0.37	0.21	0.18	0.16	0.13	0.09
P4	56W	0.48	0.28	0.24	0.21	0.16	0.12
P5	82W	0.68	0.40	0.35	0.30	0.24	0.18
P6	108W	0.91	0.52	0.45	0.39	0.32	0.23
P7	124W	1.03	0.59	0.51	0.44	0.37	0.27

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PRODUCT CUT SHEET - LED LIGHT FIXTURE

PACKAGE 2 - IFB
NOT FOR CONSTRUCTION
08/28/23
NPDES PERMIT #PAC510302
PWD TRACKING #FY22-KING-6800-01

REVISIONS

ISSUE	DATE	DESCRIPTION
1	01/09/23	PWD PCSM/NPDES SUBMISSION
2	02/14/23	PWD PCSM RESUBMISSION
3	05/24/23	PWD PCSM RESUBMISSION
4	10/19/2023	ADDENDUM 1

REVIEWED BY:

PROJECT COORDINATOR

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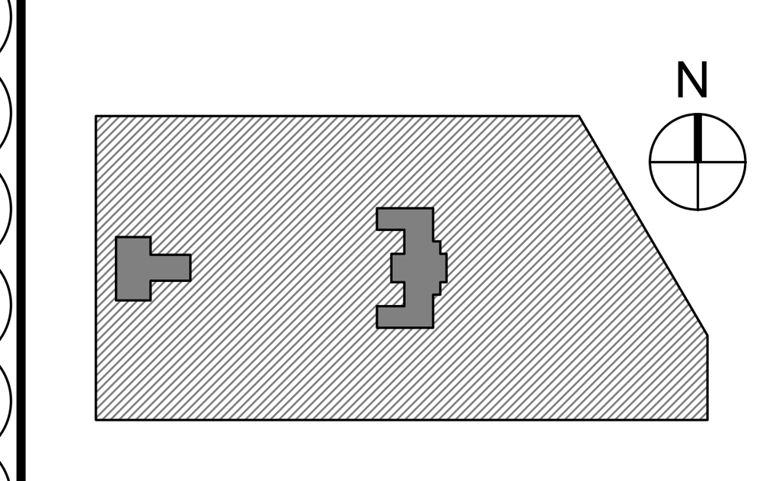
CITY OF PHILADELPHIA
DEPARTMENT OF PUBLIC PROPERTY
1515 ARCH STREET
11TH FLOOR, ONE PARKWAY BUILDING
PHILADELPHIA PENNSYLVANIA

PROJECT TITLE
KINGSESSING RECREATION CENTER

KEY PLAN



DRAWING TITLE
SITE DETAILS

PROJECT NO.	KLMLX21003
DATE	08/28/23
SCALE	1" = 5'
DRAWN BY:	SDL
CHECKED BY:	MJM

DRAWING NO.
C-610-R.2

NOTE: ALL DIMENSIONS AND CONDITIONS SHALL BE VERIFIED BY THE CONTRACTOR AT THE SITE BEFORE PROCEEDING WITH THE WORK.

GENERAL SYMBOLS
(NOT ALL SYMBOLS ARE NECESSARILY USED ON THIS PROJECT)

- (#) KEY NOTE
- EQP / # — EQUIPMENT TAG - SEE EQUIPMENT DATA SHEET: EQPM = EQUIPMENT ABBREVIATION # = EQUIPMENT NUMBER
- 1 / # SIM — DETAIL BUBBLE: 1 = DENOTES DETAIL NUMBER # = DENOTES DRAWING NUMBER OF DETAIL LOCATION
- 1 / # SIM — SECTION CUT ARROW: A = DENOTES SECTION IDENTIFICATION # = DENOTES DRAWING NUMBER OF SECTION DETAIL
- NEW CONDUIT/EQUIPMENT
- DENOTES EXISTING-TO-REMAIN
- DENOTES FOR DEMOLITION
- 5 3 1 PNL — HOMERUN-NUMERAL WHERE USED INDICATES DESIGNATED PANEL AND CIRCUIT NUMBER FOR REFERENCE ONLY. WHERE CONDUIT IS NOT SPECIFIED USE AC OR MC CABLE FOR APPLICATION.
  - 2#12, #12G, 3/4"C HOMERUN, UON
  - 3#12, #12G, 3/4"C HOMERUN, UON
  - 4#12, #12G, 3/4"C HOMERUN, UON
  - AT 120V AND OVER 100' CIRCUIT LENGTH PROVIDE #10 MINIMUM.
  - AT 277V AND OVER 200' CIRCUIT LENGTH PROVIDE #10 MINIMUM.
- INDIVIDUAL RUNS OR FEEDERS ARE BEING COMBINED INTO ONE GROUP.

LIGHTING SYMBOLS

- A — CEILING MOUNTED DOWNLIGHT CONNECTED TO NORMAL CIRCUIT A = FIXTURE TYPE
- A — EXTERIOR LIGHTING FIXTURE (BRACKET TYPE) A = FIXTURE TYPE
- A — WALKWAY LIGHTING FIXTURE-SINGLE ARM A = FIXTURE TYPE
- A — ROADWAY LIGHTING FIXTURE-DOUBLE ARM A = FIXTURE TYPE
- A — MULTI-FIXTURE MUSCO FIELD LIGHTING POLE A = POLE IDENTIFICATION NUMBER
- PC — PHOTOCELL CONTROL SWITCH - WALL MOUNTED OUTDOOR
- MUSCO LIGHTING CONTROLLER

POWER SYMBOLS

- 15 or 20A, 125V QUADRUPLEX RECEPTACLE FLUSH WALL MOUNTED @ 18" AFF, UON
- WP — 15 or 20A, 125V DUPLEX RECEPTACLE, GFI TYPE FLUSH WALL MOUNTED @ 18" AFF, UON WP = WEATHER PROOF
- HANDHOLE
- T — TRANSFORMER
- 208/120V PANELBOARD SURFACE MOUNTED
- CONDUIT OR RACEWAY TURNING UP
- CONDUIT OR RACEWAY TURNING DOWN
- CONDUIT WITH CAP
- CONDUIT WITH BUSHING
- SPLICE (JUNCTION) OF PATHS OF CONDUCTORS OR CABLES.

SINGLE LINE SYMBOLS

- 460V 500KVA 208/120V — POWER TRANSFORMER VOLTAGES, WINDINGS AND SIZE AS INDICATED
- ATS 100A 480V,4P — TRANSFER SWITCH ATS = AUTOMATIC TRANSFER MTS = MANUAL TRANSFER POLES AND RATING AS NOTED
- ATS 100A 480V,4P — TRANSFER SWITCH WITH BYPASS ISOLATION ATS = AUTOMATIC TRANSFER MTS = MANUAL TRANSFER POLES AND RATING AS NOTED
- G — GENERATOR
- GROUND CONNECTION
- 100/100 — FUSED SWITCH <SWITCH AMPS>/<TYPE 'FA' FUSE AMPS>
- 100 — UNFUSED SWITCH <SWITCH AMPS>
- 100/90 — CIRCUIT BREAKER - MOLDED CASE TYPE <FRAME AMPS>/<TRIP AMPS>
- 100/90 — CIRCUIT BREAKER - DRAW-OUT TYPE <FRAME AMPS>/<TRIP AMPS>
- 2000/1600 — NETWORK PROTECTOR <FRAME AMPS>/<TRIP AMPS>
- M — DIGITAL MULTIMETER
- XXX/5 3 — CURRENT TRANSFORMER NUMBER AND RATIO AS INDICATED

ABBREVIATIONS

1P	SINGLE POLE
2P	TWO POLE
3P	THREE POLE
A	AMPERE
AF	AMPERE FRAME
AFF	ABOVE FINISHED FLOOR
AIC	AMPERE INTERRUPTING CAPACITY
AT	AMPERE TRIP
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BLDG	BUILDING
C	CONDUIT
°C	DEGREE CELSIUS
CB	CIRCUIT BREAKER
CCTV	CLOSED CIRCUIT TELEVISION
CD	CANDELA
CL	CEILING MOUNT
CKT	CIRCUIT
CONT	CONTINUATION
CU	COPPER
DEG	DEGREE
DIA	DIAMETER
DISC	DISCONNECT
DIV	DIVISION
EA	EACH
EC	ELECTRICAL CONTRACTOR
ELEC	ELECTRICAL
EM	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
°F	DEGREE FAHRENHEIT
FA	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
FAAP	FIRE ALARM ANNUNCIATOR PANEL
FATC	FIRE ALARM TERMINATION CABINET
(FBO)	FURNISHED BY OTHERS
FC	FOOT CANDLE
FDR	FEEDER
FL	FLOOR
FLA	FULL LOAD AMPERES
FLEX	FLEXIBLE
FMC	FLEXIBLE METAL CONDUIT
G	GROUND
GFI	GROUND FAULT INTERRUPTER
GRC	GALVANIZED RIGID CONDUIT
HP	HORSE POWER
HZ	HERTZ
IG	ISOLATED GROUND
IMC	INTERMEDIATE METAL CONDUIT
JB	JUNCTION BOX
KCMIL/MCM	THOUSAND CIRCULAR MILS
KV	KILOVOLT
KVA	KILOVOLT AMPERE
KW	KILOWATT
KWH	KILOWATT HOUR
LTG	LIGHTING
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MI	MINERAL INSULATED, METAL-SHEATHED CABLE
MTD	MOUNTED
N	NEUTRAL
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
P	POLE
PB	PULL BOX
(PBF)	PROVIDED BY FACTORY
Ø	PHASE
PNL	PANEL
PVC	POLYVINYL CHLORIDE CONDUIT
PWR	POWER
REC	RECEPTACLE
RMC	RIGID METAL CONDUIT
SPD	SURGE PROTECTION DEVICE
SPEC	SPECIFICATION
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
SYS	SYSTEMS
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
UPS	UNINTERRUPTED POWER SUPPLY
V	VOLTS
VFD	VARIABLE FREQUENCY DRIVE
WP	WEATHERPROOF
XFMR	TRANSFORMER
Y	WYE
Δ	DELTA

GENERAL NOTES

1. DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF SYSTEMS AND WORK. CONDUIT ROUTING IS SHOWN DIAGRAMMATICALLY AND DOES NOT SHOW ALL BENDS, OFFSETS, DROPS AND RISES OF RUNS. THE CONTRACTOR SHALL ALLOW FOR ROUTING OF CONDUIT TO AVOID OBSTRUCTIONS. COORDINATION WITH EXISTING SERVICES, INCLUDING THOSE OF OTHER TRADES, AS REQUIRED. MAINTAIN HEADROOM AND KEEP OPENINGS AND PASSAGEWAYS CLEAR. THE EXACT LOCATIONS OF DEVICES AND EQUIPMENT ARE SUBJECT TO THE APPROVAL OF THE OWNER, WHO RESERVES THE RIGHT TO MAKE ANY REASONABLE CHANGES IN LOCATION WITHOUT EXTRA COST.

2.INSTALL NEW WORK AND CONNECT TO EXISTING WORK WITH MINIMUM INTERFERENCE TO EXISTING FACILITIES. TEMPORARY SHUTDOWNS OF EXISTING SERVICES SHALL BE PERFORMED AT TIMES NOT TO INTERFERE WITH NORMAL OPERATION OF EXISTING FACILITIES AND ONLY WITH WRITTEN CONSENT OF OWNER. NOTIFICATION MUST BE GIVEN AT LEAST 5 DAYS PRIOR TO SHUT DOWN. ALARM AND EMERGENCY SYSTEMS SHALL NOT BE INTERRUPTED. MAINTAIN CONTINUOUS OPERATION OF FACILITIES AS REQUIRED WITH NECESSARY TEMPORARY CONNECTIONS.

3. SECURE ALL SUPPORTS TO BUILDING STRUCTURE UTILIZING TOGGLE BOLTS (HOLLOW MASONRY), EXPANSION SHIELDS OR INSERTS (CONCRETE AND BRICK), MACHINE SCREWS (METAL), BEAM CLAMPS (FRAMEWORK), WOOD SCREWS (WOOD) OR PAN THRU STRAPS (METAL DECK). NAILS, RAWL PLUGS AND WOOD PLUGS ARE NOT PERMITTED. WHERE REQUIRED BY STRUCTURE, PROVIDE THRU BOLTS AND FISH PLATES. SUPPORT HORIZONTAL RUNS OF METALLIC RACEWAYS NOT MORE THAN 10' APART. SUPPORT RACEWAY RISERS AT EACH FLOOR LEVEL. RUN EXPOSED RACEWAYS PARALLEL WITH OR AT RIGHT ANGLES TO WALLS.

4. PROVIDE TEMPORARY LIGHT AND POWER SYSTEMS AT EARLIEST POSSIBLE DATE WITHIN THE CONSTRUCTION AREAS FOR THE REQUIREMENTS OF ALL TRADES AS HEREIN DESCRIBED. EXTEND SYSTEMS TO NEW CONSTRUCTION AS SOON AS PHYSICALLY POSSIBLE. MAINTAIN SYSTEM DURING WORKING HOURS OF ALL TRADES. OWNER WILL PAY FOR COST OF ENERGY. PROVIDE ALL REQUIRED MAINTENANCE, INCLUDING LAMPS AND SOCKETS.

5. IN LOCATING BOXES AND OUTLETS, ALLOW FOR OVERHEAD PIPES, DUCTS AND MECHANICAL EQUIPMENT, VARIATIONS IN FIREPROOFING AND PLASTERING, WINDOW AND DOOR TRIM, PANELING, HUNG CEILINGS AND THE LIKE. CORRECT ANY INACCURACY RESULTING FROM FAILURE TO DO SO WITHOUT EXPENSE TO OWNER.

6. PASS RACEWAYS OVER WATER, STEAM OR OTHER PIPING WHEN PULL BOXES ARE NOT REQUIRED. NO RACEWAY WITHIN 3" OF STEAM OR HOT WATER PIPES OR APPLIANCES (EXCEPT PIPE CROSSINGS WHERE RACEWAY SHALL BE AT LEAST 1" FROM PIPE COVERS).

7. CUT CONDUIT ENDS SQUARE. REAM SMOOTH. PAINT MALE THREAD OF FIELD THREADED RACEWAYS WITH GRAPHITE BASE PIPE COMPOUND. DRAW UP TIGHT WITH RACEWAY COUPLING.

8. HORIZONTAL OR CROSS RUNS IN PARTITIONS AND WALLS ARE NOT PERMITTED. DO NOT RUN CONDUIT IN PRECAST ROOF SLABS, IN 2" SLABS OR IN TERRAZZO FLOOR FINISH.

9. LEAVE WIRES WITH SUFFICIENT SLACK TO PERMIT MAKING FINAL CONNECTIONS. RACEWAYS OVER 10' LONG IN WHICH WIRING IS NOT INSTALLED: FURNISH NYLON PULL STRING.

10. VERIFY LOCATIONS OF OUTLETS AND SWITCHES IN FINISHED ROOMS WITH ARCHITECTURAL DRAWINGS OF INTERIOR DETAILS AND FINISH. LOCATIONS INDICATED FOR LOCAL WALL SWITCHES ARE SUBJECT TO MODIFICATIONS AT OR NEAR DOORS. COORDINATE WITH ARCHITECT AND INSTALL SWITCH ON SIDE OF DOOR JAMB OPPOSITE HINGE. VERIFY FINAL HINGE LOCATIONS IN FIELD PRIOR TO SWITCH OUTLET INSTALLATION.

11. SET BOXES SQUARE AND TRUE WITH BUILDING FINISH. ERECT WALL AND SWITCH OUTLETS IN ADVANCE OF FURRING AND FIREPROOFING. SECURE TO BUILDING STRUCTURE BY ADJUSTABLE STRAP IRONS.

12. COVERS OF JUNCTION AND PULLBOXES SHALL BE READILY ACCESSIBLE.

13. PROVIDE PULLBOXES WHERE INDICATED, REQUIRED BY CODE AND WHEREVER NECESSARY TO FACILITATE PULLING OF WIRE. COORDINATE PULLBOX LOCATIONS WITH OTHER TRADES. BOXES SHALL BE ACCESSIBLE AND GENERALLY NOT EXPOSED IN FINISHED SPACES. WHERE NECESSARY, REROUTE RACEWAYS OR MAKE OTHER ARRANGEMENTS FOR CONCEALMENT.

14. EMPTY RACEWAY RUNS: PROVIDE PULLBOXES EVERY 100' AND AS INDICATED. COORDINATE LOCATIONS WITH OTHER TRADES. PROVIDE PULL STRING.

15. SUPPORT PANEL, JUNCTION AND PULLBOXES INDEPENDENTLY TO BUILDING STRUCTURE WITH NO WEIGHT BEARING ON RACEWAYS.

16. ALL ACCESS DOOR LOCATIONS SHALL BE REVIEWED BY ARCHITECT PRIOR TO INSTALLATION.

17. CONNECT CONDUIT TO MOTOR TERMINAL BOXES WITH FLEXIBLE CONDUIT (MINIMUM 18" LENGTH AND 50% SLACK). DO NOT TERMINATE IN OR FASTEN RACEWAYS TO MOTOR FOUNDATION.

18. PULL NO THERMOPLASTIC WIRES AT TEMPERATURES LOWER THAN 32°F (0° C). PROVIDE CABLE SUPPORTS FOR WIRE IN RISER CONDUITS AS REQUIRED BY CODE.

19. PROVIDE SEPARATE SYSTEMS AND ENCLOSURES FOR 208/120V AND 480/277V POWER AND CONTROL WIRING AND SEPARATE SYSTEMS FOR EMERGENCY AND NORMAL POWER. PROVIDE BARRIERS BETWEEN EMERGENCY AND NORMAL SYSTEMS IN COMMON BOXES.

20. WIRE COLOR CODING: AS PER CODE. WHERE COLOR-CODED CABLE IS NOT AVAILABLE, CERTIFY IN WRITING AND REQUEST PERMISSION FOR OVERLAP COLOR TAPING OF CONDUCTORS (MINIMUM LENGTH 6") IN ACCESSIBLE LOCATIONS. COLOR CODING, ONCE SELECTED, MUST BE USED CONSISTENTLY FOR THE ENTIRE PROJECT.

21. FIRESTOPPING SHALL BE INSTALLED WHENEVER WIRING OR RACEWAYS CROSS FIRE RATED CONSTRUCTION.

22. PROVIDE EACH 120V, 20A BRANCH CIRCUIT FROM LIGHTING AND APPLIANCE PANELBOARDS WITH A SEPARATE NEUTRAL FOR EACH PHASE CONDUCTOR. NO SHARED NEUTRALS ARE PERMITTED UNLESS OTHERWISE INDICATED. BRANCH CIRCUIT HOME RUN WIRING MAY BE COMBINED UP TO MAXIMUM OF (9) CURRENT CARRYING CONDUCTORS IN A CONDUIT SIZED PER NFPA 70. NEUTRALS SHALL BE INCLUDED AS CURRENT CARRYING CONDUCTORS.

23. THESE ARE STANDARD COVER SHEET ABBREVIATION LISTS AND SYMBOLS. DISREGARD UNUSED ABBREVIATIONS AND SYMBOLS.

24. REFER TO REFLECTED CEILING PLANS FOR LUMINAIRE LOCATONS.

25. ELECTRICAL CONTRACTOR SHALL COORDINATE LOCATION OF LUMINAIRES WITH OTHER TRADES.

26. CONDUIT IN THE GREENHOUSES ARE TO BE RUN IN THE SHADE OF STRUCTURAL.

27. ALL SWITCHES TO BE LABELED WITH PANEL AND CIRCUIT.

General Compliance - Philadelphia,PA

DESIGN AND PERFORMANCE OF COMPONENTS AND METHODS SPECIFIED HEREIN SHALL COMPLY WITH THE LATEST ADOPTED VERSIONS OF THE CITY OF PHILADELPHIA AND THE STATE OF PENNSYLVANIA CODES, AND STANDARDS LISTED BELOW BUT NOT LIMITED TO:

IBC	INTERNATIONAL BUILDING CODE
IECC	INTERNATIONAL ENERGY CONSERVATION CODE
NEC, NFPA 70	NATIONAL ELECTRICAL CODE
NFPA 72	NATIONAL FIRE ALARM AND SIGNALING CODE
NFPA 101	LIFE SAFETY CODE
NFPA 70E	STANDARD FOR ELECTRICAL SAFETY IN THE WORKPLACE
NFPA110	STANDARD FOR EMERGENCY AND STANDBY POWER SYSTEMS
NFPA 780	STANDARD FOR LIGHTING PROTECTION SYSTEMS

GENERAL ELECTRICAL NOTES:

1. THE CONTRACTOR SHALL VISIT THE SITE AND VERIFY ALL DIMENSIONS IN THE FIELD, AND SHALL ADVISE THE ENGINEER AND THE OWNER OF ANY DISCREPANCIES BEFORE PERFORMING THE WORK. IF THE CONTRACTOR OBSERVES ANY DISCREPANCIES TO THE DRAWINGS PRIOR TO THEIR BID THEY SHALL IDENTIFY SAME TO THE OWNER AND ENGINEER IN WRITTEN FORM WITH THEIR BID PROPOSAL UNLESS IDENTIFIED PRIOR TO SUBMITTING THEIR BID.
2. ELECTRICAL EQUIPMENT AND DEVICES INCLUDING ELECTRICAL CHARACTERISTICS SHOWN ON THE ELECTRICAL PLANS SHALL BE CHECKED AND COMPARED AGAINST ALL DRAWINGS AND SPECIFICATIONS OF ALL OTHER TRADES. BID SHALL INCLUDE ELECTRICAL ITEMS SHOWN BUT NOT PROVIDED BY OTHER TRADES. WHERE ELECTRICAL CHARACTERISTICS SHOWN BY OTHER TRADES DEVIATES FROM THOSE SHOWN ON THE ELECTRICAL PLANS, CONTRACTOR IS RESPONSIBLE FOR REQUESTING CLARIFICATION BY ENGINEER PRIOR TO SUBMITTING A BID.
3. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE NFPA 70 (NEC) AND OTHER ADOPTED CODES AND STANDARDS BY THE LOCAL JUSRISTICTION.
4. GROUNDING SHALL BE IN STRICT ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE ARTICLE 250.
5. UNLESS OTHERWISE NOTED, ALL WORK SPECIFIED HEREIN OR NOTED ON DRAWINGS, SHALL BE BY THE CONTRACTOR. THE TERM "PROVIDE" WHENEVER ENCOUNTERED ON DRAWINGS OR IN THESE SPECIFICATIONS, SHALL MEAN "FURNISH AND INSTALL".
6. ALTHOUGH WORK IS NOT SPECIFICALLY SHOWN OR SPECIFIED, PROVIDE SUPPLEMENTARY OR MISCELLANEOUS ITEMS, APPURTURANCES, DEVICES, AND MATERIALS OBVIOUSLY NECESSARY FOR A SOUND, SECURE, AND COMPLETE INSTALLATION.
7. DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF SYSTEMS AND WORK. CONDUIT ROUTING IS SHOWN DIAGRAMMATICALLY AND DOES NOT SHOW ALL BENDS, OFFSETS, DROPS AND RISES OF RUNS. ALLOW IN PRICE FOR ROUTING OF CONDUIT TO AVOID OBSTRUCTIONS. COORDINATE WITH OTHER TRADES, AS REQUIRED. MAINTAIN HEADROOM AND KEEP OPENINGS AND PASSAGEWAYS CLEAR. THE EXACT LOCATIONS OF DEVICES AND EQUIPMENT ARE SUBJECT TO THE APPROVAL OF THE OWNER, WHO RESERVES THE RIGHT TO MAKE ANY REASONABLE CHANGES AT NO EXTRA COST.
8. UPON COMPLETION OF THE WORK, THE ENTIRE WIRING SYSTEM SHALL BE FREE FROM GROUNDS, SHORT CIRCUITS, OPEN CIRCUITS, OVERLOADS AND IMPROPER VOLTAGES.
9. SECURE ALL SUPPORTS TO BUILDING STRUCTURE UTILIZING TOGGLE BOLTS (HOLLOW MASONRY), EXPANSION SHIELDS OR INSERTS (CONCRETE AND BRICK), MACHINE SCREWS (METAL), BEAM CLAMPS (FRAMEWORK), WOOD SCREWS (WOOD) OR PAN THRU STRAPS (METAL DECK). NAILS, RAWL PLUGS AND WOOD PLUGS ARE NOT PERMITTED. WHERE REQUIRED BY STRUCTURE, PROVIDE THRU BOLTS AND FISH PLATES. SUPPORT HORIZONTAL RUNS OF METALLIC RACEWAYS NOT MORE THAN 10' APART. SUPPORT RACEWAY RISERS AT EACH FLOOR LEVEL. RUN EXPOSED RACEWAYS PARALLEL WITH OR AT RIGHT ANGLES TO WALLS. MC AND AC CABLES SHALL BE SECURED EVERY 6' AND WITHIN 12" FROM THE JUNCTION BOX. SUPPORT PANEL, JUNCTION AND PULLBOXES INDEPENDENTLY TO BUILDING STRUCTURE WITH NO WEIGHT BEARING ON RACEWAYS.
10. PROVIDE TEMPORARY LIGHT AND POWER SYSTEMS AT EARLIEST POSSIBLE DATE WITHIN THE CONSTRUCTION AREAS FOR THE REQUIREMENTS OF ALL TRADES AS HEREIN DESCRIBED. EXTEND SYSTEMS TO NEW CONSTRUCTION AS SOON AS PHYSICALLY POSSIBLE. MAINTAIN SYSTEM DURING WORKING HOURS OF ALL TRADES. OWNER WILL PAY FOR COST OF ENERGY. PROVIDE ALL REQUIRED MAINTENANCE, INCLUDING LAMPS AND SOCKETS.
11. IN LOCATING BOXES AND OUTLETS TO AVOID INACCESSIBLITY, ALLOW FOR OVERHEAD PIPES, DUCTS AND MECHANICAL EQUIPMENT, VARIATIONS IN FIREPROOFING AND PLASTERING, WINDOW AND DOOR TRIM, PANELING, HUNG CEILINGS AND THE LIKE. CORRECT ANY INACCURACY RESULTING FROM FAILURE TO DO SO WITHOUT EXPENSE TO OWNER.
12. PASS RACEWAYS OVER WATER, STEAM OR OTHER PIPING WHEN PULL BOXES ARE NOT REQUIRED. NO RACEWAY WITHIN 3" OF STEAM OR HOT WATER PIPES OR APPLIANCES (EXCEPT PIPE CROSSINGS WHERE RACEWAY IS AT LEAST 1" FROM PIPE COVERS AND PARALLEL RUNS WHERE RACEWAY IS AT LEAST 18").
13. CUT CONDUIT ENDS SQUARE. REAM SMOOTH. PAINT MALE THREAD OF FIELD THREADED RACEWAYS WITH GRAPHITE BASE PIPE COMPOUND. DRAW UP TIGHT WITH RACEWAY COUPLING.
14. HORIZONTAL OR CROSS RUNS IN PARTITIONS AND WALLS ARE NOT PERMITTED. DO NOT RUN CONDUIT IN PRECAST ROOF SLABS, IN 2" SLABS OR IN TERRAZZO FLOOR FINISH.
15. ALL INTERIOR WIRING SHALL BE INSTALLED IN ELECTRICAL METALLIC TUBING OR METAL CLAD CABLE AND CONCEALED IN WALLS OR IN HUNG CEILING SPACE. WHERE WIRING CANNOT BE CONCEALED IN FINISHED AREAS, IT SHALL BE RUN EXPOSED IN A NEAT MANNER VIA SURFACE RACEWAY. MINIMUM CONDUIT SIZE SHALL BE 3/4".
16. LEAVE WIRES WITH SUFFICIENT SLACK TO PERMIT MAKING FINAL CONNECTIONS. RACEWAYS OVER 10' LONG IN WHICH WIRING IS NOT INSTALLED: FURNISH NYLON PULL STRING. FOR ANY RACEWAY OVER 25' PROVIDE PULL STRING WITH CONDUIT MEASURING TAPE AND INDICATE DESIGNATION OF THE RACEWAY ON EACH END.
17. VERIFY LOCATIONS OF OUTLETS AND SWITCHES IN FINISHED ROOMS WITH ARCHITECTURAL DRAWINGS OF INTERIOR DETAILS AND FINISH. LOCATIONS INDICATED FOR LOCAL WALL SWITCHES ARE SUBJECT TO MODIFICATIONS AT OR NEAR DOORS. COORDINATE WITH ARCHITECT AND INSTALL SWITCH ON LOCK/ LATCH SIDE OF DOOR. VERIFY FINAL HINGE LOCATIONS IN FIELD PRIOR TO SWITCH OUTLET INSTALLATION.
18. SET BOXES SQUARE AND TRUE WITH BUILDING FINISH. ERECT WALL AND SWITCH OUTLETS IN ADVANCE OF FURRING AND FIREPROOFING. SECURE TO BUILDING STRUCTURE BY ADJUSTABLE STRAP IRONS.
19. COVERS OF JUNCTION AND PULLBOXES SHALL BE ACCESSIBLE.
20. PROVIDE PULLBOXES WHERE INDICATED, REQUIRED BY CODE AND WHEREVER NECESSARY TO FACILITATE PULLING OF WIRE. COORDINATE PULLBOX LOCATIONS WITH OTHER TRADES. BOXES SHALL BE ACCESSIBLE AND GENERALLY NOT EXPOSED IN FINISHED SPACES. WHERE NECESSARY, REROUTE RACEWAYS OR MAKE OTHER ARRANGEMENTS FOR CONCEALMENT.
21. EMPTY RACEWAY RUNS: PROVIDE PULLBOXES EVERY 100' AND AS INDICATED. COORDINATE LOCATIONS WITH OTHER TRADES. THE PULLBOX SHALL BE INSTALLED EVERY 270° OF TOTAL CONDUIT TURNS.
22. ALL ACCESS DOOR LOCATIONS SHALL BE REVIEWED BY ARCHITECT PRIOR TO INSTALLATION.
23. CONNECT CONDUIT TO MOTOR TERMINAL BOXES WITH FLEXIBLE CONDUIT OF MINIMUM 18", MAXIMUM 6' LENGTH. (PROVIDE SUFFICIENT WIRING SLACK AT EACH END OF TERMINATION). DO NOT TERMINATE IN OR FASTEN RACEWAYS TO MOTOR FOUNDATION.
24. ALL CUTTING AND PATCHING REQUIRED FOR THE ELECTRICAL WORK SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.
25. PROVIDE 2 #14AWG WIRING FOR INDICATING PILOT LIGHT FROM PILOT LIGHT IN CONTROLLER TO LOAD SIDE OF DISCONNECT SWITCH. RUN WIRES IN BRANCH CIRCUIT CONDUIT AND INCREASE CONDUIT SIZE AS REQUIRED.
26. PULL NO THERMOPLASTIC WIRES AT AMBIENT TEMPERATURES LOWER THAN 32°F (0°C). PROVIDE CABLE SUPPORTS FOR WIRE IN RISER CONDUITS AS REQUIRED BY CODE.
27. PROVIDE SEPARATE SYSTEMS AND ENCLOSURES FOR 208/120V AND 480/277V POWER AND CONTROL WIRING AND SEPARATE SYSTEMS FOR EMERGENCY AND NORMAL POWER. THE EMERGENCY AND NORMAL SYSTEMS SHALL NOT BE INSTALLED IN THE SAME RACEWAYS, ENCLOSURES, JUNCTION BOXES, PULLBOXES, TERMINATION CABINETS, EXCEPT IN EQUIPMENT ENCLOSURES DESIGNED TO ACCEPT BOTH SYSTEMS SUCH AS AUTOMATIC TRANSFER SWITCH OR EMERGENCY LIGHTING.
28. ALL PENETRATIONS THROUGH CONCRETE STRUCTURAL FLOORING SHALL BE SCANNED WITH GROUND PENETRATING RADAR (GPR). SUBMIT FINDINGS TO ENGINEER FOR APPROVAL PRIOR TO PENETRATION.
29. FEEDER AND BRANCH CIRCUIT WIRING SHALL BE COPPER, 600 VOLT CONDUCTOR INSULATION TYPE THHN. THE MINIMUM SIZE 600 VOLT CONDUCTOR SHALL BE #12 AWG FOR POWER AND LIGHTING BRANCH CIRCUIT WIRING. THE MINIMUM SIZE CONDUIT SHALL BE 3/4". ALL CIRCUIT WIRING SIZES #10 AWG OR LARGER SHALL BE STRANDED AND SMALLER CONDUCTORS SHALL BE SOLID. BRANCH CIRCUITS 100 TO 200 FEET IN LENGTH UTILIZING #12 AWG WIRE SHALL BE INCREASED TO #10 AWG TO THE CENTER OF THE CIRCUIT LOAD AND #12 WIRE TO THE REMAINING DEVICES BEYOND THE LOAD CENTER. ADJUST CABLING SIZES REQUIRED TO MAINTAIN VOLTAGE DROP.
30. WHERE CONDUIT RUNS CROSS STRUCTURAL EXPANSION JOINTS, LIQUID-TIGHT FLEXIBLE METAL CONDUIT SHALL BE USED TO TRANSITION CONDUIT SYSTEM FROM ONE STRUCTURAL SECTION TO THE OTHER.
31. VERIFY THAT ANY ELECTRICAL DEVICE OR PRODUCT WHICH IS TO BE RELOCATED OR REUSED IS IN PROPER WORKING CONDITION IN ACCORDANCE WITH INSTRUCTIONS INCLUDED IN ITS LISTING OR LABELING. ANY DEVICE OR PRODUCT FOUND TO BE DEFECTIVE OR DAMAGED SHALL BE REPLACED WITH NEW.
32. LABEL WITH PERMANENT MARKER ALL JUNCTION BOXES AND RECEPTACLE OUTLET BOXES WITH CIRCUIT NUMBER AND PANEL IDENTIFICATION. ALL FINISHED AREA OUTLET PLATES SHALL BE LABELED WITH LABEL TAPE.
33. WIRE COLOR CODING: AS PER CODE. WHERE COLOR-CODED CABLE IS NOT AVAILABLE, CERTIFY IN WRITING AND REQUEST PERMISSION FOR OVERLAP COLOR TAPING OF CONDUCTORS (MINIMUM LENGTH 6") IN ALL ACCESSIBLE LOCATIONS. COLOR CODING, ONCE SELECTED, MUST BE USED CONSISTENTLY FOR THE ENTIRE PROJECT. THE METHOD OF COLOR CODE IDENTIFICATION SHALL BE DOCUMENTED IN A MANNER THAT IS READILY AVAILABLE OR PERMANENTLY POSTED AT EACH BRANCH CIRCUIT PANELBOARD.

    480/277V - WYE SYSTEM:
    PHASES A = BROWN
    B = ORANGE
    C = YELLOW
    NEUTRAL = GRAY
    GROUNDING = GREEN WITH YELLOW STRIPES

    208/120V - WYE SYSTEM:
    PHASES A = BLACK
    B = RED
    C = BLUE
    NEUTRAL = WHITE
    GROUNDING = GREEN

    240/120V - DELTA SYSTEM WITH HIGH LEG:
    PHASES A = BLACK
    B (HIGH LEG) = ORANGE
    C = RED
    NEUTRAL = WHITE
    GROUNDING = GREEN

    240/120 V SINGLE PHASE:
    PHASES A = BLACK
    B = RED
    NEUTRAL = WHITE
    GROUNDING = GREEN

    DC SYSTEM:
    POSITIVE = RED
    MID-WIRE = WHITE
    NEGATIVE = BLACK

34. REPORT INCONSISTENCIES TO THE ENGINEER IN FORM OF "RFI" REQUEST FOR INFORMATION BEFORE ANY INACCURATE WORK IS EXECUTED.
35. PROVIDE PROTECTIVE COVERINGS/WIRE GUARDS FOR ALL DEVICES AND EQUIPMENT IN GYMNASIUM.
36. OBTAIN ALL TESTS AND APPROVAL CERTIFICATIONS AS REQUIRED.
37. REMOVE ALL ELECTRICAL OUTLETS, SWITCHES AND OTHER DEVICES, COMPLETE WITH ASSOCIATED WIRING AND CONDUITS BACK TO NEAREST JUNCTION BOX THAT IS TO REMAIN OR TO PANELBOARD. WHERE THE REMOVAL OF THESE ITEMS DISRUPTS EXISTING WIRING TO REMAIN, INSTALL JUNCTION BOXES AND EXTEND FEEDER WITH MATCHING CABLE TYPE, CONDUCTOR AMPACITY AND CONDUIT SIZES.
38. WHERE IT IS IMPRACTICAL TO REMOVE RACEWAY BACK TO SOURCE, DISCONNECT WIRING AT LOAD (EQUIPMENT) AND AT LINE SIDE, CUT AND CAP, FLUSH TO SURFACE. REMOVE CONDUCTORS FROM EXISTING RACEWAYS TO BE REWIRED. CLEAN RACEWAY AS REQUIRED PRIOR TO REWIRING.
39. EXISTING PANEL DIRECTORIES AFFECTED BY THE ALTERATION WORK SHALL BE MODIFIED TO REFLECT THE BRANCH CIRCUIT WIRING CHANGES.

GENERAL DEMOLITION NOTES:

1. INCLUDE IN BID ALL COSTS ASSOCIATED WITH REMOVAL AND RELOCATION OF WORK AS DESCRIBED IN THE SPECIFICATIONS WITH ALLOWANCES FOR EXPECTED OR UNFORESEEN DIFFICULTIES WHEN CONCEALED WORK HAS BEEN OPENED. NO CLAIMS FOR ADDITIONAL WORK ASSOCIATED WITH DEMOLITION WILL BE ACCEPTED, EXCEPT IN CERTAIN CASES CONSIDERED JUSTIFIABLE BY THE ARCHITECT.
2. REMOVE AND/OR RELOCATE ALL EXISTING WORK WHICH INTERFERES WITH THE NEW ARCHITECTURAL AND ELECTRICAL LAYOUTS IN FULL COORDINATION WITH THE ARCHITECT'S DEMOLITION PLANS. ALL SYSTEMS WHICH ARE NO LONGER REQUIRED TO FUNCTION SHALL BE DE-ENERGIZED AND DISCONNECTED AT THE SOURCE OF POWER SUPPLY.
3. DEMOLITION AND REMOVAL WORK SHALL BE PERFORMED IN A NEAT AND WORKMANLIKE MANNER. PATCH, REPAIR OR OTHERWISE RESTORE ANY DAMAGED INTERIOR OR EXTERIOR BUILDING SURFACE TO ITS ORIGINAL CONDITION. ALL PATCHING SHALL BE OF THE SAME MATERIALS, WORKMANSHIP, AND FINISH, AND SHALL ACCURATELY MATCH ALL SURROUNDING WORK.
4. ALL EXISTING SYSTEMS WHICH BECOME EXPOSED DURING THE ALTERATION WORK SHALL BE REMOVED AND REROUTED CONCEALED BEHIND FINISHED SURFACES.
5. ALL UNUSED OUTLET BOXES OR CAPPED FLOOR OUTLETS SHALL BE PROVIDED WITH MATCHING BLANK COVERS.
6. NOTIFY THE OWNER AT THE APPROPRIATE TIME OF THE PROJECTED DEMOLITION AND PHASING SCHEDULE SO THAT REMOVAL OR RELOCATION OF AFFECTED UTILITIES MAY BE CARRIED OUT IN COORDINATION WITH THE PROJECT REQUIREMENTS. FOLLOW CLOSELY THE ARCHITECT'S DEMOLITION AND PHASING SCHEDULE AND PROCEED IN THE SPECIFIED SEQUENCE.
7. ALL EXISTING MATERIAL AND EQUIPMENT IN USABLE CONDITION, WHICH IS TO BE REMOVED UNDER THIS CONTRACT, SHALL REMAIN THE PROPERTY OF THE OWNER OR SHALL BE DISPOSED OF IN A LEGAL MANNER BY THE CONTRACTOR, AS DIRECTED BY THE OWNER. ITEMS OF SALVAGE SHALL BE CAREFULLY REMOVED AND STORED AT LOCATIONS DIRECTED BY THE OWNER.
8. INSTALL NEW WORK AND CONNECT TO EXISTING WORK WITH MINIMUM INTERFERENCE TO EXISTING FACILITIES. TEMPORARY SHUTDOWNS OF EXISTING SERVICES SHALL BE PERFORMED AT NO ADDITIONAL CHARGES, AT TIMES NOT TO INTERFERE WITH NORMAL OPERATION OF EXISTING FACILITIES AND ONLY WITH WRITTEN CONSENT OF OWNER. NOTIFICATION MUST BE GIVEN AT LEAST 5 DAYS PRIOR TO SHUT DOWN. ALARM AND EMERGENCY SYSTEMS SHALL NOT BE INTERRUPTED. MAINTAIN CONTINUOUS OPERATION OF EXISTING FACILITIES AS REQUIRED WITH NECESSARY TEMPORARY CONNECTIONS BETWEEN NEW AND EXISTING WORK. CONNECT NEW WORK TO EXISTING WORK IN NEAT AND ACCEPTABLE MANNER. RESTORE EXISTING DISTURBED WORK TO ORIGINAL CONDITION, INCLUDING MAINTENANCE OF WIRING CONTINUITY AS REQUIRED.
9. ARRANGE TO WORK CONTINUOUSLY, INCLUDING OVERTIME, IF REQUIRED, TO ASSURE THAT SYSTEMS WILL BE SHUT DOWN ONLY DURING THE TIME ACTUALLY REQUIRED TO MAKE THE NECESSARY CONNECTIONS TO THE EXISTING SYSTEMS.
10. PATCH AND PAINTING OF EXISTING WALLS TO REMAIN WHICH ARE AFFECTED BY ELECTRICAL DEMOLITION, ARE TO BE COMPLETED UNDER GENERAL CONSTRUCTION SPECIFICATION.
11. SURVEY AND RECORD THE CONDITION OF EXISTING FACILITIES TO REMAIN IN PLACE THAT MAY BE AFFECTED BY DEMOLITION OPERATIONS. THE CONTRACTOR SHALL VERIFY ALL EXISTING SOURCES OF POWER TO EQUIPMENT PRIOR TO FINAL REMOVAL.
12. EXISTING WORK THAT IS TO BE REMOVED SHALL BE LEGALLY DISPOSED OF. ALL WORK TO BE DISPOSED OF SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE PROMPTLY REMOVED FROM THE SITE.
13. IF WORK REQUIRES THE INTERRUPTION FIRE ALARM AND FIRE PROTECTION SYSTEMS, ARRANGE WITH OWNER TO CONDUCT A FIRE WATCH WHILE THESE SYSTEMS ARE OUT OF SERVICE. CONSULT WITH FIRE MARSHALL PRIOR TO FIRE WATCH.

PACKAGE 2 - IFB
NOT FOR CONSTRUCTION
06/02/2023

REVISIONS

ISSUE	DATE	DESCRIPTION
	06/02/23	ISSUE FOR BID
10/19/2023	1	ADDENDUM #1

REVIEWED BY:

PROJECT COORDINATOR

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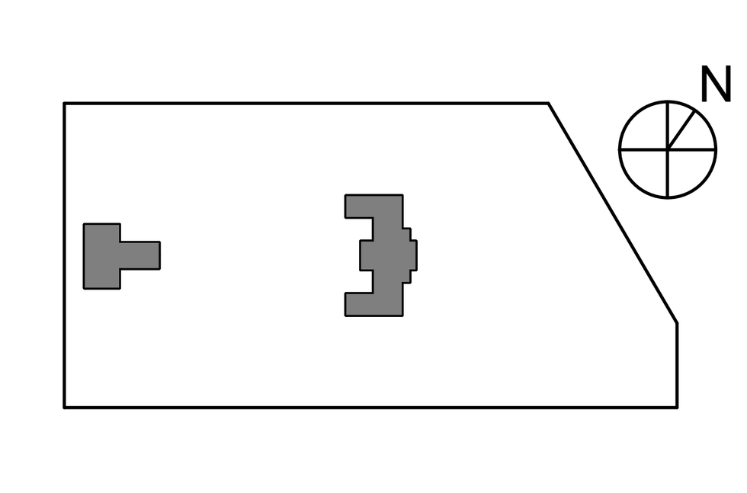
CITY OF PHILADELPHIA
REBUILD / PHILADELPHIA PARKS AND RECREATION
1515 ARCH STREET
5TH FLOOR, ONE PARKWAY BUILDING
PHILADELPHIA PENNSYLVANIA

PROJECT TITLE
KINGSESSING RECREATION CENTER BUILDING AND SITE IMPROVEMENTS - PACKAGE 2

KEY PLAN



DRAWING TITLE
ELECTRICAL INDEX SHEET

PROJECT NO.	KLMLX21003
DATE	10/05/2023
SCALE	AS NOTED
DRAWN BY:	AJB
CHECKED BY:	JPR
DRAWING NO.	EL001-R.2

NOTE: ALL DIMENSIONS AND CONDITIONS SHALL BE VERIFIED BY THE CONTRACTOR AT THE SITE BEFORE PROCEEDING WITH THE WORK.

SPECIFICATIONS

1. GENERAL

   A. THE "GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION," AIA DOCUMENT A201, LATEST EDITION, AND THESE SPECIFICATIONS AS APPLICABLE ARE PART OF THIS CONTRACT.

   B. ALL APPLICABLE CODES, LAWS AND REGULATIONS GOVERNING OR RELATING TO ANY PORTION OF THIS WORK ARE HEREBY INCORPORATED INTO AND MADE A PART OF THESE SPECIFICATIONS, AND THEIR PROVISIONS SHALL BE CARRIED OUT BY THE CONTRACTOR WHO SHALL INFORM THE OWNER, PRIOR TO SUBMITTING A PROPOSAL, OF ANY WORK OR MATERIAL WHICH VIOLATES ANY OF THE ABOVE LAWS AND REGULATIONS. ANY WORK DONE BY THE CONTRACTOR CAUSING SUCH VIOLATION SHALL BE CORRECTED BY THE CONTRACTOR.

   C. INVESTIGATE EACH SPACE THROUGH WHICH EQUIPMENT MUST BE MOVED. WHERE NECESSARY, EQUIPMENT SHALL BE SHIPPED FROM MANUFACTURER IN SECTIONS OF SIZE SUITABLE FOR MOVING THROUGH AVAILABLE RESTRICTIVE SPACES. ASCERTAIN FROM BUILDING OWNER AND TENANT AT WHAT TIMES OF DAY EQUIPMENT MAY BE MOVED THROUGH ALL AREAS.

   D. INSTALL WORK SO AS TO BE READILY ACCESSIBLE FOR OPERATION, MAINTENANCE AND REPAIR. MINOR DEVIATIONS FROM DRAWINGS MAY BE MADE TO ACCOMPLISH THIS, BUT CHANGES, WHICH INVOLVE EXTRA COST, SHALL NOT BE MADE WITHOUT APPROVAL.

   E. THE CONTRACTOR SHALL KEEP ALL EQUIPMENT AND MATERIALS, AND ALL PARTS OF THE BUILDING, EXTERIOR SPACES AND ADJACENT STREETS, SIDEWALKS AND PAVEMENTS, FREE FROM MATERIAL AND DEBRIS RESULTING FROM THE EXECUTION OF THIS WORK. EXCESS MATERIALS WILL NOT BE PERMITTED TO ACCUMULATE EITHER ON THE INTERIOR OR THE EXTERIOR.

   F. PROVIDE ALL NECESSARY FLASHING AND COUNTERFLASHING TO MAINTAIN THE WATERPROOFING INTEGRITY OF THE BUILDING AS REQUIRED BY THE INSTALLATION OR REMOVAL OF CONDUIT AND EQUIPMENT. PROVIDE EQUIPMENT CURBS AS REQUIRED.

   G. THE CONTRACTOR'S PROPOSAL FOR ALL WORK SHALL BE PREDICATED ON THE PERFORMANCE OF THE WORK DURING REGULAR WORKING HOURS. WHEN SO DIRECTED, HOWEVER, THE CONTRACTOR SHALL INSTALL WORK DURING OVERTIME HOURS AND THE ADDITIONAL COST TO BE CHARGED THEREFORE SHALL BE ONLY THE "PREMIUM" PORTION OF THE WAGES PAID.

   H. UNLESS OTHERWISE SPECIFICALLY NOTED OR SPECIFIED, INCLUDE ALL CUTTING AND PATCHING OF EXISTING FLOORS, WALLS, PARTITIONS AND OTHER MATERIALS IN THE EXISTING BUILDING. THE CONTRACTOR SHALL RESTORE THESE AREAS TO ORIGINAL CONDITION.

   I. ALL MATERIAL AND EQUIPMENT SHALL BE NEW UNLESS OTHERWISE NOTED AND SHALL BE IN ACCORDANCE WITH BUILDING STANDARDS.

   J. SUBMISSION OF A PROPOSAL SHALL BE CONSTRUED AS EVIDENCE THAT A CAREFUL EXAMINATION OF THE PORTIONS OF THE EXISTING BUILDING, EQUIPMENT, ETC., WHICH AFFECT THIS WORK, AND THE ACCESS TO SUCH SPACES, HAS BEEN MADE AND THAT THE CONTRACTOR IS FAMILIAR WITH EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT THE EXECUTION OF THE WORK. THE CONTRACTOR IS RESPONSIBLE TO INDICATE ANY DISCREPANCIES BETWEEN THE CONTRACT DRAWINGS AND ACTUAL FIELD CONDITIONS PRIOR TO SUBMITTAL OF BID. SUBMISSION OF A PROPOSAL WILL BE CONSTRUED AS EVIDENCE THAT SUCH AN EXAMINATION HAS BEEN MADE. LATER CLAIMS SHALL NOT BE MADE FOR LABOR; EQUIPMENT OR MATERIALS REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORESEEN DURING SUCH AN EXAMINATION. THE ON-SITE INSPECTION SHALL VERIFY EXISTING CONDUIT (SIZES, CLEARANCES, ETC) AND CONDITIONS.

   K. INSURANCE: IN ACCORDANCE WITH BUILDING REQUIREMENTS AND SHALL INCLUDE A HOLD HARMLESS CLAUSE FOR OWNER AND ENGINEER.

   L. ANY AND ALL EXPENSES INCURRED BY THESE EQUIPMENT MANUFACTURERS' REPRESENTATIVES RELATED TO THIS PROJECT, SHALL BE BORNE BY THE ELECTRICAL CONTRACTOR.

   M. THE FINAL ACCEPTANCE SHALL BE MADE AFTER THE CONTRACTOR HAS ADJUSTED HIS EQUIPMENT, TESTED THE VARIOUS SYSTEMS, DEMONSTRATED THAT IT FULFILLS THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS AND HAS FURNISHED ALL THE REQUIRED CERTIFICATES OF INSPECTION AND APPROVAL

2. SCOPE OF WORK

   A. SCOPE OF WORK SHALL CONSIST OF PROVIDING LABOR, MATERIALS, EQUIPMENT, SERVICES AND FEES NECESSARY FOR COMPLETE AND SAFE INSTALLATION IN CONFORMITY WITH THE NATIONAL ELECTRICAL CODE (NEC) AND ALL OTHER APPLICABLE INDUSTRY, NATIONAL AND LOCAL CODES AND AUTHORITIES HAVING JURISDICTION, AS INDICATED ON DRAWINGS AND HEREIN SPECIFIED.

   B. ALL DRAWINGS, PLANS, DETAILS, SPECIFICATIONS AND SPECIFICATION ADDENDA ARE MADE PART OF THIS CONTRACT AND SHALL APPLY TO ALL WORK UNDER THE CONTRACT UNLESS OTHERWISE AMENDED, MODIFIED, SUPPLEMENTED OR SPECIFIED HEREIN.

   C. THE CONTRACTOR SHALL FURNISH A WRITTEN GUARANTEE TO REPLACE OR REPAIR PROMPTLY AND ASSUME RESPONSIBILITY FOR ALL EXPENSES INCURRED FOR ANY WORKMANSHIP AND EQUIPMENT IN WHICH DEFECTS DEVELOP WITHIN ONE YEAR FROM THE DATE OF FINAL CERTIFICATE FOR PAYMENT AND/OR FROM DATE OR ACTUAL USE OF EQUIPMENT OR OCCUPANCY OF SPACES BY OWNER INCLUDED UNDER THE VARIOUS PARTS OF THE WORK, WHICHEVER DATE IS EARLIER. THIS WORK SHALL BE DONE AS DIRECTED BY THE OWNER. THIS GUARANTEE SHALL ALSO PROVIDE THAT WHERE DEFECTS OCCUR, THE CONTRACTOR WILL ASSUME RESPONSIBILITY FOR ALL EXPENSES INCURRED IN REPAIRING AND REPLACING WORK OF OTHER TRADES AFFECTED BY DEFECTS, REPAIRS OR REPLACEMENTS IN EQUIPMENT SUPPLIED BY THE CONTRACTOR.

   D. THE CONTRACTOR SHALL ARRANGE FOR INSPECTION AND TESTS OF ANY OR ALL PARTS OF THE WORK IF SO REQUIRED BY AUTHORITIES AND PAY ALL CHARGES FOR SAME. THE CONTRACTOR SHALL PAY ALL COSTS FOR, AND FURNISH TO THE OWNER BEFORE FINAL BILLING, ALL CERTIFICATES NECESSARY AS EVIDENCE THAT THE WORK INSTALLED CONFORMS WITH ALL REGULATIONS WHERE THEY APPLY TO THIS WORK.

3. SHOP DRAWINGS

   A. PRIOR TO THE INSTALLATION OF ANY WORK AND PROCUREMENT OF EQUIPMENT, CONTRACTOR SHALL PROVIDE COMPLETE SETS OF COORDINATED SHOP DRAWINGS OF ALL NEW AND EXISTING EQUIPMENT, INDICATING CAPACITY, DIMENSIONS AND SEQUENCE OF OPERATION FOR WRITTEN APPROVAL BY THE ARCHITECT AND ENGINEER.

   B. INDICATE ON EACH SHOP DRAWINGS SUBMITTED:

      a. PROJECT NAME AND LOCATION
      b. NAME OF ARCHITECT AND ENGINEER
      c. ITEM IDENTIFICATION
      d. APPROVAL STAMP OF PRIME CONTRACTOR

   C. SUBMIT SHOP DRAWINGS FOR THE FOLLOWING:

      a. CIRCUIT BREAKERS
      b. PANELBOARDS (INCLUDING DIMENSIONS, SCHEDULES, AND CATALOG CUTS)
      c. RACEWAYS
      d. WIRE AND CABLE
      e. INSERTION RECEPTACLES
      f. MOMENTARY CONTACT SWITCHES
      g. TIME SWITCHES
      h. SURFACE METAL RACEWAY
      i. LIGHTING FIXTURES
      j. GROUND RODS
      k. HANDHOLES/PULL BOXES

4. AS-BUILT DRAWINGS AND EQUIPMENT OPERATIONAL INSTRUCTIONS

   A. UPON COMPLETION AND ACCEPTANCE OF WORK, CONTRACTOR SHALL FURNISH WRITTEN INSTRUCTIONS AND EQUIPMENT MANUALS AND DEMONSTRATE TO THE OWNER THE PROPER OPERATION AND MAINTENANCE OF ALL EQUIPMENT AND APPARATUS FURNISHED UNDER THIS CONTRACT.

   B. THESE INSTRUCTIONS SHALL BE TYPED ON 8.5"x11" PAPER AND BOUND IN THREE RING BINDERS WITH CLEAR ACETATE COVERS. CONTRACTOR SHALL GIVE THREE COPIES OF THE INSTRUCTIONS TO THE OWNER AND ONE COPY TO THE ENGINEER.

   C. THE INSTRUCTION BOOKLET SHALL BEAR THE NAME, ADDRESS AND TELEPHONE NUMBER OF THE PROJECT, ARCHITECT AND ENGINEER.

   D. REPRODUCIBLE "AS-BUILT" DRAWINGS SHALL BE PREPARED IN THE FORM OF RED LINE MARKUPS.

5. GENERAL PROVISIONS FOR ELECTRICAL WORK

   A. SPECIFICATIONS ARE OF SIMPLIFIED FORM AND INCLUDE INCOMPLETE SENTENCES. WORDS OR PHRASES SUCH AS "THE CONTRACTOR SHALL," "SHALL BE," "FURNISH," "PROVIDE," "A," "THE," AND "ALL" HAVE BEEN OMITTED FOR BREVITY.

   B. DEFINITIONS

      a. "PROVIDE": TO SUPPLY, INSTALL AND CONNECT UP COMPLETE AND READY FOR SAFE AND REGULAR OPERATION THE PARTICULAR WORK REFERRED TO UNLESS SPECIFICALLY OTHERWISE NOTED.

      b. "INSTALL": TO ERECT, MOUNT AND CONNECT COMPLETE WITH RELATED ACCESSORIES.

      c. "FURNISH" OR "SUPPLY": TO PURCHASE, PROCURE, ACQUIRE AND DELIVER COMPLETE WITH RELATED ACCESSORIES.

      d. "WORK": LABOR, MATERIALS, EQUIPMENT, APPARATUS, CONTROLS, ACCESSORIES AND OTHER ITEMS REQUIRED FOR PROPER AND COMPLETE INSTALLATION.

      e. "WIRING": RACEWAY, FITTINGS, WIRE, BOXES AND RELATED ITEMS.

      f. "CONCEALED": EMBEDDED IN MASONRY OR OTHER CONSTRUCTION, INSTALLED IN FURRED SPACES, WITHIN DOUBLE PARTITIONS OR HUNG CEILINGS, IN TRENCHES, IN CRAWL SPACES, OR IN ENCLOSURES.

      g. "EXPOSED": NOT INSTALLED UNDERGROUND OR "CONCEALED" AS DEFINED ABOVE.

      h. "SIMILAR" OR "EQUAL": EQUAL IN MATERIALS, WEIGHT, SIZE, DESIGN AND EFFICIENCY OF SPECIFIED PRODUCT.

   C. GENERAL

      a. PANEL JUNCTION AND PULL BOXES SHALL BE LOCATED CLEAR OF OTHER TRADES. SUPPORT BOXES FROM BUILDING STRUCTURE, INDEPENDENT OF CONDUIT. PROVIDE FLOOR-TO-CEILING CHANNELS FOR MOUNTING ON DRYWALL AND LIGHTWEIGHT CONSTRUCTION. OUTLET BOXES FOR FIXTURES RECESSED IN HUNG CEILINGS SHALL BE ACCESSIBLE THROUGH OPENING CREATED BY REMOVAL OF FIXTURE. SECURE TO BLACK IRON SUPPORT. MOTOR TERMINAL BOXES: COORDINATE WITH MOTOR BRANCH CIRCUIT AND WIRING; ADD BOX VOLUME WHERE REQUIRED.

      b. THE CONTRACTOR SHALL VERIFY LOCATIONS OF ALL EQUIPMENT WITH ARCHITECTURAL DRAWINGS. IN CENTERING OUTLETS AND LOCATING BOXES AND OUTLETS, ALLOW FOR OVERHEAD PIPES, DUCTS, AND MECHANICAL EQUIPMENT, VARIATIONS IN FIRE PROOFING AND PLASTERING, WINDOW AND DOOR TRIM, PANELING, HUNG CEILINGS, AND THE LIKE, AND CORRECT ANY INACCURACY RESULTING FROM FAILURE TO DO SO WITHOUT EXPENSES TO THE OWNER

      c. THE CONTRACTOR SHALL FURNISH AND INSTALL WIRING FOR EQUIPMENT FURNISHED BY OTHERS, AS SHOWN ON DRAWINGS. COORDINATE WITH ALL OTHER TRADES OR DETAILS FOR INSTALLATION. THE TERM "WIRING" AS USED HERE-IN, INCLUDES, BUT IS NOT LIMITED TO, FURNISHING AND INSTALLING CONDUIT, WIRE, JUNCTION BOXES, DISCONNECTS AND MAKING CONNECTIONS. CONTRACTOR SHALL CHECK ARCHITECTURAL, MECHANICAL, AND PLUMBING DRAWINGS AND SPECIFICATIONS FOR EQUIPMENT TO BE INSTALLED BY OTHERS. CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER WIRING AND NECESSARY ELECTRICAL ADJUSTMENTS TO EQUIPMENT TO CONFORM TO SPECIFIED REQUIREMENTS OF THE EQUIPMENT.

   D. QUALITY ASSURANCE

      a. QUALITY AND GAUGE OF MATERIALS: NEW, BEST OF THEIR RESPECTIVE KINDS, FREE FROM DEFECTS AND LISTED BY UNDERWRITERS LABORATORIES, INC., OR OTHER NATIONALLY APPROVED TESTING AGENCY AND BEARING THEIR LABEL. MATERIALS AND EQUIPMENT OF SIMILAR APPLICATION SHALL BE OF SAME MANUFACTURER, EXCEPT AS NOTED.

      b. ON COMPLETION OF THE WORK, THE ENTIRE WIRING SYSTEM SHALL BE ENTIRELY FREE FROM GROUNDS, SHORT CIRCUITS, OPENS, OVERLOADS AND IMPROPER VOLTAGES AND THOROUGH TEST SHALL BE MADE. FURNISH ALL LABOR AND MATERIALS AND INSTRUMENTS.

      c. GUARANTEE: ALL MATERIALS AND WORKMANSHIP SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM DATE OF ACCEPTANCE.

   E. PRODUCT DELIVERY, STORAGE AND HANDLING

      a. MOVING OF EQUIPMENT: WHERE NECESSARY, SHIP IN CARTED SECTIONS OF SIZE TO PERMIT PASSING THROUGH AVAILABLE SPACES.

   F. MATERIALS

      a. NAMEPLATES: PROVIDE BLACK LAMICOID SHEET WITH 3/4" WHITE LETTERING, FASTENED WITH EPOXY CEMENT FOR EACH DISCONNECT SWITCH, CIRCUIT BREAKER, PANEL, CABINET, TRANSFORMER, ENCLOSURE, MOTOR CONTROLLER AND THE LIKE. NAMEPLATES SHALL DESCRIBE THE NAME AND NUMBER OF EACH COMPONENT.

      b. CABLE TAGS: TAG EACH CONDUCTOR PASSING THROUGH SPLICE OR PULLBOX WITH A WHITE LINEN TAG, INDICATING POINT OF ORIGIN AND TERMINATION OF THE CIRCUIT.

      c. INSERTS AND SUPPORTS

         - INSERTS: STEEL, SLOTTED TYPE, FACTORY PAINTED.

            1. SINGLE ROD: SIMILAR TO GRINNELL FIG. 281.
            2. MULTI-ROD: SIMILAR TO FEE AND MASON SERIES 9000 WITH END CAPS AND CLOSURE STRIPS.
            3. CLIP FORM NAILS FLUSH WITH INSERTS.
            4. MAXIMUM LOADING 75% OF RATING.

         - SUPPORTS FROM BUILDING CONSTRUCTION: INSERTS, BEAM CLAMPS, STEEL FISHPLATES (IN CONCRETE FILL ONLY), CANTILEVER BRACKETS OR OTHER MEANS. SUBMIT FOR REVIEW.

         - GROUPED LINES AND SERVICES: TRAPEZE HANGERS OF BOLTED ANGLES OR CHANNELS.

         - WHERE BUILDING CONSTRUCTION IS INADEQUATE: PROVIDE ADDITIONAL FRAMING. SUBMIT FOR REVIEW.

   G. PAINT SHALL BE THE BEST GRADE FOR ITS PURPOSE. DELIVER IN ORIGINAL SEALED CONTAINERS AND APPLY IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. COLORS SHALL BE AS SELECTED BY ARCHITECT OR ENGINEER. UTILIZE GALVANIZED IRON PRIMER ON PANEL AND PULL BOXES, AFTER FABRICATION. UTILIZE HOT DIPPED GALVANIZED OR DIPPED IN ZINC CHROMATE FOR: OUTLET BOXES, JUNCTION BOXES, CONDUIT HANGERS, RODS, INSERTS AND SUPPORTS. RED LEAD OR ZINC CHROMATE WITH FINISH TO MATCH SURROUNDINGS SHALL BE USED FOR MARRED SURFACES OF STEEL EQUIPMENT AND RACEWAYS. A FIELD-APPLIED ZINC CHROMATE PRIME COAT SHALL BE UTILIZED FOR STEEL OR IRONWORK.

   H. BRUSH AND CLEAN WORK PRIOR TO CONCEALING, PAINTING AND ACCEPTANCE. PAINTED EXPOSED WORK SOILED OR DAMAGED; CLEAN AND REPAIR TO MATCH ADJOINING WORK BEFORE FINAL ACCEPTANCE. REMOVE DEBRIS FROM INSIDE AND OUTSIDE OF MATERIAL AND EQUIPMENT.

6. LOW-VOLTAGE DISTRIBUTION EQUIPMENT

   A. ALL EQUIPMENT SHALL CONFORM TO NEMA, ANSI AND IEEE STANDARDS.

   B. DISCONNECT SWITCHES SHALL BE FUSED OR NON-FUSED AS NOTED. VOLTAGE SHALL BE AS REQUIRED. SWITCHES SHALL BE HEAVY DUTY, EXCEPT AS NOTED, AND HORSEPOWER RATED FOR MOTOR LOADS. TOGGLE TYPE SWITCHES SHALL BE NON-FUSED, LOAD BREAK, HAVING MAXIMUM RATINGS OF 20A AT 600V AND 30A AT 240V. TWO-POLE SWITCHES SHALL BE SIMILAR TO EATON ARROW HART #6808F. THREE-POLE SWITCHES SHALL BE SIMILAR TO EATON ARROW HART #7810F.

      a. KNIFE-BLADE TYPE SWITCHES SHALL BE LOAD BREAK, QUICK-MAKE-QUICK-BREAK, UL CLASS R UP TO 600A. MAXIMUM RATING EXCEPT AS NOTED SHALL BE 800A. ARC QUENCHERS SHALL BE PROVIDED. SWITCHES SHALL BE SIMILAR TO GENERAL ELECTRIC QMR. ALL SWITCH ENCLOSURES SHALL BE DEAD FRONT, NEMA TYPE 1, EXCEPT AS NOTED.

   C. FUSES: DUAL ELEMENT FUSES FOR MOTOR LOADS SHALL BE TIME DELAY HAVING A MAXIMUM RATING OF 600A AT REQUIRED VOLTAGE. 200kAIC FUSES SHALL BE SIMILAR TO LIMITRON FUSETRON FRN OR FRS (UL CLASS R). CURRENT LIMITING FUSES SHALL BE UTILIZED FOR OTHER LOADS. 200kAIC SHALL BE SIMILAR TO LIMITRON KTN, KTS, OR KTU (UL CLASS R UP TO 600A; CLASS L OVER 600A). ALL FUSES SHALL BE PROVIDED BY SAME MANUFACTURER. PROVIDE 1 SPARE MATCHING FUSE FOR EACH SET OF 3.

   D. CIRCUIT BREAKERS: MOLDED CASE BREAKERS SHALL BE THERMAL-MAGNETIC, QUICK-MAKE-QUICK-BREAK, BOLT-ON TYPE, MANUALLY OPERATED WITH INSULATED TRIP-FREE HANDLE. MULTI-POLE TYPE BREAKERS SHALL CONTAIN INTERNAL TRIP BAR. TERMINALS SHALL BE SUITABLE FOR COPPER OR ALUMINUM CABLE. FURNISH AUXILIARY DEVICES WHERE REQUIRED FOR SHUNT TRIPPING, OPEN AND CLOSE MOTOR OPERATOR AND ALARM INDICATION. ENCLOSURES SHALL BE DEAD FRONT, NEMA TYPE 1, AS NOTED. CIRCUIT BREAKERS TO BE INSTALLED IN EXISTING PANEL BOARDS, SHALL BE OF THE SAME MANUFACTURER, TYPE AND A.I.C. RATING AS PRESENTLY IN USE. FRAMES, IC AND INTERCHANGEABLE TRIPS SHALL BE AS FOLLOWS, UNLESS OTHERWISE NOTED:

      a. 120V, 100A FRAME: 10,000A, 1 POLE
      b. 240V, 100A FRAME: 18,000A, 2 AND 3 POLES
      c. 240V, 200A FRAME: 50,000A, 2 AND 3 POLES
      d. 277V, 100A FRAME: 14,000A, 1 POLE
      e. 480V, 100A FRAME: 20,000A, 2 AND 3 POLES

   E. DISTRIBUTION PANELS: SWITCHING UNITS SHALL BE 3 PHASE, 4 WIRE CIRCUIT-BREAKER TYPE UNLESS OTHERWISE NOTED ON PANEL SCHEDULES. BUS BARS SHALL BE HARD DRAWN COPPER, MINIMUM 98% CONDUCTIVITY, SILVER OR TIN-PLATED JOINTS. CABINETS SHALL BE GALVANIZED SHEET STEEL BACK BOX, WITH DOOR AND TRIM AND LAPPED AND WELDED CORNERS. HARDWARE SHALL BE CHROME-PLATED WITH FLUSH LOCK/LATCH HANDLE ASSEMBLY (UP TO 48" HIGH DOORS) OR VAULT HANDLE, LOCK AND 3-POINT CATCH (LARGER THAN 48" HIGH DOORS). HINGES SHALL BE SEMI-CONCEALED, 5-KNUCKLE STEEL WITH NONFERROUS PINS, 180° OPENING, LOCATED A MAXIMUM 26" ON CENTERS. PROVIDE DOOR-IN-DOOR CONSTRUCTION. MINIMUM GUTTER SPACES FOR LIGHTING PANELS SHALL BE 5-3/4" SIDES, TOP AND BOTTOM. DIRECTORY HOLDER SHALL BE METAL FRAME WITH CLEAR PLASTIC, TRANSPARENT COVER. A TYPEWRITTEN LIST INDICATING FEEDER CABLE AND CONDUIT SIZE, CIRCUIT NUMBERS, OUTLETS SUPPLIED AND THEIR LOCATIONS SHALL BE PROVIDED.

   F. TRANSFORMERS SHALL BE OPEN-VENTILATED; DRY TYPE, CLASS H INSULATION, 115°C TEMPERATURE RISE AND WINDINGS SHALL BE COPPER. PRIMARY AND SECONDARY VOLTAGES SHALL BE NOTED. PRIMARY TAPS (6 - 2-1/2% TAPS, 2 ABOVE AND 4 BELOW RATED VOLTAGE) SHALL BE PROVIDED. ADJUST FOR REQUIRED VOLTAGE. PROVIDE K RATING AND SHIELDING AS SHOWN ON DRAWINGS.

   G. BALANCE THE LOAD OVER PHASES WHEN NEW CIRCUITS ARE ADDED TO NEW OR EXISTING PANELS. PROVIDE MULTI-CABLE LUGS WHERE REQUIRED. DOUBLE LUGGING SHALL NOT BE PERMITTED. MOUNTING HEIGHT SHALL BE A MAXIMUM OF 6'-6" FROM FLOOR TO TOP SWITCH UNIT. UPDATE DIRECTORIES ON EXISTING PANELBOARDS WHERE CIRCUITING IS CHANGED.

   H. TESTS: OPEN AND CLOSE LOAD BREAK SWITCHING DEVICES UNDER LOAD.

8. SURGE PROTECTION DEVICES

   A. THE INDIVIDUAL SURGE PROTECTION DEVICE (SPD) UNITS SHALL BE UL LISTED UNDER UL1449 STANDARD FOR TRANSIENT VOLTAGE SURGE SUPPRESSIONS AND THE SURGE RATINGS AND SHORT CIRCUIT CAPACITY RATING SHALL BE PERMANENTLY AFFIXED TO THE COVER OF SPD. THE UNIT SHALL ALSO BE COMPLEMENTARY LISTED TO UL 1283 STANDARD FOR EMI/RFI FACILITY FILTERS.

   B. SYSTEM DESCRIPTION

      a. THE SPD/FILTER SHALL BE CONSTRUCTED USING MULTIPLE SURGE CURRENT DIVERSION ARRAYS OF METAL OXIDE VARISTORS (MOV), MATCHED TO 1% VARIANCE. THE ARRAY SHALL CONSIST OF MULTIPLE GAP-LESS METAL OXIDE VARISTORS, WITH EACH MOV INDIVIDUALLY FUSED. THE ARRAYS SHALL BE DESIGNED AND CONSTRUCTED IN A MANNER, WHICH ENSURES MOV SURGE CURRENT SHARING. NO GAS TUBES, SILICON AVALANCHE DIODES OR SELENIUM PLATES/RECTIFIERS SHALL BE USED. THE STATUS OF EACH ARRAY SHALL BE CONTINUOUSLY MONITORED AND A GREEN LED SHALL BE ILLUMINATED IF THE ARRAY IS IN FULL WORKING ORDER. ALL PROTECTION MODES, INCLUDING N-G, SHALL BE CLOSELY MONITORED AND INTERNALLY FUSED, FOR COMPLIANCE TO NEC ARTICLE 110.9, 110.10 AND 280.22.

   C. BASIS OF DESIGN (MINIMUM RATING TO BE 40 KA - L-L, 40 KA - L-G, 40 KA - L-N):

      a. LIEBERT CATALOG NOS.

         - ACV 208110 FOR 208V, 3Φ, 3W+G
         - ACV 120Y111RKE FOR 208Y/120V, 3Φ, 4W+G
         - ACV 480110 FOR 480V, 3Φ, 3W+G
         - ACV 277Y111RKE FOR 480Y/277V, 3Φ, 4W+G

   D. WARRANTY

      a. THE MANUFACTURER SHALL PROVIDE A LIMITED FIVE YEAR WARRANTY FROM THE DATE OF SHIPPING AGAINST FAILURE WHEN INSTALLED IN COMPLIANCE WITH MANUFACTURER'S WRITTEN INSTRUCTION, UL LISTING REQUIREMENTS, AND ANY APPLICABLE NATIONAL OR LOCAL ELECTRICAL CODES. MANUFACTURER SHALL MAKE AVAILABLE FOR CONSULTATION, (LOCAL, NATIONAL) ENGINEERING SERVICE SUPPORT.

   E. MANUFACTURER

      a. LIEBERT ACV SERIES OR APPROVED EQUAL BY CURRENT TECHNOLOGY OR INNOVATIVE TECHNOLOGY.

   F. ACCESSORIES

      a. UNIT STATUS INDICATORS

         - THE UNIT SHALL HAVE AN INTEGRAL STATUS CIRCUIT THAT MONITORS THE OPERATIONAL STATUS OF ALL MODES OF PROTECTION, INCLUDING LINE TO NEUTRAL, LINE TO GROUND AND NEUTRAL TO GROUND. NO MANUAL TESTING IS REQUIRED TO CONFIRM THE INTEGRITY OF THE SUPPRESSION AND FILTER SYSTEMS. IF THE SYSTEM DOES FAIL, THE GREEN LED LIGHT WILL GO OUT AND THE RED LED LIGHT WILL BE LIT.

9. GROUNDING

   A. GROUNDING SHALL BE IN STRICT ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE ARTICLE 250.

   B. A SEPARATE GREEN-COLORED, INSULATED EQUIPMENT GROUNDING CONDUCTOR COMMONLY DESCRIBED AS A "GREEN WIRE" SHALL BE PROVIDED FOR ALL FEEDER AND BRANCH CIRCUITS PROTECTED BY OVERCURRENT DEVICES. GREEN WIRE GROUND SHALL ALSO BE PROVIDED FOR FLEXIBLE CONDUIT AND MOTOR CIRCUITS. METALLIC RACEWAY CONTINUITY SHALL BE MAINTAINED WITH A NO. 6 WIRE. WHERE ISOLATED GROUNDING BRANCH CIRCUITS ARE USED, PROVIDE A SEPARATE AND DISTINCTLY MARKED GREEN GROUND WIRE. EACH GROUNDING CONDUCTOR SHALL SERVE A MAXIMUM OF THREE CIRCUITS/POLES.

1. RACEWAYS

   A. CONDUIT & FITTINGS

      a. RIGID METAL CONDUIT (RMC/RGS): FULL-WEIGHT PIPE, GALVANIZED STEEL, THREADED

         - PERMITTED FOR FEEDERS AND BRANCH CIRCUITS. PAINT MALE THREADS OF FIELD-THREADED CONDUIT WITH GRAPHITE-BASE PIPE COMPOUND AND BUTT CONDUIT ENDS. TOUCH UP MARRED SURFACES AND FIELD-CUT THREADS, CRC-COLD GALVANIZED.

         - FITTINGS: NONSPLIT, THREADED, STEEL OR MALLEABLE IRON. ZINC DIE CAST NOT PERMITTED

      b. ELECTROMETALLIC TUBING (EMT): THIN WALL PIPE, GALVANIZED, THREADLESS.

         - PERMITTED FOR BRANCH CIRCUITS ONLY, IN DRY LOCATIONS, DRY WALLS, HUNG CEILINGS, HOLLOW BLOCK WALLS AND FURRED SPACES. EMT SHALL NOT BE PERMITTED IN RAISED FLOORS.

         - FITTINGS: COMPRESSION TYPE 2" AND UNDER. SET SCREW TYPE 2-1/2" AND LARGER. GALVANIZED RIGID STEEL ELBOWS, 2" OR LARGER.

      c. FLEXIBLE METAL CONDUIT(FMC): CONTINUOUS SINGLE STRIP, GALVANIZED.

         - PERMITTED FOR SHORT CONNECTIONS WHERE RIGID CONDUIT IS IMPRACTICAL. FROM OUTLET BOX TO RECESSED LIGHTING FIXTURE: PROVIDE MINIMUM 4' AND MAXIMUM 6' LENGTHS. FOR FINAL CONNECTION TO MOTOR TERMINAL BOX, TRANSFORMER AND OTHER VIBRATING EQUIPMENT: PROVIDE WITH POLYVINYL SHEATHING AND GROUND CONDUCTOR. MINIMUM LENGTH: 18' WITH SLACK. CONNECT GROUND CONDUCTOR TO ENCLOSURE OR RACEWAY AT EACH END. FOR EXPANSION JOINT CROSSINGS, CROSS AT RIGHT ANGLES AND ANCHOR ENDS.

         - FITTINGS: ANGLE WEDGE TYPE WITH INSULATED THROAT

      d. WIREWAYS: WIRE SHALL BE AS NOTED, MINIMUM #16 GAUGE STEEL WITH GROUND CONTINUITY. FINISH SHALL BE BAKED ENAMEL. COVERS SHALL BE SCREW-ON.

   B. ACCESSORIES

      a. BUSHINGS: METALLIC INSULATED TYPE.

      b. EXPANSION FITTINGS SHALL BE INSTALLED AT RIGHT ANGLES WITH CLIP JOINT CENTERED IN EXPANSION JOINT. PROVIDE A LENGTH OF RUN IN ACCORDANCE MANUFACTURER'S RECOMMENDATIONS. PRESET FITTINGS SHALL ALLOW FOR TEMPERATURE VARIATION.

   C. BOXES

      a. OUTLET BOXES: EXCEPT AS OTHERWISE REQUIRED BY CONSTRUCTION, DEVICES OR WIRING, BOXES SHALL BE STAMPED STEEL, 4" SQUARE OR OCTAGON FOR FIXTURES. BOXES ABOVE CEILING SHALL BE 1-1/2" DEEP. BOXES IN CEILING OR SLAB SHALL BE 3" DEEP. BOXES IN WALL FOR FIXTURES SHALL BE 2-3/4" DEEP. BOXES IN WALL FOR RECEPTACLES AND SWITCHES SHALL BE 1-1/2" DEEP. FURNISH WITH RAISED COVERS AND FIXTURE STUDS WHERE REQUIRED.

         - WITHOUT FIXTURE OR DEVICE: FURNISH BLANK COVER. OFFSET BACK-TO-BACK OUTLETS WITH MINIMUM 6" SEPARATION.

         - ERECT WALL AND SWITCH OUTLETS IN ADVANCE OF FURRING AND FIREPROOFING. OUTLET BOXES SHALL BE SET SQUARE AND TRUE WITH BUILDING FINISH. SECURE TO BUILDING STRUCTURE BY ADJUSTABLE STRAP IRON OR GROUT IN WITH MASONRY. PROVIDE BARRIERS BETWEEN SWITCHES CONNECTED TO DIFFERENT PHASES FOR VOLTAGES EXCEEDING 150V TO GROUND.

      b. JUNCTION AND PULL BOXES: GALVANIZED SHEET STEEL WITH SCREW-ON COVERS, EXCEPT AS NOTED. FURNISH WITH INSULATED SUPPORTS FOR CABLES. LOCATIONS SHALL BE AS NOTED OR REQUIRED AND ACCESSIBLE.

      c. PANEL, JUNCTION AND PULL BOXES SHALL BE LOCATED CLEAR OF OTHER TRADES. CONCEAL JUNCTION AND PULL BOXES IN FINISHED SPACES. WHERE NECESSARY, REROUTE RACEWAYS OR MAKE OTHER ARRANGEMENTS FOR CONCEALMENT. BOXES SHALL BE ACCESSIBLE. SUPPORT BOXES FROM BUILDING STRUCTURE, INDEPENDENT OF CONDUIT. PROVIDE FLOOR-TO-CEILING CHANNELS FOR MOUNTING ON DRYWALL AND LIGHTWEIGHT CONSTRUCTION. OUTLET BOXES FOR FIXTURES RECESSED IN HUNG CEILINGS SHALL BE ACCESSIBLE THROUGH OPENING CREATED BY REMOVAL OF FIXTURE. SECURE TO BLACK IRON OR GALVANIZED STEEL CHANNEL SUPPORT. MOTOR TERMINAL BOXES: COORDINATE WITH MOTOR BRANCH CIRCUIT CONDUIT AND WIRING; ADD BOX VOLUME WHERE REQUIRED.

   D. SUPPORT

      a. PROVIDE RACEWAY SUPPORT UTILIZING CEILING TRAPEZE, STRAPHANGERS, OR WALL BRACKETS. PROVIDE U-BOLTS AT EACH FLOOR LEVEL OF RISER RACEWAYS AND CONNECTED TO ACCEPTABLE SUPPORTS. PROVIDE RISER CLAMPS AT EACH FLOOR LEVEL OF RISER RACEWAYS AND RESTING ON SLAB.

      b. FOR THROUGH-THE-FLOOR SYSTEMS, UTILIZE AN ASSEMBLY SIMILAR TO HUBBELL FIRE RATED POKE-THROUGH-FLOOR BOX SYSTEM. FOR ABOVE FLOOR FITTINGS, TELEPHONE SHALL BE BUSHED HOLE AND POWER SHALL BE DUPLEX RECEPTACLE OR OTHER AS NOTED. PROVIDE SEPARATION BARRIER BETWEEN POWER AND TELEPHONE COMPARTMENTS. PROVIDE JUNCTION BOX ON UNDERSIDE OF FLOOR. PACK FITTING TO RESTORE FIRE RATING OF FLOOR.

      c. FOR HUNG CEILING OUTLETS, RUN IN HUNG CEILING AND CONNECT TO CEILING SUPPORT CHANNELS. IN MASONRY AND POURED CONCRETE, RUN VERTICALLY ONLY.

11. WIRE & CABLE

   A. PROVIDE WIRE AND CABLE COMPLETE WITH ACCESSORIES. SIZE REFERENCE SHALL BE AWG EXCEPT AS NOTED.

   B. CONDUCTORS SHALL BE COPPER, ASTM STANDARD SOLID (#10 AND SMALLER) OR STRANDED (#8 AND LARGER). GENERAL USE CABLING SHALL BE #12 MINIMUM.

      a. CONTROL AND ALARM CABLING, EXCEPT AS NOTED, SHALL BE #14 MINIMUM. AT 120V AND OVER 200' CIRCUIT LENGTH PROVIDE #12 MINIMUM.

      b. OTHER VOLTAGES AND PHASES: ADJUST CABLE SIZING AS REQUIRED TO MAINTAIN VOLTAGE DROP. INCREASE RACEWAY SIZES FOR LARGER WIRE AS REQUIRED.

   C. INSULATION SHALL BE RUBBER AND THERMOPLASTIC MEETING ASTM AND IPCEA STANDARDS.

      a. TYPE THW, THWN SHALL BE UTILIZED FOR BRANCH CIRCUITS EXCEPT AS NOTED.

      b. TYPE THHN, THHW, THW-2 SHALL BE UTILIZED FOR FEEDERS EXCEPT AS NOTED.

      c. TYPE SFF-2 SHALL BE UTILIZED FOR BRANCH CIRCUITS LOCATED IN WIRING CHANNELS OF CONTINUOUS FLUORESCENT FIXTURES AND IN AMBIENT TEMPERATURES OVER 90°C.

      d. FOR UNGROUNDED ISOLATED BRANCH CIRCUITS PROVIDE CROSS-LINKED POLYETHYLENE INSULATION (TYPE XHHW).

      e. PRE-MANUFACTURED HOSPITAL GRADE ARMORED CABLE (ACTHH) SHALL BE UTILIZED FOR ALL NORMAL BRANCH CIRCUITS IN DRY HOLLOW STUD WALL LOCATIONS, ABOVE ACCESSIBLE CEILING AND WHERE PERMITTED BY ARTICLE 320 & 517 OF THE NATIONAL ELECTRICAL CODE ONLY. MINIMUM CONDUCTOR SIZE SHALL BE # 12 AWG COPPER WITH INTEGRAL GREEN INSULATED CONTINUOUS GROUND CONDUCTOR AND BARE BONDING CONDUCTOR IN DIRECT CONTACT WITH THE OUTER METAL JACKET.

   D. THE INSULATION OF ALL CONDUCTORS SHALL BE 90°C RATED THERMOPLASTIC WITH COLOR CODING AS FOLLOWS:

      a. 120/208V SYSTEM

         - BLACK FOR A PHASE
         - RED FOR B PHASE
         - BLUE FOR C PHASE

      b. 277/480V SYSTEM

         - BROWN FOR A PHASE
         - ORANGE FOR B PHASE
         - YELLOW FOR C PHASE

      c. NEUTRAL WIRE SHALL UTILIZE WHITE OUTER COVERING THROUGHOUT. EQUIPMENT GROUND WIRE SHALL UTILIZE GREEN OUTER COVERING THROUGHOUT.

         - WHERE COLOR-CODED CABLE IS NOT AVAILABLE, CERTIFY IN WRITING AND REQUEST PERMISSION TO OVERLAP CONDUCTORS WITH 6" OF COLOR TAPING IN ACCESSIBLE LOCATIONS.

   E. ALL EMERGENCY BRANCH CIRCUIT WIRE SHALL BE RUN IN CONDUIT.

   F. PROVIDE FLAMEPROOF LINEN OR FIBER TAGS IN ACCESSIBLE LOCATIONS. FOR FEEDERS INDICATE FEEDER NUMBER, SIZE, PHASE AND POINTS OF ORIGIN AND TERMINATIONS. FOR CONTROL AND ALARM WIRING INDICATE TYPE (CONTROL OR ALARM), SIZE OF WIRE, AND POINTS OF ORIGIN AND TERMINATIONS.

   G. TERMINATIONS, SPLICES AND TAPS UNDER 600V: COPPER CONDUCTORS #10 AND SMALLER SHALL UTILIZE COMPRESSION-TYPE OF TWIST-ON SPRING-LOADED CONNECTORS AND CLEAR NYLON-INSULATED COVERING. COPPER CONDUCTORS #8 AND LARGER SHALL UTILIZE MECHANICAL BOLTED PRESSURE OR HYDRAULIC COMPRESSION TYPE USING MANUFACTURER'S RECOMMENDED TOOLING. CABLE LUGS AND CONNECTORS SHALL UTILIZE COMPRESSION TYPE OF SAME METAL AS CONDUCTOR. PROVIDE TO MATCH CABLE, WITH MARKING INDICATING SIZE AND TYPE. COPPER LUG CONNECTIONS TO BUS BARS: USE ANTI-SEIZE COMPOUND ON TANG.

   H. NOT MORE THAN 3 LIGHTING OR CONVENIENCE OUTLET CIRCUITS SHALL BE INSTALLED IN ONE CONDUIT UNLESS OTHERWISE INDICATED. PROVIDE SEPARATE RACEWAYS FOR CONDUCTORS OF 120/208V AND 277/480V SYSTEMS, EXCEPT 460V MOTOR BRANCH CIRCUIT WIRING AND RELATED 120V CONTROL WIRING. THERMOPLASTIC WIRES SHALL NOT BE INSTALLED IN COMPUTER AREA RAISED FLOORS.

12. CONTROL WIRING

   A. PROVIDE ALL CONTROL WIRING FOR MOTORS AND EQUIPMENT FURNISHED UNDER ALL CONTRACTS AND AS SPECIFICALLY SHOWN ON THE DRAWINGS, EXCEPT AS NOTED FOR MECHANICAL/PLUMBING EQUIPMENT. INCLUDE MOUNTING AND WIRING OF ALL CONTROL DEVICES FURNISHED WITH EQUIPMENT.

   B. CONTROL WIRING LESS THAN 120V FOR MOTORS, ALARMS FOR EQUIPMENT FURNISHED UNDER MECHANICAL/PLUMBING WILL BE PROVIDED UNDER DIVISION 15 CONTRACT.

13. DEVICES

   A. LOCAL SWITCHES

      a. CONVENTIONAL QUITE SINGLE-POLE TOGGLE TYPE, RATED AT 20 AMP, 120/277V AC. PROVIDE SIMILAR TO:
         P&S #20AC1, COOPER #2221, HUBBELL #CS1221

      b. CONVENTIONAL QUITE THREE-POLE TOGGLE TYPE, RATED AT 20 AMP, 120/277V AC. PROVIDE SIMILAR TO:
         P&S, #20AC3, COOPER #2223, HUBBELL #CS1223

      c. THE OWNER OR ARCHITECT SHALL SELECT TOGGLE COLOR.

   B. MANUAL MOTOR STARTERS

      a. FLUSH MOUNTED TYPE WITH INTEGRAL THERMAL OVERLOAD PROTECTION AND PILOT LIGHT. FOR SINGLE POLE, PROVIDE SIMILAR TO:
         P&S #20AC2-HP, LEVITON #MS302, HUBBELL #HBL7832D

   C. INSERTION RECEPTACLES

      a. CONVENTIONAL DUPLEX CONVENIENCE 125V, 2 POLE, 3 WIRE, 20A WITH U GROUND SLOT GROUNDED, EXCEPT AS NOTED. PROVIDE SIMILAR TO:
         P&S #5352, HUBBELL #CR5352, LEVITON #5352, COOPER #5352

      b. GROUND FAULT INTERRUPTER WITH SELF-PROTECTION AND LED INDICATOR LIGHT. PROVIDE SIMILAR TO:
         P&S #2091, HUBBELL #GF20IL, LEVITON #8898-HGI

      c. ARCHITECT SHALL SELECT FACE COLOR AND ORIENTATION. DEVICES USED ON EMERGENCY BRANCH CIRCUITS SHALL BE RED FACE ONLY

      d. DEVICE SHALL MEET OR EXCEED

         - UL 488
         - UL FEDERAL SPECIFICATION WC-596 LISTING.
         - NEMA WD-1 AND WD-6

      e. SPECIAL RECEPTACLES

         - THE TRADE CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE SPECIAL RECEPTACLES REQUIRED TO MATCH PROVIDED, EXISTING AND NEW EQUIPMENT PLUGS.

   D. DEVICE PLATES

      a. BRUSHED 302 STAINLESS STEEL WITH ENGRAVED CIRCUIT IDENTIFICATION PLATE WHEN USED TOGETHER WITH EMERGENCY BRANCH CIRCUIT DEVICE. REFER TO SPECIFICATION SECTION 5-A-9.

      b. REINFORCED THERMOPLASTIC BY SAME MANUFACTURER OF DEVICES.

14. LIGHTING FIXTURES

   A. FIELD LIGHTING
      a. PROVIDE LOCKABLE WEATHERPROOF MUSCO CONTROL PANEL AND LIGHT FIXTURES AS SHOWN ON PLANS.

   B. MANUFACTURE AND INSTALL LIGHTING FIXTURES IN ACCORDANCE WITH NEC ARTICLE 410.

   C. PROVIDE ALL LIGHTING FIXTURES INDICATED, COMPLETE WITH LAMPS. INCLUDE ALL INTERIOR LIGHTING FIXTURES, AND ALL EXTERIOR FIXTURES MOUNTED ON THE BUILDING.

   D. FURNISH ALL PLASTER FRAMES OR DRY WALL AND DELIVER TO PROJECT SITE FOR INSTALLATION UNDER FINISHES, DIVISION 9.

   E. USE FIXTURES CONFORMING TO UL STANDARDS, AND BEARING UL LABEL AND UNION LABEL.

   F. PROVIDE APPROPRIATE MOUNTING ACCESSORIES FOR EACH FIXTURE, COMPATIBLE WITH THE VARIOUS STRUCTURAL CONDITIONS THAT WILL BE ENCOUNTERED. PROVIDE FASTENING CLIPS (EARTHQUAKE CLIPS) FOR LIGHTING FIXTURES THAT ARE SUPPORTED FROM FRAMING MEMBERS OF SUSPENDED CEILINGS.

   G. ASSEMBLE, WIRE AND INSTALL ALL LIGHTING FIXTURES AT THEIR RESPECTIVE OUTLETS AS INDICATED AND ASSUME RESPONSIBILITY FOR THEIR CONDITION UNTIL ACCEPTANCE BY OWNER. INSTALL PROPER LAMPS IN EACH FIXTURE.

   H. FIXTURE CONNECTIONS TO BRANCH CIRCUITS SHALL BE MADE USING STRANDED WIRE WITH INSULATION TEMPERATURE RATING EQUAL TO OR HIGHER THAN THAT OR WIRE SUPPLIED WITH THE FIXTURE, OR SPECIFIED BY FIXTURE MANUFACTURER. FIXTURES ARE TO BE CONNECTED TO BRANCH CIRCUITS VIA JUNCTION BOX USING FLEXIBLE CONDUIT NO GREATER THAN 6'.

   I. NOTE THAT SPECIFICATIONS FOR RECESSED FIXTURES GENERALLY DO NOT INCLUDE MOUNTING ACCESSORIES, AND THAT EACH FIXTURE TYPE MAY BE USED IN SEVERAL DIFFERENT CEILINGS, SUCH AS LAY-IN EXPOSED GRID, CONCEALED SPLINE TILE, OR DRYWALL. VERIFY MOUNTING DETAILS FOR EACH SPACE BEFORE ORDERING FIXTURES SO THAT PROPER QUANTITIES FOR EACH CONDITION WILL BE DELIVERED IN TIME TO AVOID CONSTRUCTION DELAYS.

   J. SECURELY FASTEN LIGHTING FIXTURES TO FRAMING MEMBERS OF SUSPENDED CEILINGS WITH FASTENING CLIPS, AS SPECIFIED. CLIP EACH FIXTURE TO ALL ADJOINING FRAMING MEMBERS TO PREVENT MOVEMENT OF THE MEMBERS AWAY FROM THE FIXTURES.

   K. SUPPORT EXIT SIGNS IN TILE CEILINGS WITH RAILS THAT SPAN BETWEEN RUNNERS OF CEILING SUSPENSION SYSTEM. USE FLANGED FIXTURES FOR FINISHED APPEARANCE.

   L. SUPPORT FIXTURES IN DRYWALL CEILINGS FROM PLASTER FRAMES, WITH ADJUSTABLE LUGS ON SIDE OF FIXTURE OR YOKE MOUNTING AS RECOMMENDED BY FIXTURE MANUFACTURER. USE FLANGED FIXTURES FOR FINISHED APPEARANCE, UNLESS OTHERWISE NOTED.

   M. LOCATE FIXTURE IN CENTER OF PANEL WHERE USED IN MODULAR TILE CEILINGS, UNLESS OTHERWISE NOTED. REFER TO REFLECTED CEILING PLAN.

15. EMPTY RACEWAY SYSTEMS

   A. A COMPLETE EMPTY RACEWAY SYSTEM CONSISTING OF BLANK 4-11/16"SQ.x2-1/8" DEEP OUTLET BOXES WITH SINGLE OR DOUBLE GANG DRYWALL FINISH COLLAR AS NOTED. METALLIC RACEWAY WITH PULL STRING SHALL BE PROVIDED AND INSTALLED WHERE SHOWN FOR THE FOLLOWING SYSTEMS.

      a. TELEPHONE/DATA (SINGLE GANG)

      b. MEDICAL MONITORING CABLING (DOUBLE)

      c. CABLE TELEVISION (SINGLE GANG)

   B. RACEWAY SIZE SHALL BE A MINIMUM OF 3/4" OR AS DOCUMENTED IN PLANS AND DETAILS.

   C. ALL METALLIC RACEWAY SYSTEMS SHALL BE STUBBED UP AND TERMINATE IN ACCESSIBLE CEILING. END BUSHINGS AND PULL WIRES SHALL BE PROVIDED. BONDING OF ALL RACEWAY SYSTEMS TO PROVIDE A COMMON GROUND PATH SHALL BE PROVIDED.

   D. ACTUAL DEVICES, CONNECTORS, WIRING COMPLETE WITH TERMINATIONS AND BOX COVERS SHALL BE PROVIDED BY OTHERS.

16. FIRE STOPPING

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

   B. PROVIDE ALL REQUIRED FIRE STOPPING. WORK INCLUDES FIRE-STOPPING PENETRATIONS OF FIRE-RESISTANCE RATED FLOORS, WALLS AND PARTITIONS IN NEW CONSTRUCTION, AS WELL AS PRE-EXISTING PENETRATIONS IN RENOVATION AREAS OF EXISTING CONSTRUCTION.

   C. PRODUCT DATA: SUBMIT MANUFACTURER'S PRODUCT DATA FOR EACH FIRE-STOPPING PRODUCE REQUIRED, INCLUDING INSTRUCTIONS FOR SUBSTRATE PREPARATION AND FIRE-STOPPING INSTALLATION.

   D. FIRE RESISTANT JOINT SEALERS: PROVIDE MANUFACTURER'S STANDARD FIRE-STOPPING SEALANT WITH ACCESSORY MATERIALS, HAVING FIRE RESISTANCE RATINGS INDICATED AS ESTABLISHED BY TESTING IDENTICAL ASSEMBLIES PER ASTM E814 BY UNDERWRITERS LABORATORY, INC. OR OTHER TESTING AND INSPECTING AGENCY ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION.

   E. MATERIALS - PROVIDE THE FOLLOWING:

      a. ONE-PART FIRE-STOPPING SEALANT: ONE PART LATEX BASED INTUMESCENT SEALANT FORMULATED FOR USE IN A THROUGH-PENETRATION FIRE-STOP SYSTEM FOR SEALING OPENINGS AROUND CABLES, CONDUIT, PIPES AND SIMILAR PENETRATIONS THROUGH WALLS AND FLOORS. ACCEPTABLE PRODUCTS/MANUFACTURERS INCLUDE THE FOLLOWING:

         - SPEC SEAL LC150 SERIES
         - HILTI FS ONE

17. TESTS

   A. BEFORE MAKING TESTS, COMPLETE ALL CONNECTIONS AT PANELS, FIXTURES AND OTHER EQUIPMENT. INSTALL FUSES AND HAVE ALL WIRING CONTINUOUS FROM SERVICE EQUIPMENT TO UTILIZATION OUTLETS. CORRECT ALL UNDESIRABLE GROUND, OPEN AND SHORT CIRCUIT CONDITIONS.

   B. PROVIDE SOURCE OF TEMPORARY POWER FOR MAKING TESTS IF NORMAL BUILDING POWER IS NOT AVAILABLE AT THE TIME.

   C. TAKE AND RECORD THE FOLLOWING READINGS ON SYSTEMS 600V AND BELOW:

      a. PERFORM CONTINUITY AND INSULATION TESTS. MEGGER TESTS OF ALL FEEDER CIRCUIT CONDUCTORS, GROUND CONDUCTORS, AND CONDUIT GROUND. MEGGER TEST 10% OF BRANCH CIRCUITS AND ALL MOTOR BRANCH CIRCUITS OVER 25 HP.

      b. AMMETER READINGS ON ALL PHASES AND NEUTRAL OF EACH FEEDER TO INDICATE BALANCE.

      c. AMMETER READINGS ON ALL PHASES OF EACH POLYPHASE MOTOR. INCLUDE NAMEPLATE FULL LOAD CURRENT OF EACH MOTOR ON DATA SHEET.

      d. CERTIFY THAT ALL OVERLOAD DEVICES HAVE BEEN SET IN ACCORDANCE WITH DATA SHOWN ON THE DRAWINGS AND/OR MANUFACTURER'S RECOMMENDED SETTING.

   D. SEND FINAL CERTIFIED TEST REPORTS AND CERTIFICATIONS TO THE ARCHITECT FOR APPROVAL AND TRANSMITTAL TO THE OWNER.

18. DEMONSTRATION OF COMPLETE ELECTRICAL SYSTEMS

   A. SUBMIT WRITTEN CERTIFICATION THAT ELECTRICAL SYSTEMS ARE COMPLETE AND OPERATIONAL. SUBMIT CERTIFICATION WITH CONTRACTOR'S REQUEST FOR FINAL REVIEW.

      a. AT THE TIME OF FINAL REVIEW OF ELECTRICAL WORK, DEMONSTRATE THE OPERATION OF ELECTRICAL SYSTEMS. FURNISH LABOR, APPARATUS AND EQUIPMENT FOR SYSTEMS' DEMONSTRATION. THE VARIOUS TEST SHALL BE WITNESSED BY AND THE OWNER OR HIS REPRESENTATIVE.

   B. THE CONTRACTOR SHALL FURNISH ALL TEST EQUIPMENT, MATERIALS, LABOR, AND TEMPORARY POWER HOOK-UPS TO PERFORM START-UP AND ALL TESTS AS REQUIRED TO OBTAIN FINAL FIELD ACCEPTANCE FROM OWNER. ALL TESTS SHALL BE CONDUCTED IN THE PRESENCE OF THE OWNER OR HIS REPRESENTATIVE. ALL TEST PROCEDURES SHALL CONFORM TO THIS SPECIFICATION AND APPLICABLE STANDARDS THE ANSI, IEEE, NEMA, OSHA, NEPA, ETC

   C. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TESTS AND TEST RECORD. TESTING SHALL BE PERFORMED BY AND UNDER THE IMMEDIATE SUPERVISION OF THE CONTRACTOR. TEST RECORD SHALL BE KEPT FOR EACH PIECE OF EQUIPMENT. COPIES SHALL BE FURNISHED TO THE ENGINEER FOR REVIEW AND/OR APPROVAL.

   D. A VISUAL INSPECTION OF ALL ELECTRICAL EQUIPMENT, TO CHECK FOR THE FOREIGN MATERIAL, TIGHTNESS OR WIRING AND CONNECTION, PROPER GROUNDING, MATCHING NAMEPLATE CHARTS WITH SPECIFICATION, ETC., SHALL BE MADE PRIOR TO ACTUAL TESTING.

   E. A COMPLETE OPERATIONAL TEST SHALL BE MADE ON THE REVISED LIFE SAFETY FIRE ALARM SYSTEM. THE CONTRACTOR SHALL CONSULT WITH THE EQUIPMENT VENDORS AND THEN SUBMIT FOR APPROVAL A STEP-BY-STEP PROCEDURE DESCRIBING THE METHOD OF MAKING THE TESTS, THE EQUIPMENT TO BE UTILIZED AND THE FEATURE TO BE CHECKED BY THE TEST. ALL INTERLOCKS AND PROTECTIVE FEATURES SHALL BE CHECKED OUT.

19. SPECIAL ENGINEERING SERVICES

   A. IN THE INSTANCE OF COMPLEX OR SPECIALIZED ELECTRICAL SYSTEMS SUCH AS EMERGENCY SYSTEM FIRE ALARM OR SIMILAR MISCELLANEOUS SYSTEMS, THE INSTALLATION, FINAL CONNECTIONS AND TESTING OF SUCH SYSTEMS SHALL BE MADE UNDER THE DIRECT SUPERVISION OF COMPETENT AUTHORIZED SERVICE ENGINEERS WHO SHALL BE IN THE EMPLOY OF THE RESPECTIVE EQUIPMENT MANUFACTURER.

   B. ANY AND ALL EXPENSES INCURRED BY THESE EQUIPMENT MANUFACTURERS' REPRESENTATIVES RELATED TO THIS PROJECT, SHALL BE BORNE BY THE ELECTRICAL CONTRACTOR.

20. DESIGN MODIFICATIONS

   A. THE DRAWINGS SHOW ELECTRICAL SYSTEMS, WHICH SUPPLY, CONTROL, AND/OR MONITOR SYSTEMS SPECIFIED ELSEWHERE. THE ELECTRICAL SYSTEM SHOWN HAS BEEN BASED ON SPECIFIC MANUFACTURERS DATA OR INFORMATION CONVEYED TO THE ELECTRICAL DESIGNER. WHERE ANY AGREEMENT OR CHANGE IS MADE TO SUPPLY EQUIPMENT OF LARGER CAPACITY OR DIFFERENT ELECTRICAL CHARACTERISTICS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING THE ELECTRICAL SYSTEM TO AFFECT SUCH CHANGES WITHIN THE INTENT OF THESE SPECIFICATIONS AND TO INFORM THE ENGINEER, IN WRITING, OF SUCH CHANGE. FOR EXAMPLE, IF HVAC COMPRESSORS AND/OR MOTORS ARE ALLOWED TO BE CHANGED TO 230V RATHER THAN THE ORIGINALLY SPECIFIED 208 VOLTS, BOOSTING OR BUCKING TRANSFORMERS SHALL BE SUPPLIED, INSTALLED, AND WIRED TO ACCOMMODATE THE CHANGE AT NO ADDITIONAL COST.

PACKAGE 2 - IFB
NOT FOR CONSTRUCTION
06/02/2023

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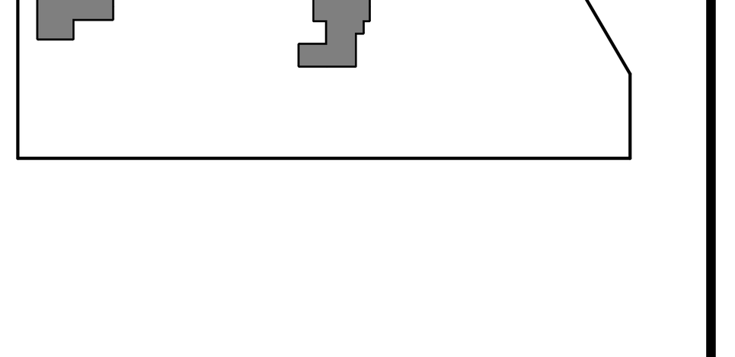
PROJECT TITLE
KINGSESSING RECREATION CENTER BUILDING AND SITE IMPROVEMENTS - PACKAGE 2

KEY PLAN



DRAWING TITLE
ELECTRICAL SPECIFICATIONS

PROJECT NO. KLMLX21003
DATE 10/05/2023
SCALE AS NOTED
DRAWN BY: AJB
CHECKED BY: JPR
DRAWING NO. EL002-R.2 (1)

NOTE: ALL DIMENSIONS AND CONDITIONS SHALL BE VERIFIED BY THE CONTRACTOR AT THE SITE BEFORE PROCEEDING WITH THE WORK.

GENERAL NOTES

1. DISCONNECT POWER PRIOR TO PERFORMING WORK IN ACCORDANCE WITH NFPA 70E.
2. COORDINATE WORK WITH ALL OTHER TRADES PERFORMING WORK ON THE SITE.

DEMOLITION NOTES

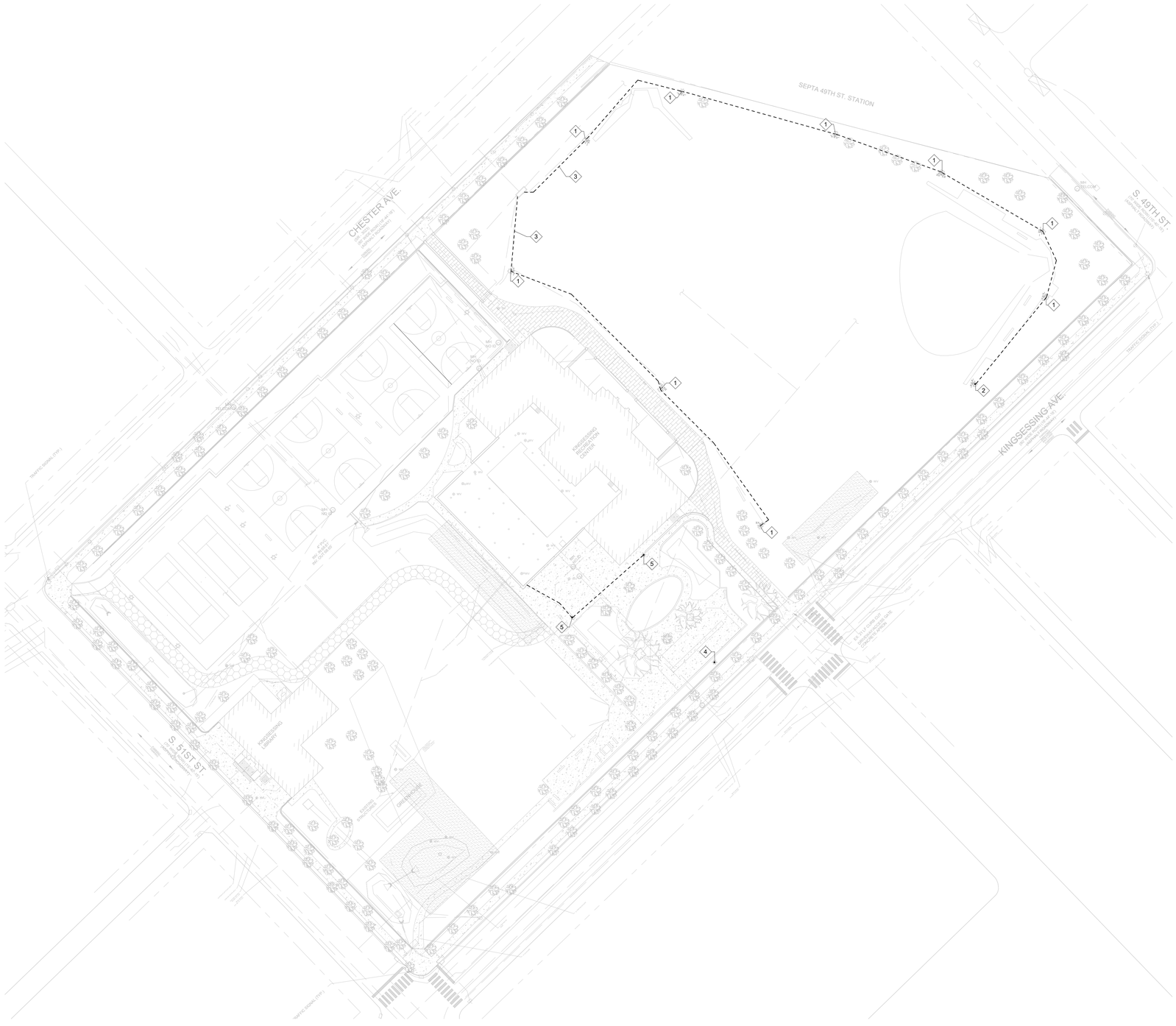
1 DISCONNECT AND REMOVE EXISTING LIGHT FIXTURES AND ALL ASSOCIATED EQUIPMENT FROM FIELD LIGHT POLE. REMOVE CONDUIT AND WIRING BACK TO SOURCE. EXISTING LIGHT POLE AND FOUNDATION TO BE REUSED IN NEW WORK PHASE.

2 DISCONNECT AND REMOVE EXISTING LIGHTING FIXTURES AND ALL ASSOCIATED EQUIPMENT FROM FIELD LIGHT POLE. REMOVE CONDUIT AND WIRING BACK TO SOURCE. REMOVE POLE AND FOUNDATION.

3 DISCONNECT AND REMOVE ALL EXISTING CONDUIT AND CABLE FOR FIELD LIGHTING BACK TO SOURCE.

4 DISCONNECT AND REMOVE EXISTING LIGHT FIXTURE AND ALL ASSOCIATED EQUIPMENT, CONDUIT AND WIRING BACK TO SOURCE. REMOVE LIGHT POLE AND FOUNDATION.

5 DISCONNECT AND REMOVE EXISTING LIGHT FIXTURE AND ALL ASSOCIATED EQUIPMENT, CONDUIT AND WIRING BACK TO SOURCE. REMOVE LIGHT POLE AND PRESERVE FOUNDATION FOR REUSE IN NEW WORK PHASE.



1 SITE POWER AND LIGHTING DEMOLITION PLAN
EL100-R/2 1" = 40'-0"

PACKAGE 2 - IFB
NOT FOR CONSTRUCTION
06/02/2023

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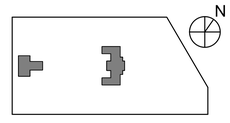
PROJECT TITLE

KINGSESSING RECREATION CENTER BUILDING AND SITE IMPROVEMENTS - PACKAGE 2

KEY PLAN



DRAWING TITLE

ELECTRICAL DEMOLITION SITE PLAN

PROJECT NO.	KLMLX21003
DATE:	10/05/2023
SCALE	AS NOTED
DRAWN BY:	AJB
CHECKED BY:	JPR

DRAWING NO.
EL100-R.2

NOTE: ALL DIMENSIONS AND CONDITIONS SHALL BE VERIFIED BY THE CONTRACTOR AT THE SITE BEFORE PROCEEDING WITH THE WORK.

1 PROPOSED SITE LIGHTING AND POWER PLAN
EL200-R2 1" = 40'-0"

GENERAL NOTES

1. NEW MUSCO FIELD LIGHTING FIXTURES TO BE INSTALLED ON EXISTING POLES AND FOUNDATIONS. REFER TO MUSCO DRAWINGS AND INSTALLATION INSTRUCTIONS FOR FIELD LIGHTING MOUNTING REQUIREMENTS.
2. ALL NEW SUBSURFACE CONDUIT SHALL BE SCHEDULE 40 PVC, ALL NEW ABOVE GROUND CONDUIT SHALL BE RIGID GALVANIZED STEEL.
3. COORDINATE WORK WITH ALL OTHER TRADES PERFORMING WORK ON THE SITE.
4. WHERE EXISTING POLES HANDHOLE COVERS ARE MISSING OR DAMAGED PROVIDE NEW POLE HANDHOLE COVER PLATES.

NEW WORK NOTES

1 PROVIDE TWO GFCI RECEPTACLES IN WEATHERPROOF IN-USE COVERS IN GAZEBO. INSTALL RECEPTACLES AT 8' AFF.

2 PROVIDE A GFCI RECEPTACLE IN A LOCKABLE COVER IN LIGHT POLE. INSTALL RECEPTACLE AT 8' AFG.

3 SEE LANDSCAPE ARCHITECT PLAN L-501-R.2 FOR PEDESTRIAN POST LIGHT FOUNDATION AND MOUNTING DETAILS.

4 PROVIDE NEW 11"x18"x18"D QUAZITE HANDHOLE WITH LOCKING COVER LABELED "ELECTRIC".

5 PROVIDE NEW 20"x11"x18"D QUAZITE HANDHOLE WITH LOCKING COVER LABELED "ELECTRIC".

6 PROVIDE 4#350 KCMIL CU IN 3" SCHEDULE 40 PVC CONDUIT FROM TAP ON THE SECONDARY OF THE TRANSFORMER TO PANEL PSH LOCATED IN SHED. PROVIDE GROUND TIE TO THE FOUNDATION REBAR AND PROVIDE A MINIMUM OF ONE 8 FOOT LONG GROUND ROD. BOND NEUTRAL AND GROUND AT SERVICE DISCONNECT PER NEC 250.

FIELD LIGHITNG POLE/FIXTURE SCHEDULE

POLE ID	POLE HEIGHT	MTG HEIGHT	FIXTURE QTY	MANUFACTURER	LUMINARE TYPE	LOAD
A1, B1	60'	60'	4	MUSCO	TLC-LED-1200	4.68 Kw
		16'	1	MUSCO	TLC-BT-575	0.58 kW
B2-B3, D1-D3	60'	60'	3	MUSCO	TLC-LED-1200	3.51 Kw
		16'	1	MUSCO	TLC-BT-575	0.58 kW
C1-C2	60'	60'	2	MUSCO	TLC-LED-1200	2.34 Kw
		16'	1	MUSCO	TLC-BT-575	0.58 kW
9			36			36.77 kW

SITE CONDUIT & WIRE TABLE

CONDUIT ID	MATERIAL	TRADE SIZE	CONDUIT ORIGIN	Load Type	Wire Size/ Quantity
1A	SCHED 40 PVC	2"			
			PANEL PSH	FIELD LIGHTING POLE A1	2#2, #2G
			PANEL PSH	FIELD LIGHTING POLE B1	2#4, #4G
			PANEL PSH	FIELD LIGHTING POLE B3	2#8, #8G
2A	SCHED 40 PVC	2.5"			
			PANEL PSH	FIELD LIGHTING POLE C1	2#6, #6G
			PANEL PSH	FIELD LIGHTING POLE B2	2#1, #1G
			PANEL PSH	FIELD LIGHTING POLE C2	2#3, #3G
			PANEL PSH	FIELD LIGHTING POLE D1	2#4, #4G
			PANEL PSH	FIELD LIGHTING POLE D2	2#3, #3G
			PANEL PSH	FIELD LIGHTING POLE D3	2#4, #4G
3A	SCHED 40 PVC	1"			
			PANEL PBW	WALKWAY LIGHTING FIXTURES	2#6, #6G
			PANEL PBW	WALKWAY AND GAZEBO RECEPTACLES	2#8, #8G
3B	SCHED 40 PVC	1"			
			PANEL PBW	WALKWAY LIGHTING FIXTURES	2#6, #6G

PACKAGE 2 - IFB
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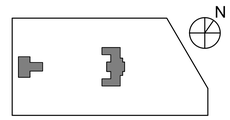
PROJECT TITLE

KINGSESSING RECREATION CENTER BUILDING AND SITE IMPROVEMENTS - PACKAGE 2

KEY PLAN



DRAWING TITLE

ELECTRICAL PROPOSED SITE PLAN

PROJECT NO.	KLMLX21003
DATE	10/05/2023
SCALE	AS NOTED
DRAWN BY:	AJB
CHECKED BY:	JPR

DRAWING NO. EL200-R.2

NOTE: ALL DIMENSIONS AND CONDITIONS SHALL BE VERIFIED BY THE CONTRACTOR AT THE SITE BEFORE PROCEEDING WITH THE WORK.

Panel: PANEL PSH

LOCATION:	**VOLTS:** 120/208 Wye		**BUS:** 400 A COPPER
SUPPLIED FROM:	**PHASES:** 3	**GROUND BUS:**	**MAIN:** 300 A MCB
FEEDER SIZE: Refer to Power Riser Diagram	**WIRES:** 4	**ISOLATED GROUND:**	**AIC:** 22 kA *
MANUFACTURER: REFER TO SPECIFICATIONS	**MOUNTING:** SURFACE	**NEUTRAL:** 100%	**LUGS:** No

CKT	CIRCUIT DESCRIPTION	WIRE SIZE	TRIP	POLES	A		B		C		POLES	TRIP	WIRE SIZE	CIRCUIT DESCRIPTION	CKT
1	MUSCO LIGHTING CONTROLLER	SEE SLD	20	1	0.0	1.5					2	25	SEE CONDUIT TABLE E200	FIELD LIGHTING POLE C1	2
3	FIELD LIGHTING POLE C2	SEE CONDUIT TABLE E200	25	2			1.5	1.5							4
5									1.5	2.0	2	30	SEE CONDUIT TABLE E200	FIELD LIGHTING POLE B2	6
7	FIELD LIGHTING POLE A1	SEE CONDUIT TABLE E200	40	2	2.6	2.0									8
9							2.6	2.6			2	40	SEE CONDUIT TABLE E200	FIELD LIGHTING POLE B1	10
11	FIELD LIGHTING POLE B3	SEE CONDUIT TABLE E200	30	2					2.0	2.6					12
13					2.0	2.0					2	30	SEE CONDUIT TABLE E200	FIELD LIGHTING POLE D1	14
15	FIELD LIGHTING POLE D2	SEE CONDUIT TABLE E200	30	2			2.0	2.0							16
17									2.0	2.0	2	30	SEE CONDUIT TABLE E200	FIELD LIGHTING POLE D3	18
19	SPARE		20	1	0.0	2.0									20
21	SPARE		20	1			0.0	0.0			1	20		SPARE	22
23	SPARE		20	1					0.0	0.0	1	20		SPARE	24
25	SPARE		20	1	0.0	0.0					1	20		SPARE	26
27															28
29															30
31															32
33															34
35															36
37															38
39															40
41															42
					12.3 kVA		12.3 kVA		12.3 kVA						

LOAD CLASSIFICATION	CONNECTED...	DEMAND...	DEMAND LOAD
LIGHTING - EXTERIOR	36.81 kVA	125%	46.013 kVA
Other	0 kVA	0%	0 kVA

TOTAL CONNECTED LOAD:	37 kVA	102 A
TOTAL DEMAND LOAD:	46 kVA	128 A

NOTES:

* CONTRACTOR TO CONFIRM PANEL RATING AND PROVIDE FAULT CALCULATION WITH PANEL SUBMITTAL BASED ON INSTALLED TRANSFORMER DATA AND CABLE INSTALLATION.

PACKAGE 2 - IFB
NOT FOR CONSTRUCTION
06/02/2023

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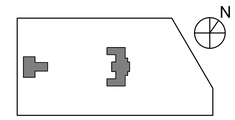
PROJECT TITLE

KINGSESSING RECREATION CENTER BUILDING AND SITE IMPROVEMENTS - PACKAGE 2

KEY PLAN



DRAWING TITLE

ELECTRICAL SCHEDULES

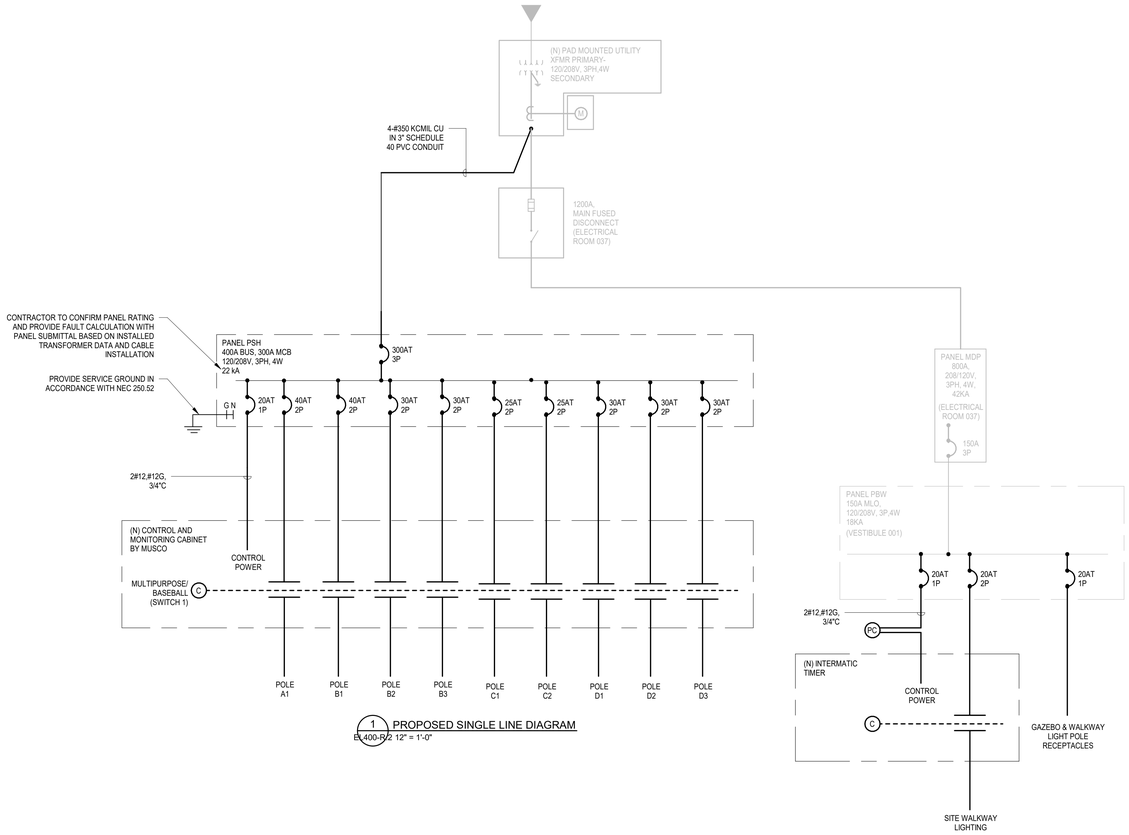
PROJECT NO.	KLMLX21003
DATE	10/05/2023
SCALE	AS NOTED
DRAWN BY:	AJB
CHECKED BY:	JPR

DRAWING NO. E300-R.2

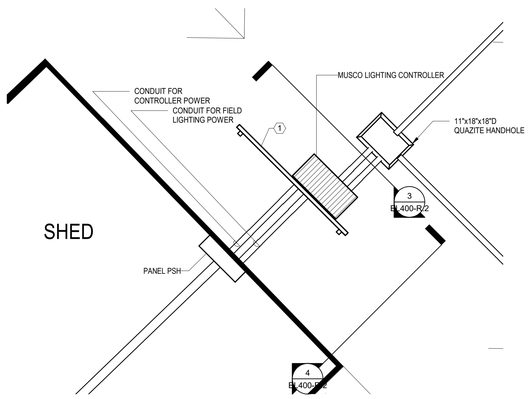
NOTE: ALL DIMENSIONS AND CONDITIONS SHALL BE VERIFIED BY THE CONTRACTOR AT THE SITE BEFORE PROCEEDING WITH THE WORK.

NEW WORK NOTES

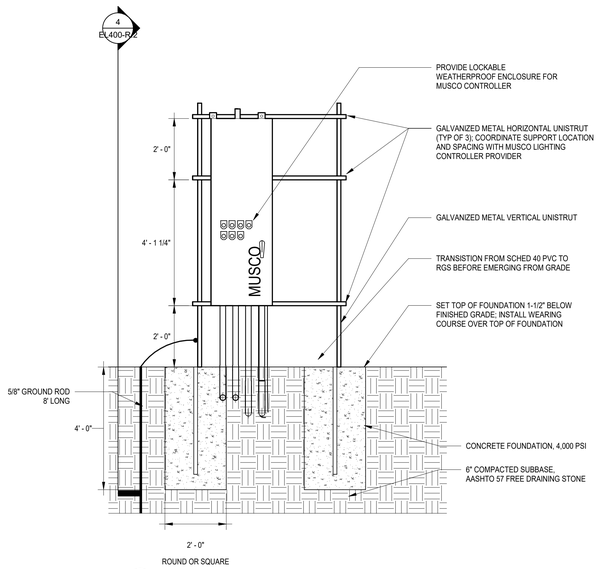
1	PROVIDE DOUBLE POST MOUNTED UNISTRUT RACK FOR MOUNTING THE NEW MUSCO CONTROLLER. SEE DETAIL 2/E400.



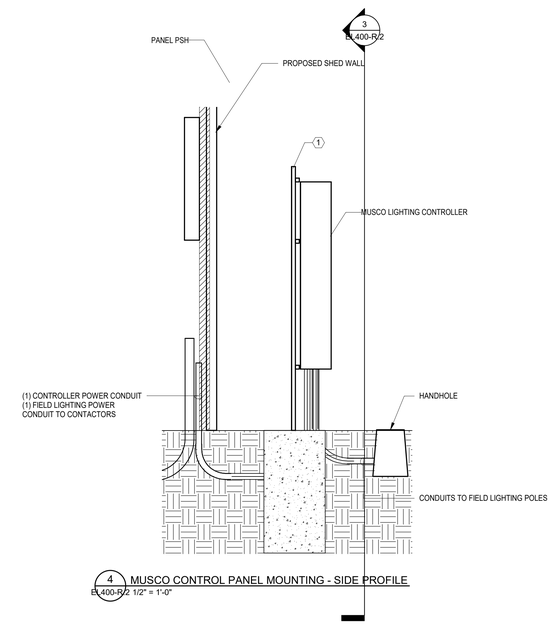
1 PROPOSED SINGLE LINE DIAGRAM
EL400-R/2 12" = 1'-0"



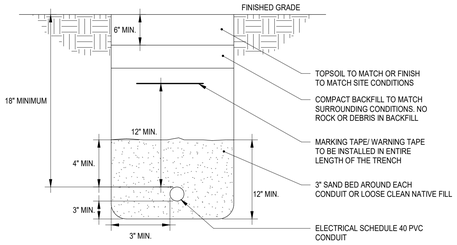
2 PROPOSED SITE PLAN - PANELS AND CONTROLS ENLARGED VIEW
EL400-R/2 1/2" = 1'-0"



3 MUSCO CONTROL PANEL MOUNTING - FRONT VIEW
EL400-R/2 1/2" = 1'-0"



4 MUSCO CONTROL PANEL MOUNTING - SIDE PROFILE
EL400-R/2 1/2" = 1'-0"



NOTES:

1. CONDUIT SIZES AND QUANTITIES IN THIS DETAIL ARE GENERAL. REFER TO PLANS FOR SPECIFIC REQUIREMENTS.
2. REPAIR ALL SETTLEMENT.
3. BACKFILL TRENCH IN 6" LAYERS COMPACTED TO 90% DENSITY. SHALL BE FREE FROM LOOSE DEBRIS CINDERS, VEGATATIONS OR STONES LARGER THAN 3".
4. NO MATERIAL LARGER THAN 1" SHALL BE PLACED WITHIN 6" OF CONDUIT.
5. IF REQUIRED DEPTH CANNOT BE ACCHIEVED A CONCRETE PROTECTION COVER OF CONDUIT MAY BE USED.
6. MAINTAIN 12" VERTICAL OR HORIZONTAL SEPARATION BETWEEN CONDUIT AND ANY OTHER UTILITIES LIKE STORM WATER.

5 TYPICAL UNDERGROUND CONDUIT DUCT BANK
EL400-R/2NOT TO SCALE

PACKAGE 2 - IFB
NOT FOR CONSTRUCTION
06/02/2023

REVISIONS

ISSUE	DATE	DESCRIPTION
	06/02/23	ISSUE FOR BID
10/19/2023	1	ADDENDUM #1

REVIEWED BY:

PROJECT COORDINATOR

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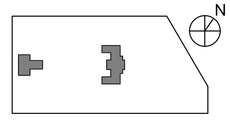
CITY OF PHILADELPHIA
REBUILD / PHILADELPHIA PARKS AND RECREATION
1515 ARCH STREET
5TH FLOOR, ONE PARKWAY BUILDING
PHILADELPHIA PENNSYLVANIA

PROJECT TITLE

KINGSESSING RECREATION CENTER BUILDING AND SITE IMPROVEMENTS - PACKAGE 2

KEY PLAN



DRAWING TITLE

ELECTRICAL DETAILS AND DIAGRAMS

PROJECT NO.	KLMLX21003
DATE	10/05/2023
SCALE	AS NOTED
DRAWN BY:	AJB
CHECKED BY:	JPR

DRAWING NO. EL400-R/2

NOTE: ALL DIMENSIONS AND CONDITIONS SHALL BE VERIFIED BY THE CONTRACTOR AT THE SITE BEFORE PROCEEDING WITH THE WORK.

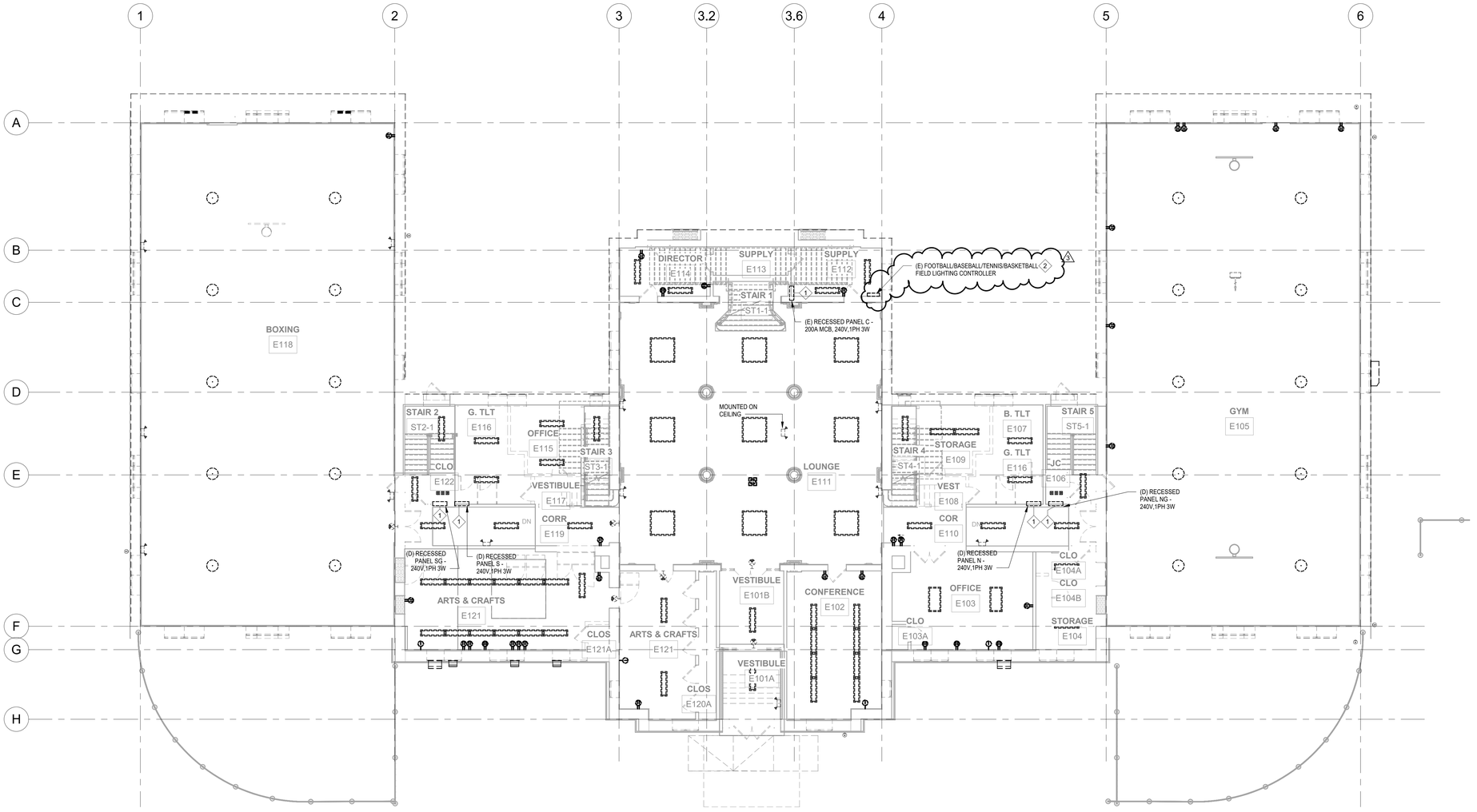
GENERAL DEMOLITION NOTES

1. CONTRACTOR IS RESPONSIBLE TO VISIT THE PROJECT SITE AND VERIFY ALL QUANTITIES AND LOCATIONS OF ALL EQUIPMENT AND DEVICES THAT ARE TO BE DEMOLISHED PRIOR TO BID. REFER TO DEMOLITION NOTES FOR ADDITIONAL INFORMATION.
2. REPAIR ANY SURFACES DISTURBED DURING REMOVAL OR REPLACEMENT OF EQUIPMENT AND DEVICES. PREPARE REPAIRED SURFACES FOR NEW FINISHES IN NEW WORK PHASE.
3. DISCONNECT AND REMOVE ALL EXISTING RECEPTACLES. NOTE RECEPTACLES SHOWN ON PLAN MAY NOT INCLUDE ALL RECEPTACLES TO BE REMOVED. CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING AND REMOVING ALL RECEPTACLES, ASSOCIATED EQUIPMENT,CONDUIT AND WIRING BACK TO SOURCE.
4. DISCONNECT AND REMOVE ALL EXISTING LIGHT FIXTURES. NOTE LIGHT FIXTURES SHOWN ON PLAN MAY NOT INCLUDE ALL RECEPTACLES TO BE REMOVED. CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING AND REMOVING ALL LIGHT FIXTURES, ASSOCIATED EQUIPMENT, CONTROLS, CONDUIT AND WIRING BACK TO SOURCE.
5. DISCONNECT AND REMOVE ALL EXISTING ELECTRICAL CONNECTIONS SERVICING OUTSIDE AIR INTAKE FANS AS SHOWN ON THE MECHANICAL DEMOLITION PLANS AND ANY OTHER MISCELLANEOUS EXISTING MECHANICAL/HVAC EQUIPMENT. REMOVE ALL ASSOCIATED ELECTRICAL EQUIPMENT, CONDUIT AND WIRING BACK TO SOURCE.

DEMOLITION NOTES

1 DISCONNECT AND REMOVE BRANCH PANEL. DISCONNECT AND REMOVE ALL ASSOCIATED WIRING AND CONDUIT BACK TO POINT OF ORIGIN.

2 DISCONNECT AND REMOVE FOOTBALL/BASEBALL CIRCUITS FROM EXISTING LIGHTING CONTROLLER BACK TO SOURCE. EXISTING CONTROLLER AND ALL OTHER CIRCUITS TO REMAIN FOR USE IN NEW WORK PHASE.



1 E101-R.2 ELECTRICAL DEMOLITION - REC CENTER FIRST FLOOR
1/8" = 1'-0"

PACKAGE 1 - CONFORMED SET
10/13/2023

REVISIONS

ISSUE	DATE	DESCRIPTION
1	5/15/23	ISSUE FOR PERMIT
2	5/19/23	ADDENDUM 1
3	10/13/23	CONFORMED SET
10/19/2023	3	ADDENDUM #1

REVIEWED BY:

PROJECT COORDINATOR

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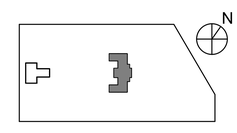
PROJECT TITLE

KINGSESSING RECREATION CENTER BUILDING AND SITE IMPROVEMENTS - PACKAGE 2

KEY PLAN



DRAWING TITLE

ELECTRICAL DEMOLITION - FIRST FLOOR

PROJECT NO.	KLMLX21003
DATE	10/13/2023
SCALE	AS NOTED
DRAWN BY:	NSL
CHECKED BY:	JR

DRAWING NO. E101-R.2

NOTE: ALL DIMENSIONS AND CONDITIONS SHALL BE VERIFIED BY THE CONTRACTOR AT THE SITE BEFORE PROCEEDING WITH THE WORK.

GENERAL NOTES

1. ALL RECEPTACLES LOCATED IN PUBLIC SPACES TO BE TAMPER RESISTANT IN ACCORDANCE WITH NEC SECTION 406.12. EXCEPT RECEPTACLES LOCATED 5'6"AFF.
2. PROVIDE ALLOWANCE FOR 24 V TRANSFORMER LOUVERS XFMRS AND CIRCUITS.
3. PROVIDE POWER TO 208V, 1PH, 19W EXTERNAL CONDENSATE PUMP LOCATED AT EACH AC UNIT. POWER CONDENSATE PUMP FROM THE SAME CIRCUIT AS THE AC UNIT IT SERVES.
4. DATA/TELECOMMUNICATION/SECURITY RECEPTACLES AND CONDUIT TO BE PROVIDED BY CONTRACTOR. REFER TO TELECOMMUNICATIONS PLANS.

NEW WORK NOTES

1 PROVIDE EMERGENCY POWER OFF (EPO) SWITCHES FOR EACH BOILER. LOCATE EPO SWITCHES AT EXTERIOR OF DOOR AT EACH BOILER ROOM EXIST. EPO BOTTONS SHALL BE TWO POLE AND BE WIRED IN SERIES SUCH THAT ACTUATION OF ONLY ONE BOTTON IS REQUIRED TO SHUT DOWN BOILERS.

2 PROVIDE A 15 kVA 208:240V SINGLE PHASE TRANSFORMER FOR EXISTING 240V SINGLE PHASE POOL FILTER LOCATED IN FILTER ROOM 002.

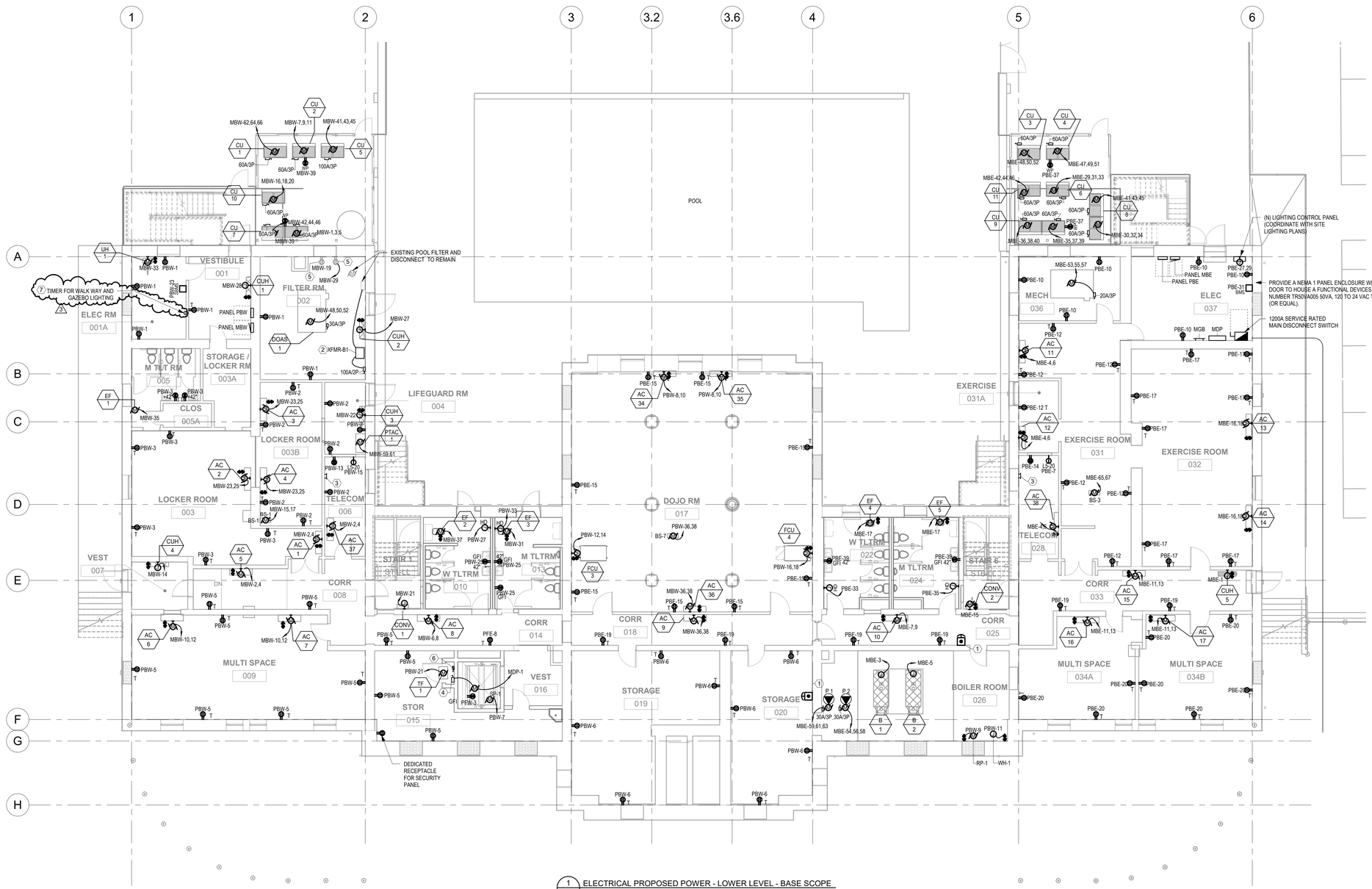
3 TELECOMMUNICATIONS GROUNDING BAR SEE T-SERIES FOR DETAILS. TIE TELECOMMUNICATIONS BUSBAR TO MAIN GROUNDING BUSBAR AT THE ELECTRICAL SERVICE. PER NEC 250 AND 800.

4 PROVIDE MAIN ELEVATOR DISCONNECT SWITCH WITH SHUNT TRIP. COORDANTE MAIN ELEVATOR DISCONNECT SIZE WITH ELEVATOR VENDOR.

5 EXISTING DEDICATED RECEPTACLES FOR POOL CHEMICAL FEEDERS TO REMAIN AND BE REFED FROM PANEL MBW.

6 COORDINATE ELEVATOR CAB DISCONNECT SIZE WITH ELEVATOR VENDOR.

7 PROVIDE INTERMATIC TIMER WITH PHOTOCELL OVERRIDE. SEE EL-SERIES FOR WALKWAY/GAZEBO LIGHTING CIRCUITING INFORMATION.



1 ELECTRICAL PROPOSED POWER - LOWER LEVEL - BASE SCOPE
E200-R.2 1/8" = 1'-0"

PACKAGE 1 - CONFORMED SET
10/13/2023

REVISIONS

ISSUE	DATE	DESCRIPTION
1	5/15/23	ISSUE FOR PERMIT
2	5/19/23	ADDENDUM 1
3	10/13/23	CONFORMED SET
10/19/2023	3	ADDENDUM #1

REVIEWED BY:

PROJECT COORDINATOR

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PROJECT TITLE

KINGSESSING RECREATION CENTER BUILDING AND SITE IMPROVEMENTS - PACKAGE 2

KEY PLAN

DRAWING TITLE

ELECTRICAL PROPOSED POWER - LOWER LEVEL BASE SCOPE

PROJECT NO.	DRAWING NO.
KLMLX21003	E200-R.2
DATE: 10/13/2023	
SCALE: AS NOTED	
DRAWN BY: NSL	
CHECKED BY: JR	

NOTE: ALL DIMENSIONS AND CONDITIONS SHALL BE VERIFIED BY THE CONTRACTOR AT THE SITE BEFORE PROCEEDING WITH THE WORK.

GENERAL NOTES

1. PROVIDE 24" MINIMUM COVER FOR ALL UNDERGROUND CONDUIT. PROVIDE WARNING TAPE 12" ABOVE ALL CONDUITS.
2. ALL UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 PVC. ALL EXPOSED CONDUIT SHALL BE RIGID GALVANIZED STEEL.
3. FOR SITE LIGHTING AND POWER SEE CIVIL/SITE DRAWINGS

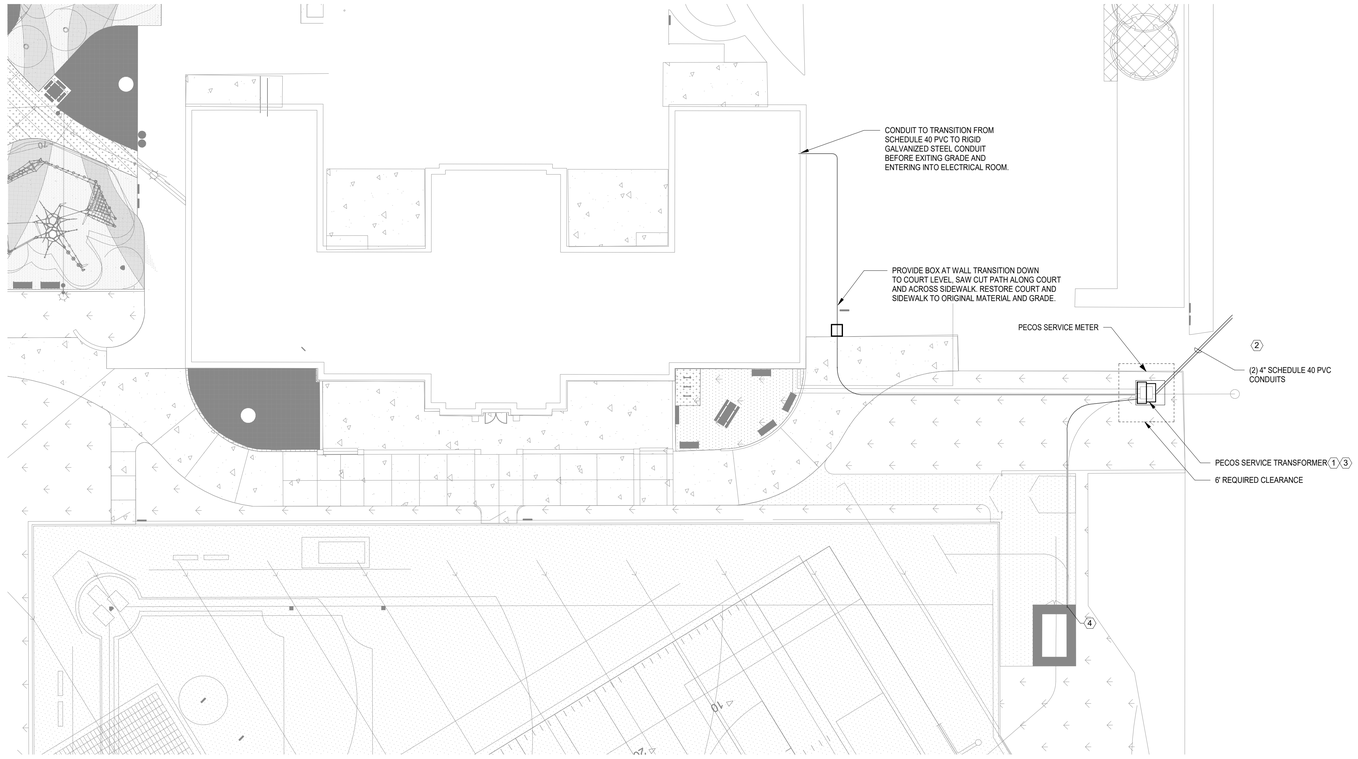
NEW WORK NOTES

1 PROVIDE CONCRETE PAD PER PECO BLUE BOOK FOR SERVICE TRANSFORMER PROVIDED BY PECO. SEE DETAIL 2 ON SHEET E600-R.2.

2 PROVIDE CABLE IN 4" SCHEDULE 40 PVC CONDUITS FROM PRIMARY SIDE TERMINATIONS IN THE PECO PROVIDED TRANSFORMER TO THE PROPERTY LINE PER PECO SPECIFICATIONS. PECO WILL INTERCEPT CABLE AND CONDUITS FROM PROPERTY LINE AND MAKE ALL TERMINATIONS AT THE POLE.

3 PROVIDE GROUND RING AND GROUND RODS AT TRANSFORMER PER PECO SPECIFICATIONS.

4 PROVIDE 2.5" SCHEDULE 40 PVC UNDERGROUND CONDUIT TO SHED. PROVIDE 400A PANEL WITH 300A MCB IN SHED. PROVIDE GROUND TIE TO THE FOUNDATION REBAR AND PROVIDE A MINIMUM OF ONE 8 FOOT LONG GROUND ROD. BOND NEUTRAL AND GROUND AT SERVICE DISCONNECT PER NEC 250.SEE EL-SERIES FOR MORE DETAILS ON SHED AND FIELD LIGHTING ELECTRICAL REQUIRMENTS.



1 ELECTRICAL PROPOSED POWER - SITE PLAN
E204-R.2 1" = 20'-0"

PACKAGE 1 - CONFORMED SET
10/13/2023

REVISIONS

ISSUE	DATE	DESCRIPTION
1	5/15/23	ISSUE FOR PERMIT
2	5/19/23	ADDENDUM 1
3	10/13/23	CONFORMED SET
10/19/2023	3	ADDENDUM #1

REVIEWED BY:

PROJECT COORDINATOR

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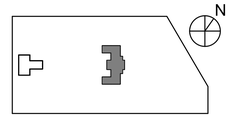
PHILADELPHIA PENNSYLVANIA

PROJECT TITLE

KINGSESSING RECREATION CENTER BUILDING AND SITE IMPROVEMENTS - PACKAGE 2

KEY PLAN



DRAWING TITLE

ELECTRICAL PROPOSED POWER - SITE PLAN

PROJECT NO.	KLMLX21003
DATE	10/13/2023
SCALE	AS NOTED
DRAWN BY:	Author
CHECKED BY:	Approver

DRAWING NO.

E204-R.2

NOTE: ALL DIMENSIONS AND CONDITIONS SHALL BE VERIFIED BY THE CONTRACTOR AT THE SITE BEFORE PROCEEDING WITH THE WORK.

Panelboard: PANEL PBW

Location: VESTIBULE 001
Supply: MDP
Mounting: FLUSH
Enclosure: NEMA 1

Voltage: 208 V, 3Ø, 4W
Bus Rating: 150 A
Neutral: 100%
Feed-Thru Lugs:
Features & Modifications: -

Mains Type: MLO
Mains Rating: 150 A
Mains FN/Note: -
SCCR: 18 kA

Ckt	Description	Wire Size	Trip (A)	Poles	FN/Note	A	B	C	FN/Note	Poles	Trip (A)	Wire Size	Description	Ckt
PBW-1	RECS: VEST 001	1-#12, 1-#12, 1-#12	20	1		1080	1440			1	20	1-#12, 1-#12, 1-#12	RECS: TEL COM 006	PBW-2
PBW-3	RECS: M TLT RM LL	1-#12, 1-#12, 1-#12	20	1				1440						PBW-4
PBW-5	RECS: MULTI SP 009	1-#12, 1-#12, 1-#12	20	1				1980	1440	1	20	1-#12, 1-#12, 1-#12	RECS: STORAGE 019	PBW-6
PBW-7	SP-1	1-#12, 1-#12, 1-#12	20	1		1200	150			2	15	2-#12, 1-#12, 1-#14	AC-34 & AC-35	PBW-8
PBW-9	RP-1	1-#12, 1-#12, 1-#12	20	1				700	150					PBW-10
PBW-11	WH-1	1-#12, 1-#12, 1-#12	20	1						2	15	2-#12, 1-#12, 1-#14	FCU-3	PBW-12
PBW-13	AV 006 EQUIPMENT RACK	1-#12, 1-#12, 1-#12	20	1		360	365							PBW-14
PBW-15	AV 006 EQUIPMENT RACK	1-#12, 1-#12, 1-#12	20	1				180	365	2	15	2-#12, 1-#12, 1-#14	FCU-4	PBW-16
PBW-17	LIGHTS: STOR 015, VEST 016, STOR 019 LL	1-#12, 1-#12, 1-#12	20	1				136	365					PBW-18
PBW-19	LIGHTING - INTERIOR	1-#12, 1-#12, 1-#12	20	1		119	146			1	20	1-#12, 1-#12, 1-#12	LIGHTS: MULTI SPACE 003	PBW-20
PBW-21	Motor	1-#12, 1-#12, 1-#12	20	1			700	205		1	20	1-#12, 1-#12, 1-#12	LIGHTS: CLASSROOM 034	PBW-22
PBW-23	SBMS-2	1-#12, 1-#12, 1-#12	20	1				360	180	1	20	--	INTERMATIC TIMER	PBW-24
PBW-25	RECEPTACLE	1-#12, 1-#12, 1-#12	20	1		540	1920			1	20	--	SITE WALKWAY LIGHTING	PBW-26
PBW-27	HAND DRYER 010	1-#12, 1-#12, 1-#12	20	1			1500	720		1	20	--	GAZEBO AND WALKWAY LIGHTING POLE RECS	PBW-28
PBW-29	POWER	1-#12, 1-#12, 1-#12	20	1				0						PBW-30
PBW-31	HW LL Bath	1-#12, 1-#12, 1-#12	20	1		180								PBW-32
PBW-33	HAND DRYER 013	1-#12, 1-#12, 1-#12	20	1			1500							PBW-34
PBW-35									150	2	15	2-#12, 1-#12, 1-#14	BS-7	PBW-36
PBW-37							150							PBW-38
PBW-39														PBW-40
PBW-41	LIGHTS: CORR 018, 014, VEST 007	1-#12, 1-#12, 1-#12	20	1				187						PBW-42
PBW-43														PBW-44
PBW-45														PBW-46
PBW-47														PBW-48
PBW-49														PBW-50
PBW-51														PBW-52
PBW-53														PBW-54
					Connected Load:	8 kVA		7 kVA		6 kVA				
					Connected Current:	66 A		64 A		49 A				

(Includes load connected via feed-thru lugs.)

Load Classification	Connected	Factor	Demand
Motor	2.78 kVA	111%	3.08 kVA
Other	0.36 kVA	100%	0.36 kVA
Lighting - Interior	0.794 kVA	125%	0.992 kVA
Receptacle - General	6.3 kVA	100%	6.3 kVA
Receptacle - Dedicated	0.54 kVA	100%	0.54 kVA
Electric Water Heating	0.7 kVA	125%	0.875 kVA
HVAC	2.06 kVA	100%	2.06 kVA

Panel Totals	
Connected Load:	21 kVA
Connected Current:	58 A
Demand Load:	22 kVA
Demand Current:	60 A

Notes:
1.) FOR PBW-24, PBW-26 & PBW-28 SEE EL-SERIES FOR WIRE SIZING, CONDUIT SIZING AND CIRCUITING INFORMATION.

3

3

Panelboard: PANEL PFW

Location: VESTIBULE 107
Supply: MDP
Mounting: Surface
Enclosure: NEMA 1

Voltage: 208 V, 3Ø, 4W
Bus Rating: 150 A
Neutral: 100%
Feed-Thru Lugs:
Features & Modifications: -

Mains Type: MLO
Mains Rating: 150 A
Mains FN/Note: -
SCCR: 18 kA

Ckt	Description	Wire Size	Trip (A)	Poles	FN/Note	Phase A Load (VA)	Phase B Load (VA)	Phase C Load (VA)	FN/Note	Poles	Trip (A)	Wire Size	Description	Ckt
PFW-1	LIGHTING - INTERIOR	1-#12, 1-#12, 1-#12	20	1		51	153			1	20	1-#12, 1-#12, 1-#12	LIGHTING - INTERIOR	PFW-2
PFW-3	RECEPTACLE	1-#12, 1-#12, 1-#12	20	1			180	180		1	20	1-#12, 1-#12, 1-#12	LIGHTING - INTERIOR	PFW-4
PFW-5	LIGHTING - INTERIOR	1-#12, 1-#12, 1-#12	20	1				1056	1440	1	20	1-#12, 1-#12, 1-#12	RECS: OFFICES 108, 110 1ST FLR	PFW-6
PFW-7	LIGHTING	1-#12, 1-#12, 1-#12	20	1		162	360			1	20	1-#12, 1-#12, 1-#12	HD 103/116	PFW-8
PFW-9	SBMS-3	1-#12, 1-#12, 1-#12	20	1			360	1440		1	20	1-#12, 1-#12, 1-#12	RECS: OFFFICES 106, 112 1ST FLR	PFW-10
PFW-11														PFW-12
PFW-13	BS-5	2-#12, 1-#12, 1-#14	15	2		150	1440			1	20	1-#12, 1-#12, 1-#12	RECS: BOXING 101 1ST FLR	PFW-14
PFW-15							150	0						PFW-16
PFW-17									0	3	20	3-#12, 1-#12, 1-#12	ELEVATOR	PFW-18
PFW-19							0							PFW-20
PFW-21														PFW-22
PFW-23														PFW-24
PFW-25														PFW-26
PFW-27														PFW-28
PFW-29														PFW-30
					Connected Load:	2 kVA	2 kVA	2 kVA						
					Connected Current:	19 A	19 A	21 A						

(Includes load connected via feed-thru lugs.)

Load Classification	Connected	Factor	Demand
Other	0.72 kVA	100%	0.72 kVA
Lighting - Interior	1.44 kVA	125%	1.8 kVA
Receptacle - Dedicated	0.18 kVA	100%	0.18 kVA
HVAC	0.3 kVA	100%	0.3 kVA

Panel Totals	
Connected Load:	7 kVA
Connected Current:	20 A
Demand Load:	7 kVA
Demand Current:	21 A

Notes:

Panelboard: PANEL PBE

Location:
Supply: MDP
Mounting: Surface
Enclosure: NEMA 1

Voltage: 208 V, 3Ø, 4W
Bus Rating: 150 A
Neutral: 100%
Feed-Thru Lugs:
Features & Modifications: -

Mains Type: MLO
Mains Rating: 150 A
Mains FN/Note: -
SCCR: 18 kA

Ckt	Description	Wire Size	Trip (A)	Poles	FN/Note	Phase A Load (VA)	Phase B Load (VA)	Phase C Load (VA)	FN/Note	Poles	Trip (A)	Wire Size	Description	Ckt
PBE-1	EMERGENCY LTS 3RD FL	1-#12, 1-#12, 1-#12	20	1		1	119			1	20	1-#12, 1-#12, 1-#12	LTS MULTI SPACE 034	PBE-2
PBE-3	LIGHTING - INTERIOR	1-#12, 1-#12, 1-#12	20	1			102	464		1	20	1-#12, 1-#12, 1-#12	LTS EXERCISE RM 032	PBE-4
PBE-5	LIGHTING - INTERIOR	1-#12, 1-#12, 1-#12	20	1				119	165	1	20	1-#12, 1-#12, 1-#12	LIGHTS: RMS 012, 013, 010, 011, ST1LL	PBE-6
PBE-7	AV 208 EQUIPMENT RACK	1-#12, 1-#12, 1-#12	20	1		180	205			1	20	1-#12, 1-#12, 1-#12	LTS STORAGE 020	PBE-8
PBE-9	LIGHTS: EXERCISE RM 032	1-#12, 1-#12, 1-#12	20	1			549	1080		1	20	1-#12, 1-#12, 1-#12	RECS: STORAGE 037, 036 LL	PBE-10
PBE-11	LIGHTS: DOJO 017 LL	1-#12, 1-#12, 1-#12	20	1				633	1260	1	20	1-#12, 1-#12, 1-#12	RECS: EXERCISE RM 031, LL	PBE-12
PBE-13	LTS TELECOM	1-#12, 1-#12, 1-#12	20	1		209	360			1	20	1-#12, 1-#12, 1-#12	AV 208 EQUIPMENT RACK	PBE-14
PBE-15	RECS: DOJO	1-#12, 1-#12, 1-#12	20	1			1440							PBE-16
PBE-17	RECS: EXERCISE RM 032, LL	1-#12, 1-#12, 1-#12	20	1				1440						PBE-18
PBE-19	RECS: CORR 025 & 033	1-#12, 1-#12, 1-#12	20	1		1080	1440			1	20	1-#12, 1-#12, 1-#12	RECS: CLASSROOM 034 LL	PBE-20
PBE-21							937	937						PBE-22
PBE-23	ERU-1	3-#12, 1-#12, 1-#12	20	3				937	937	3	20	3-#12, 1-#12, 1-#12	ERU-2	PBE-24
PBE-25						937	937							PBE-26
PBE-27	SITE LIGHTING CONTROLLER	2-#6, 1-#6, 1-#10	60	2			90							PBE-28
PBE-29								90						PBE-30
PBE-31	SBMS-1	1-#12, 1-#12, 1-#12	20	1		360								PBE-32
PBE-33	HW 022/024	1-#12, 1-#12, 1-#12	20	1			1500							PBE-34
PBE-35	POWER	1-#12, 1-#12, 1-#12	20	1				1500						PBE-36
PBE-37	RECS: CU SERIVE RECPT	1-#12, 1-#12, 1-#12	20	1		360								PBE-38
PBE-39	RECS: W TLT 010	1-#12, 1-#12, 1-#12	20	1			360							PBE-40
PBE-41														PBE-42
					Connected Load:	6 kVA	7 kVA	7 kVA						
					Connected Current:	52 A	63 A	60 A						

(Includes load connected via feed-thru lugs.)

Load Classification	Connected	Factor	Demand
Motor	5.62 kVA	113%	6.323 kVA
Other	0.54 kVA	100%	0.54 kVA
Lighting - Interior	2.567 kVA	125%	3.209 kVA
Receptacle - General	7.74 kVA	100%	7.74 kVA
Receptacle - Dedicated	0.54 kVA	100%	0.54 kVA

Panel Totals	
Connected Load:	21 kVA
Connected Current:	58 A
Demand Load:	22 kVA
Demand Current:	61 A

Notes:
1.) THIS PANEL SCHEDULE REFLECTS BASE BID PACKAGE FINAL PANEL SCHEDULE. FINAL PANEL SCHEDULE FOR THE DEDUCT ALTERNATE BID WILL INCLUDE BOTH NEW AND EXISTING CIRCUITS, SEE SHEET E200B-R.2.

Panelboard: PANEL PFE

Location: ARTS&CRAFTS 119
Supply: MDP
Mounting: Surface
Enclosure: NEMA 1

Voltage: 208 V, 3Ø, 4W
Bus Rating: 150 A
Neutral: 100%
Feed-Thru Lugs:
Features & Modifications: -

Mains Type: MLO
Mains Rating: 150 A
Mains FN/Note: -
SCCR: 18 kA

Ckt	Description	Wire Size	Trip (A)	Poles	FN/Note	Phase A Load (VA)	Phase B Load (VA)	Phase C Load (VA)	FN/Note	Poles	Trip (A)	Wire Size	Description	Ckt
PFE-1	Lighting - Interior	1-#12, 1-#12, 1-#12	20	1		17								PFE-2
PFE-3	LTS ART N CRAFT	1-#12, 1-#12, 1-#12	20	1			153	192		1	20	1-#12, 1-#12, 1-#12	LIGHTING - INTERIOR	PFE-4
PFE-5	RECS: BATHROOMS 103, 116 1ST FLR	1-#12, 1-#12, 1-#12	20	1				720	214	1	20	1-#12, 1-#12, 1-#12	LTS VEST 117	PFE-6
PFE-7	LIGHTING - INTERIOR	1-#12, 1-#12, 1-#12	20	1		1056	180			1	20	1-#12, 1-#12, 1-#12	RECEPTACLE	PFE-8
PFE-9	RECS: RMS 115, 119 1ST FLR	1-#12, 1-#12, 1-#12	20	1			1080	1440		1	20	1-#12, 1-#12, 1-#12	RECS: GYMNASIUM 121 1ST FLR	PFE-10
PFE-11	SBMS-4	1-#12, 1-#12, 1-#12	20	1				360						PFE-12
PFE-13	FCU-1	2-#12, 1-#12, 1-#12	20	2		1500	180			1	20	1-#12, 1-#12, 1-#12	ELC-2	PFE-14
PFE-15							1500	180		1	20	1-#12, 1-#12, 1-#12	RECS: COUNTER ARTS AND CRATFS RM	PFE-16
PFE-17	RECS: MAIN HALL 1ST FLR	1-#12, 1-#12, 1-#12	20	1				1440						PFE-18
PFE-19	ART 119 REFRIGERATOR	1-#12, 1-#12, 1-#12	20	1		180								PFE-20
PFE-21	EWC-1	1-#12, 1-#12, 1-#12	20	1			180	180		1	20	1-#12, 1-#12, 1-#12	ART 119 REFRIGERATOR	PFE-22
PFE-23	FCU-2	2-#12, 1-#12, 1-#12	20	2				1500	180	1	20	1-#12, 1-#12, 1-#12	RECS: RM 115	PFE-24
PFE-25						1500	180			1	20	1-#12, 1-#12, 1-#12	ART 119 REFRIGERATOR	PFE-26
PFE-27	ART 119 REFRIGERATOR	1-#12, 1-#12, 1-#12	20	1			180							PFE-28
PFE-29	LL BATH RECEPT	1-#12, 1-#12, 1-#12	20	1				180	180	1	20	1-#12, 1-#12, 1-#12	ART 119 REFRIGERATOR	PFE-30
PFE-31	Lighting - Interior	1-#12, 1-#12, 1-#12	20	1		30	333							PFE-32
PFE-33	Lighting - Interior	1-#12, 1-#12, 1-#12	20	1			17	333		3	15	3-#12, 1-#12, 1-#14	EF-10	PFE-34
PFE-35	ART 119 REFRIGERATOR	1-#12, 1-#12, 1-#12	20	1				180	333					PFE-36
PFE-37	Lighting - Interior	1-#12, 1-#12, 1-#12	20	1		7								PFE-38
PFE-39														PFE-40
PFE-41														PFE-42
PFE-43														PFE-44
PFE-45														PFE-46
PFE-47														PFE-48
					Connected Load:	5 kVA	5 kVA	5 kVA						
					Connected Current:	43 A	45 A	44 A						

(Includes load connected via feed-thru lugs.)

Load Classification	Connected	Factor	Demand
Motor	1 kVA	125%	1.25 kVA
Other	0.36 kVA	100%	0.36 kVA
Lighting - Interior	1.686 kVA	125%	2.107 kVA
Receptacle - General	0.18 kVA	100%	0.18 kVA
Receptacle - Dedicated	1.08 kVA	100%	1.08 kVA
HVAC	6 kVA	100%	6 kVA

Panel Totals	
Connected Load:	16 kVA
Connected Current:	44 A
Demand Load:	17 kVA
Demand Current:	46 A

Notes:

PACKAGE 1 - CONFORMED SET
10/13/2023

REVISIONS

ISSUE	DATE	DESCRIPTION
1	5/15/23	ISSUE FOR PERMIT
2	5/19/23	ADDENDUM 1
3	10/13/23	CONFORMED SET
10/19/2023	3	ADDENDUM #1

REVIEWED BY:

PROJECT COORDINATOR

SEALS

KELLY MAIELLO ARCHITECTS
1420 Walnut Street, 15th Floor
Philadelphia, PA 19102
www.kmarchitects.com

LANDSCAPE ARCHITECT:
Salt Design Studio
4100 Main Street Suite 200
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www.saltdesignstudio.com

M.E.P./F.P./SITE CIVIL ENGINEERS:
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1900 Market Street Suite 300
Philadelphia PA 19103
www.pennoni.com

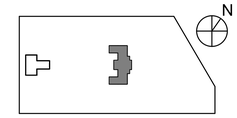
LEED CONSULTANT:
Verde Architecture Consulting
1635 Market Street Suite 1600
Philadelphia PA 19103

CITY OF PHILADELPHIA
REBUILD / PHILADELPHIA PARKS AND RECREATION
1515 ARCH STREET
5TH FLOOR, ONE PARKWAY BUILDING
PHILADELPHIA PENNSYLVANIA

PROJECT TITLE

KINGSESSING RECREATION CENTER BUILDING AND SITE IMPROVEMENTS - PACKAGE 2

KEY PLAN



DRAWING TITLE

ELECTRICAL SCHEDULES

PROJECT NO.	DRAWING NO.
KLMLX21003	E502-R.2
DATE: 10/13/2023	
SCALE: AS NOTED	
DRAWN BY: Author	
CHECKED BY: Approver	

NOTE: ALL DIMENSIONS AND CONDITIONS SHALL BE VERIFIED BY THE CONTRACTOR AT THE SITE BEFORE PROCEEDING WITH THE WORK.

515 Grove Street
Suite 1B
Haddon Heights, NJ 08035
T: 856-547-0505
F: 856-547-9174

www.pennoni.com

WORK PLAN

for

ABATEMENT OF ASBESTOS-CONTAINING MATERIALS

KINGSESSING RECREATION CENTER BUILDING AND SITE IMPROVEMENTS PROJECT 4901 KINGSESSING AVENUE PHILADELPHIA, PENNSYLVANIA 19143

Prepared For:
Mr. Troy Leonard
Kelly Maiello Architects
1420 Walnut Street, 15th Floor
Philadelphia, Pennsylvania 19102

Prepared By:
Pennoni Associates, Inc.
515 Grove Street, Suite 1B
Haddon Heights, New Jersey 08035

_____
Alan Lloyd
Project Designer #032182

Project No. KLMLX21003
February 28, 2022

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TABLE OF CONTENTS

END OF SECTION

PROJECT DIRECTORY

PROJECT NAME:	Kingsessing Building and Site Improvements Asbestos Abatement
PROJECT LOCATION:	4901 Kingsessing Avenue Philadelphia, Pennsylvania 19143
CLIENT:	Kelly Maiello Architects 1420 Walnut Street, 15th Floor Philadelphia, Pennsylvania 19102
Contact:	Mr. F. Gaeton Tavella 215-400-5148
ASBESTOS PROJECT INSPECTOR MONITORING:	Pennoni Associates, Inc. 515 Grove Street, Suite 1B Haddon Heights, New Jersey 08035
Contact:	Alan Lloyd, CIH, CSP (856) 547-0505 Office ALloyd@Pennoni.com
DATE OF WORKPLAN DOCUMENTS:	February 28, 2022

SECTION 01013

SUMMARY OF WORK

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. General provisions of the Contract, including General and Supplementary Conditions, and other Division-1 specification sections, apply to work of this section.

1.2 PROJECT/WORK IDENTIFICATION

A. The project name is Kingsessing Building and Site Improvement Project – Asbestos Abatement. The facility is located at 4901 Kingsessing Avenue, Philadelphia, Pennsylvania. The contract documents have been prepared by the Owner's Environmental Consultant, Pennoni Associates Inc. and are dated February 25, 2022.

B. The scope of the asbestos abatement project includes the proper removal and off-site disposal of asbestos-containing materials identified in this work plan. All work shall be conducted in accordance with the City of Philadelphia Asbestos Control Regulation Chapter 6-600 and all applicable Federal, State and Local Regulations. If required, the contractor shall submit an Alternative Method Request to treat each work area as a Minor Project for clearance purposes as well as an Alternative Method Request to utilize a remote 3 stage decontamination chamber.

C. Tables 1A and 1B below list the approximate quantities and locations of the identified and assumed asbestos-containing materials that are to be removed as part of this scope of work. The table is provided to supply Contractors with information to aid in the bidding process. The table shall in no way limit the scope of work. The Contractor shall be responsible to fully investigate the scope of work, verify all quantities and provide a proposal based on all existing conditions.

SF – Square Feet; LF – Linear Feet; EA – Each; CF – Cubic Feet

Table 1B – Identified and Presumed Asbestos-Containing Materials For Abatement Kingsessing Recreation Center Building – 4901 Kingsessing Avenue Philadelphia, Pennsylvania 19143		
HID and Material	**Location**	**Approx. Quantity**
Gray 12” x 12” Vinyl Asbestos Containing Floor Tile – single layer	Storage Room (E104) and Closets (E104A and E104B), Office (E103) and Closet (E103A), Stair Landing (ST4-1), Supply Room (E112),	1,110 SF

Table 1B – Identified and Presumed Asbestos-Containing Materials For Abatement Kingsessing Recreation Center Building – 4901 Kingsessing Avenue Philadelphia, Pennsylvania 19143		
HID and Material	**Location**	**Approx. Quantity**
	Director Office (E114), Office (E115), Restroom (E116), Arts & Crafts (E120) and Closet (E120A)	
Gray 12" x 12" Vinyl Asbestos Containing Floor Tile – below carpet	Arts & Crafts (E121) and Closet (E121A)	350 SF
Gray 12" x 12" Vinyl Asbestos Containing Floor Tile – below multiple layers of non-asbestos containing flooring	Vestibule (E101A and E101B), Conference Room (E102), Restroom (E107), Vestibule (E108), Corridor (E110), Lounge (E111), Corridor (E119)	2,400 SF
Gray 12" x 12" Vinyl Asbestos Containing Floor Tile – below foam sheet flooring	Kitchen (E205) and Vestibule (E206)	80 SF
Asbestos Containing Pipe Insulation and Pipe Fitting Insulation	Inaccessible – Assumed to be in the Attic (verify prior to disturbance)	Not quantified
Roofing Materials (assumed)	Entire Roof	12,200 SF

SF – Square Feet; LF – Linear Feet; EA – Each; CF – Cubic Feet

D. Contractor shall submit to the Environmental Consultant a written request for pre-commencement, pre-encapsulation, and final inspections for each work area.

E. Contract documents indicate the work of the contract and related requirements and conditions that have an impact on the project. Related requirements and conditions that are indicated on the contract documents include, but are not necessarily limited to the following:

1. Applicable codes and regulations (including fire codes)
2. Notices and permits
3. Existing site conditions and restrictions on use of the site
4. Work performed prior to work under this contract
5. Work to be performed concurrently by separate contractors
6. Work to be performed subsequent to work under this contract
7. Alternates
8. Allowances

9. Summary by References: Work of the Contract can be summarized by references to the Contract, General Conditions, Supplementary Conditions, Specification Sections, addenda and modifications to the contract documents issued subsequent to the initial printing of this project manual and including but not necessarily limited to printed material referenced by any of these. Work of the Contract is also unavoidably affected or influenced by governing regulations, natural phenomenon including weather conditions and other forces outside the contract documents.

10. General and administrative requirements are set forth in the following specification sections:

    1. 01013 Summary of work
    2. 01043 Project Coordination
    3. 01091 Definitions And Standards
    4. 01301 Submittals

11. Removal work requirements are set forth in the following specification sections, listed here according to the sequence of the work:

    1. 01092 Codes, Regulations, and Standards - Sets forth governmental regulations and industry standards which are included and incorporated herein by reference and made a part of the specification. This section also sets forth those notices and permits which are known to the Owner and which either must be applied for and received, or which must be given to governmental agencies before start of work.
    2. 01503 Temporary Facilities - Sets forth the support facilities needed such as electrical and plumbing connections for the decontamination units.
    3. 01526 Temporary Enclosures and Work Area Preparation - Details the requirements for the sheet plastic barriers that isolate the work area from the balance of the building.
    4. 01410 Air Monitoring - Describes air monitoring by Asbestos Project Inspector (API) so that the building beyond the work area will remain uncontaminated. OSHA compliance air monitoring to determine required respiratory protection is the responsibility of the Contractor.
    5. 01563 Decontamination Units - Explains the setup and operation of the personnel and waste decontamination units.
    6. 01513 Temporary Pressure Differential and Air Filtration System - Sets forth the procedures to set up the negative air machines and ventilation of the work area.
    7. 01560 Worker Protection - Sets forth the procedures and equipment for adequate worker protection.
    8. 01562 Respiratory Protection - Sets forth the procedures and equipment required for adequate protection against inhalation of airborne asbestos fibers.

12. Asbestos Removal Work Procedures are described in the following specification sections:

    1. 02079 Containment Bag Removal
    2. 02081 Removal of Asbestos-Containing Material
    3. 02084 Disposal of Asbestos-Containing Waste

13. Decontamination of the work area after completion of abatement work is described in the following sections:

    1. 01711 Project Decontamination - Describes the sequence of cleaning and decontamination procedures to be followed during removal of the sheet plastic barriers isolating a work area.
    2. 01714 Work Area Clearance - Describes the analytical methods used to determine if the work area has been successfully cleaned of contamination.
    3. 01701 Project Closeout - Details the closeout procedures to end the project once asbestos removal work is complete including final paperwork requirements.

1.3 INSPECTION

A. Prior to commencement of work, inspect areas in which work will be performed. Prepare a listing of damage to structure, surfaces, equipment or of surrounding properties which could be misconstrued as damage resulting from the work. Photograph or videotape existing conditions as necessary to document conditions. Submit to Environmental Consultant prior to starting work.

1.4 POTENTIAL HAZARDS

A. The disturbance or dislocation of asbestos-containing materials may cause asbestos fibers to be released into the building's atmosphere, thereby creating a potential health hazard to workmen and building occupants. Apprise all workers, supervisory personnel, subcontractors and consultants who will be at the job site of the seriousness of the identified potential hazards and of proper work procedures which must be followed.

B. Where in the performance of the work, workers, supervisory personnel, subcontractors, or consultants may encounter, disturb, or otherwise function in the immediate vicinity of any identified asbestos-containing materials, take appropriate continuous measures as necessary to protect these persons from the potential hazard of exposure. Such measures shall include the procedures and methods described herein, and compliance with regulations of applicable federal, state and local city agencies.

C. **Lead-based paint** is located on components in the work area including walls, ceilings, window frames, columns, pipe valves, and door frames. When these materials are impacted, they should be handled following all federal, state, and local regulations.

1.5 STOP WORK

A. If the Owner or Environmental Consultant presents a written stop work order

immediately and automatically stop all work. Do not recommence work until authorized in writing by the Owner or Environmental Consultant.

1.6 ASBESTOS-CONTAINING MATERIALS

A. The following asbestos-containing materials are known or presumed to be present at the worksite in the renovation areas. If any other materials are found, which are suspected of containing asbestos, notify the Environmental Consultant immediately both verbally and in writing. Do not proceed with additional work without written approval.

Recreation Center Building:

1. Vinyl Asbestos Containing Floor Tile (VAT)
2. Pipe Insulation
3. Pipe Fitting Insulation
4. Roofing Materials

1.7 QUALITY ASSURANCE

A. The Asbestos Abatement Contractor shall use adequate numbers of skilled workmen who are thoroughly trained and experienced in asbestos abatement and who are completely familiar with the specified requirements and the methods needed for proper performance of the work in this Section. The Asbestos Abatement Contractor must possess a valid Contractor certification as issued by the Commonwealth of Pennsylvania, Department of Labor and Industry and the City of Philadelphia Department of Public Health. All workers must possess a currently valid worker accreditation from the Commonwealth of Pennsylvania, Department of Labor and Industry and produce such accreditation upon request. The Contractor must also have onsite at least one individual with a currently valid supervisor’s accreditation as issued by the Commonwealth of Pennsylvania, Department of Labor and Industry.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION

3.1 ASBESTOS CONTRACTOR USE OF PREMISES

A. Use of the Site: Confine operations at the site to the areas permitted under the contract. Portions of the site beyond areas on which work is indicated are not to be disturbed. Conform to site rules and regulations affecting the work while engaged in project construction.

1. Keep existing entrances and adjacent parking areas serving the premises clear. Do not use these areas for parking or storage of materials. Parking

and storage is available immediately adjacent to the building only.

2. Do not unreasonably encumber the site with materials or equipment. Confine stockpiling of materials/equipment and location of storage trailers to the areas indicated. If additional storage is necessary the Contractor must obtain and pay for such storage off site.

3. Lock automotive type vehicles, such as passenger cars and trucks and other mechanized or motorized construction equipment, when parked and unattended, so as to prevent unauthorized use. Do not leave such vehicles or equipment unattended with motor running or ignition key in place or accessible to unauthorized persons.

B. Contractor's Use of the Existing Buildings: Maintain existing building in a safe and weather tight condition.

1. Smoking or open fires will not be permitted within the building enclosure.

2. Keep means of egress clear of rubbish, construction materials and asbestos waste.

3. The Contractor shall be responsible for supplying, cleaning and maintaining adequate toilet facilities.

4. The Contractor shall be responsible for supplying an appropriate office trailer(s), exterior to the building, with adequate heat and/or air conditioning as needed.

3.2 BUILDING OCCUPANCY

A. All required access into portions of the building or utility service interruption that could affect the building must be carefully coordinated with the Owners' Environmental Consultant and the Owner.

B. Floors must remain un-occupied during abatement activities.

3.3 SUMMARY OF WORK - ASBESTOS ABATEMENT

A. The scope of the Asbestos Abatement Project includes the complete removal and off-site disposal of asbestos-containing materials indicated within this specification, Asbestos Inventory Report (AIR Form), Contract and described herein. The Contractor shall be responsible to fully investigate the scope of work and provide a proposal based on all existing conditions. Change orders for new materials not identified in this specification may be considered, but not for variances in quantities of known materials throughout the buildings. The contractor shall submit their bid based on existing conditions and observations made during the bid walkthrough.

B. All asbestos abatement shall be performed in strict accordance with the City of Philadelphia Asbestos Control Regulation Chapter 6-600 and all applicable

Federal, State and Local Regulations.

C. All identified asbestos-containing materials shall be removed and properly disposed of as asbestos-containing waste off-site prior to building renovation.

D. The Contractor shall complete all abatement work, meet clearance criteria and breakdown containment in accordance with the sequence of work indicated below.

E. The Contractor shall:

1. Make all required notifications, obtain all permits and pay all fees associated with the work.
2. Coordinate all work with the Owners' Environmental Consultant and the Asbestos Project Inspector.
3. Isolate each work area and install temporary enclosures in accordance with Section 01526 and as necessary to perform abatement procedures. The Contractor shall maintain a minimum of critical barriers and air pressure differential in all Work Areas.
4. Install temporary facilities in accordance with Section 01503. The Asbestos Contractor shall make interconnection to existing electrical panels utilizing a Pennsylvania licensed electrician. The Asbestos Contractor shall make interconnection with site hydrants if needed utilizing back-flow preventers as necessary to provide adequate water for all abatement activities. Permitting and authorization for use shall be the responsibility of the asbestos contractor.
5. Install the decontamination facilities in accordance with Section 01563 where necessary to perform abatement procedures.
6. Remove all asbestos-containing material in accordance with Section 02081.
7. Dumpsters, vehicles, and all other equipment that will be required to perform the asbestos removal work shall be off-loaded, and stored onsite. Asbestos dumpsters shall be clearly marked. Asbestos dumpsters shall be watertight, completely enclosed and kept locked when left unattended.
8. Clean and decontaminate each work area in accordance with Section 01711.
9. After meeting air clearance criteria in accordance with Section 01714, and after receiving approval by the Environmental Consultant, breakdown and remove temporary enclosure systems and decontamination facilities.
10. Replace all removed materials with acceptable materials of the same kind. Replaced materials shall include, but not be limited to: joints associated with fiberglass pipe insulation, end cap mastic, tank insulation, and floor tiles.

11. Submit all required documentation required to close out the project in accordance with Sections 01301 and 01701.

END OF SECTION

SECTION 01043

PROJECT COORDINATION

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. General provisions of the Contract, including General and Supplementary Conditions, and other Division-1 specification sections, apply to work of this section.

1.2 SUMMARY

A. This section specifies administrative and supervisory requirements necessary for project coordination including, but not necessarily limited to:

1. Notifications
2. Permits and Fees
3. Administrative and supervisory personnel
4. Pre-Construction meeting
5. Progress Meetings
6. Documentation required at the work site
7. Coordination of Subcontractors and other trades
8. Requirements for the Contractor's Construction Schedule are included in Section “Submittals”

1.3 NOTIFICATIONS:

A. The Contractor shall make all required notifications associated with this contract to include, but not be limited to those listed in Section 01092 - Codes, Regulations and Standards.

1.4 PERMITS AND FEES:

A. The Contractor shall obtain and pay for all required permits, and pay all fees associated with this contract to include, but not limited to those listed in Section 01092 - Codes, Regulations and Standards.

1.5 ADMINISTRATIVE AND SUPERVISORY PERSONNEL:

A. General Superintendent: Provide a General Superintendent who is experienced in the administration and supervision of asbestos abatement projects including work practices, protective measures for building and personnel, disposal procedures, etc. This person is the Competent Person as required by OSHA in 29 C.F.R. 1926 for the Contractor and is the Contractor's Representative responsible for

compliance with all applicable Federal, State, and Local Regulations, and this specification. This person shall have completed a course at an E.P.A. Training Center or an equivalent certified course in asbestos abatement procedures and have had a minimum of three (3) years of on-the-job training and meet any additional requirements set forth in 29 C.F.R. 1926 for a Competent Person and this specification. The responsibilities of the General Superintendent shall include but not be limited to the following:

1. When an event of unusual and significant nature occurs at the site (e.g. failure of negative pressure system, rupture of temporary enclosures), prepare and submit a special report listing chain of events, persons participating, response by Contractor's personnel, evaluation of results or effects, and similar pertinent information. When such events are known or predictable in advance, advise the Owner's Agent/Fee Developer in advance at the earliest possible date. The General Superintendent shall submit these special reports directly to the Building Owner within one (1) day of occurrence. A copy shall be submitted to the Owners' Environmental Consultant and others affected by the occurrence.

B. Project Supervisor: Provide a full-time Project Supervisor who is certified and fully knowledgeable in the use of equipment and situations unique to that work site. A separate individual shall be required to fulfill this function for each work area and shift. This individual shall have a valid supervisor certification issued by the Commonwealth of Pennsylvania, Department of Labor and Industry. The responsibilities of the Project Supervisor shall include but not be limited to the following:

1. Ensure that the workers are wearing all proper personal protective equipment as outlined in Sections 01560 & 01562 of this specification and are properly trained in their use.
2. Keep all necessary log records as specified in this specification and ensure that they are recorded in accordance with this specification and Federal, State, and Local regulations.
3. Prepare and submit reports of significant accidents occurring at the site and anywhere else where work is in progress. Record and document data and actions; comply with industry standards. For this purpose, a significant accident is defined to include events where personal injury is sustained, or property loss of substance is sustained, or where the event posed a significant threat of loss or personal injury.
4. Survey the work areas at a minimum of twice per work shift (e.g. once every four hours) to ensure that the workers protective equipment is not ripped or torn, that respiratory protection is worn at all times; that air filtration devices are operating at peak efficiency, and that all individuals are following the procedures outlined in this specification.

5. Ensure that sufficient personal protective equipment is stored on-site.

6. Ensure that precautions have been taken to prevent heat stress and other emergencies from occurring (e.g. selecting light-weight protective clothing, reducing the work rate, and providing adequate fluid breaks).

1.6 EMERGENCY PLAN

A. The Contractor shall develop and submit to the Owner, a contingency plan for emergencies, in case of fire, explosion, accidents, power failure, air filtration system failure, supplied air system failure, heat/cold related problems, and any other problem which may require modification or bypassing of decontamination. The plan shall include procedures for repair and clean up following temporary breach of containment barriers.

B. Emergency procedures shall be in written form and prominently posted in the clean change area and equipment room of the worker decontamination area and inside the work area itself. Everyone, prior to entering the work area, must read and sign these procedures to acknowledge receipt and understanding of work site layout, location of emergency exits and emergency procedures.

C. Employees shall be trained in evacuation procedures in the event of workplace emergencies.

1. For non-life-threatening, situations employees injured or otherwise incapacitated shall decontaminate following normal procedures with assistance from fellow workers if necessary, before exiting the workplace to obtain proper medical treatment.

2. For life-threatening injury or illness, worker decontamination shall take least priority after measures to stabilize the injured worker, remove him/her from the workplace and secure proper medical treatment.

D. Telephone numbers and locations of all emergency response personnel shall be prominently posted in the clean change area and equipment room, along with the location of the nearest telephone.

1.7 PRE-CONSTRUCTION MEETING

A. The Contractor shall attend pre-construction meeting(s) scheduled by the Owners' Environmental Consultant. These meetings shall be attended by the Owner and/or the Owners' Environmental Consultant. At this meeting, the Contractor shall present in detail the following:

1. A detailed plan for preparation of each work area

2. Description of protective clothing and approved respirators to be used

3. Delineation of responsibility of work site isolation
4. Explanation of the decontamination sequence
5. Description of all removal methods to be used
6. Explanation of the handling of asbestos-contaminated waste
7. Proof of workers' medical exams substantiated by reports signed by the physician
8. Description of the final clean-up procedures to be used
9. Proposed waste disposal site and proof of transporter registration. If a change in either of these items occurs during the course of the project, the Contractor shall revise Federal, State, and Local notifications and notify the building Owner's Agent/Fee Developer and Owners' Environmental Consultant
10. A sample of the waiver form to be used for all authorized visitors to the site
11. Explanation of air filtration systems to be used for personnel protection, building protection, and environmental protection
12. List of equipment on hand or to be obtained, and the operation of each to include impact on the personnel, building environment, and work environment
13. Plan of action in the event of an emergency
14. A detailed Work Schedule with start and completion dates for all phases of asbestos abatement to include, but not be limited to, Worksite Preparation, Pre-inspection, Removal, Clean-up, Pre-encapsulation Inspection, Encapsulation, Final Clean, Clean-up Inspection, Disposal, Final Inspection, Post-testing, Analysis and Post Inspection

B. The Contractor (or independent air monitoring laboratory employed on his behalf) shall present in detail how compliance with OSHA monitoring requirements shall be fulfilled.

C. Asbestos work shall not proceed until the Owner, the Environmental Consultant, and the Contractor agree on the details listed in this article.

1.8 PROGRESS MEETINGS

A. The Contractor shall attend all pre-scheduled Progress Meetings. These shall be scheduled by the Owners' Construction Manager. This meeting shall also be attended by the OSHA Air Monitoring Firm. This meeting shall serve to update all items discussed in the Pre-Construction Meeting.

1.9 DOCUMENTATION REQUIRED AT WORK SITE

A. The Contractor shall display copies of required letters of Notification and Permits.

B. Additional documentation required to be available at the job site shall include:

1. List of emergency telephone numbers to include:

a. The Monitoring Firm employed by the Building Owner
b. EPA
c. OSHA
d. Fire Department
e. Police Department
f. Local Hospital
g. Emergency Squad
h. Contractor
i. Contractor's Project Supervisor and General Superintendent

2. Written work area emergency procedures

3. List of personnel including all new employees

4. A Daily Log of all persons entering the work area including all visitors. The Log shall include the full name and certification number of all employees, and the time when they enter and exit the work site. Non-employees of the Asbestos Contractor shall be required to sign an acceptable waiver form. The waiver form shall be approved by the Environmental Consultant.

5. The Daily Log shall include a record of start and stop times, any work area problems encountered, any corrective action, and estimated amount of asbestos waste generated.

6. The Contractor shall be responsible for obtaining a copy of the daily monitoring logs from their air testing firms and maintaining this with the Daily Log at the job site.

C. Work schedules and updated progress charts depicting all phases of work and completion deadlines

D. Copy of Waste Hauler's Certificate and copy of all landfill receipts.

1.10 COORDINATION OF SUBCONTRACTORS AND OTHER TRADES:

A. The Contractor shall work in complete cooperation and coordination with any Subcontractors or any other trades that may be involved in other work within or related to the facility.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

END OF SECTION

SECTION 01091

DEFINITIONS AND STANDARDS

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. General provisions of the Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. General Explanation: A substantial amount of specification language constitutes definitions for terms found in other contract documents. Certain terms used in Contract Documents are defined in this article.

B. General Requirements: The provisions or requirements of Division-1 sections apply to the entire work of the Contract and, where so indicated, to other elements which are included in the project.

1.3 GENERAL DEFINITIONS

A. Definitions contained in this Article are not necessarily complete, but are general to the extent that they are not defined more explicitly elsewhere in the Contract Documents.

1. Approved: The term “approved”, where used in conjunction with the Owner’s action on the Contractor's submittals, applications, and requests, is limited to the responsibilities and duties of the Architect stated in General and Supplementary Conditions. Such approval shall not release the Contractor from responsibility to fulfill Contract Document requirements, unless otherwise provided in the Contract Documents.

2. Building Owner: The person in whom legal title to the premises is vested unless the premises are held in land trust, in which instance the Building Owner means the person in whom beneficial title is vested.

3. Construction Manager: The Construction Manager is the firm employed by the Owner.

4. Contractor: A self-employed person, company, unincorporated association, firm, partnership, or corporation and any owner or operator thereof, which engages in an asbestos project or employs persons engaged in an asbestos project.

5. Directed: Terms such as “directed”, “requested”, “authorized”, “selected”, “approved”, “required”, and “permitted” mean “directed by the Owner”, “requested by the “Owner”, and similar phrases. However, no implied

meaning shall be interpreted to extend the Owner’s responsibility into the Contractor's area of construction supervision.

6. Engineer: The term “Engineer” is used to refer to the Environmental Consultant for the purposes of this project.

7. Furnish: The term “furnish” is used to mean “supply and deliver to the project site, ready for unloading, unpacking, assembly, installation, and similar operations”.

8. General Superintendent: This is the Contractor's Representative at the work site. This person will be the Competent Person required by OSHA in 29 CFR 1926.

9. Indicated: This term refers to Paragraphs or Schedules in the Specifications, and similar requirements in Contract Documents. Where terms such as “shown”, “noted”, “scheduled”, and “specified” are used, it is to help locate the reference. No limitation on location is intended, except as specifically noted.

10. Install: The term “install” is used to describe operations at the project site including the actual "unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning and similar operations".

11. Project Site: The term indicates the space available to the Contractor for performance of the work, either exclusively or in conjunction with others performing other construction as part of the project

12. Provide: The term “provide” means “to furnish and install, complete and ready for the intended use”.

13. Regulation: The term “Regulations” includes laws, statutes, ordinances and lawful orders issued by authorities having jurisdiction, as well as rules, conventions and agreements within the construction industry that control performance of the Work, whether they are lawfully imposed by authorities having jurisdiction or not.

14. Testing Laboratories: A “testing laboratory” is an independent entity engaged to perform specific inspections or tests, either at the project site or elsewhere, and to report on, and, if required, to interpret, results of those inspections or tests.

1.4 DEFINITIONS RELATIVE TO ASBESTOS ABATEMENT

A. Definitions

1. Abatement: Any and all procedures physically taken to control fiber release from asbestos-containing materials. This includes removal, encapsulation, enclosure and repair.

2. Abatement Activities: All activities from the initiation of work area preparation through the successful clearance air monitoring and work area breakdown performed at the conclusion of an asbestos project.

3. Accredited or Accreditation (when referring to a person or laboratory): A person or laboratory accredited in accordance with section 206 of Title II of the Toxic Substances Control Act (TSCA).

4. Aerosol: A system consisting of particles, solid or liquid, suspended in air.

5. Aggressive Sampling: A method of sampling in which the individual collecting the air sample creates or simulates activity by the use of mechanical equipment during the sampling period to stir up settled dust and simulate activity in that area of the building.

6. Airlock: A system for permitting ingress and egress with minimum air movement between a contaminated area and an uncontaminated area, typically consisting of two curtained doorways separated by a distance of at least 4 feet such that one passes through one doorway not the airlock, allowing the doorway sheeting to overlap and close off the opening before proceeding through the second doorway, thereby preventing flow-through contamination.

7. Air Cell: Insulation normally used on pipes and duct work that is comprised of corrugated cardboard which is frequently comprised of asbestos combined with cellulose or refractory binders.

8. Air Monitoring: The process of sampling and measuring the fiber content of a known volume of air in a known period of time.

9. Air Sampling: The process of measuring the fiber content of a known volume of air collected during a known period of time. The procedure utilized for asbestos follows the NIOSH Standard Analytical Method 7400 or the provisional transmission electron microscopy methods developed by the USEPA which are utilized for lower detectability and specific fiber identification.

10. Ambient Air Monitoring: Measurement or determination of airborne asbestos fiber concentrations outside but in the general vicinity of the worksite.

11. Amended Water: Water to which a surfactant has been added to decrease the surface tension to 35 or less dynes.

12. ANSI: American National Standards Institute.

13. Approved Safety and Health Program: A program providing training in the handling and use of asbestos-containing material, and safety and health risks inherent in such handling and use, together with methods for minimizing the exposure of workers and the public to asbestos fibers, and instruction in all applicable federal, state and local laws and regulations pertaining to asbestos-related work.

14. Area Air Sampling: Any form of air sampling or monitoring where the sampling device is placed at some stationary location.

15. Asbestos: The asbestiform varieties of serpentinite (chrysotile), riebeckite (crocidolite), cummingtonite - grunerite, anthophyllite, and actinolite - tremolite. For purposes of determining respiratory and worker protection both the asbestiform and non-asbestiform varieties of the above minerals and any of these materials that have been chemically treated and/or altered shall be considered as asbestos.

16. Asbestos-Containing Material (ACM): Any material containing more than 1% by weight of asbestos of any type or mixture of types.

17. Asbestos-Containing Building Material (ACBM): Surfacing ACM, thermal system insulation ACM, or miscellaneous ACM that is found in or on interior structural members or other parts of a building.

18. Asbestos-Containing Waste Material: Any material which is, or is suspected of being, or any material contaminated with, an asbestos-containing material which is to be removed from a work area for disposal.

19. Asbestos-Contaminated Objects: Any objects that have been contaminated by asbestos or asbestos-containing material.

20. Asbestos Contractor: Any person who contracts to perform an asbestos project.

21. Asbestos Debris: Pieces of ACBM that can be identified by color, texture, or composition, or means dust, if the dust is determined by an accredited inspector to be ACM.

22. Asbestos Inspection Report: A report on the condition of a building or structure in relation to the presence and condition of asbestos therein.

23. Asbestos Project: Any activity involving the removal, enclosure, or encapsulation of asbestos materials or any renovation, repair or demolition which disturbs asbestos materials.

24. Asbestos Project Inspector: An individual who is responsible for the enforcement of all applicable regulations and the project specifications for the Building Owner.

25. Asbestos Removal Plan: A plan which will be undertaken so as to prevent asbestos from becoming airborne in the course of the alteration, renovation, modification or demolition of any building or structure.

26. Asbestos Supervisor: An accredited EPA AHERA and PA DOL licensed Supervisor who supervises the workers during an asbestos project and ensures that proper asbestos abatement procedures as well as individual safety procedures are being adhered to. This individual shall have completed approved training courses and be fully certified.

27. Authorized Visitor: The Owner, testing lab personnel, the Project Environmental Consultant, emergency personnel or a representative of any federal, state and local regulatory or other agency having authority over the project.

28. Asbestos Worker: An individual who disturbs, removes, encapsulates, repairs, or encloses friable asbestos material. This individual shall have completed an approved training course and be fully certified.

29. Barrier: Any surface that seals off the work area to inhibit the movement of fibers.

30. Baseline Monitoring: A measurement or determination of airborne asbestos fiber concentrations inside the work area and outside the building prior to starting the abatement activities.

31. Breathing Zone: A hemisphere forward of the shoulders with a radius of approximately 6 to 9 inches.

32. Building: Any public or private commercial, industrial, or institutional structure or any residential structure which contains four (4) or more dwelling units.

33. Building Occupants: Employees, tenants, or other persons who live, work or utilize the services offered in a building.

34. Building Owner: The owner of a building or his/her authorized representative.

35. Calibration: The determination within specific limits of the true value of the scale reading or indication of an instrument.

36. Category I Non-friable Asbestos-containing Material: Asbestos-containing packings, gaskets, resilient floor covering and asphalt roofing products containing more than 1 percent asbestos as determined using the method specified in appendix A, subpart F, 40 CFR part 763, section 1, Polarized

Light Microscopy that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.

37. Category II Non-friable Asbestos-containing Material: Any material, excluding Category I non-friable asbestos-containing material, containing more than 1 percent asbestos as determined using the methods specified in appendix A, subpart F, 40 CFR part 763, section 1, Polarized Light Microscopy that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.

38. Ceiling Concentration: The concentration of an airborne substance that shall not be exceeded.

39. Certified Industrial Hygienist (C.I.H.): An industrial hygienist certified in Comprehensive Practice by the American Board of Industrial Hygiene.

40. Certified Safety Professional (C.S.P.): An individual having a bachelor's degree from an accredited college or university and a minimum of four years' experience as a safety professional and who has successfully completed both levels of the examination administered by the Board of Certified Safety Professionals and who is currently certified.

41. CFR: Code of Federal Regulations.

42. Class I Asbestos Work: Means activities involving the removal of TSI and surfacing ACM and PACM.

43. Class II Asbestos Work: Means activities involving the removal of ACM which is not thermal system insulation or surfacing material. This includes, but is not limited to, the removal and asbestos-containing wallboard, floor tile and sheeting, roofing and siding shingles, and construction mastics.

44. Class III Asbestos Work: Means repair and maintenance operations, where asbestos-containing material, including thermal system insulation and surfacing material, is unlikely to be disturbed.

45. Class IV Asbestos Work: Means maintenance and custodial activities during which employees contact ACM and PACM and activities to clean up waste and debris containing ACM and PACM.

46. Clean Room: An uncontaminated area or room which is part of the worker decontamination enclosure system with provisions for storage of workers' street clothes and protective equipment.

47. Clearance Air Monitoring: The employment of aggressive sampling techniques with a volume of air collected to determine the airborne concentration of residual fibers, and shall be performed as the final abatement activity.

48. Competent Person: Means in addition to the definition in 29 CFR 1926.32 [f], one who is capable of identifying existing asbestos hazards in the workplace and selecting the appropriate control strategy for asbestos exposure and who has the authority to take prompt corrective measures to eliminate them, as specified in 29 CFR 1926.32 [f]: in addition for Class I and Class II work one who is specially trained in a training-course which meets the criteria of EPA's Model Accreditation Plan (40 CFR 763) for Project Designer or Supervisor, or its equivalent and, for Class II and Class IV work, one who is trained in an Operations and Maintenance (O&M) Course developed by the EPA [40 CFR 763.92 {a} {2}].

49. Containment: An area which has been sealed with polyethylene sheeting to prevent contamination of asbestos to the outside environment.

50. Controlled Area: An area which can be separated off from occupied areas of the building for the purpose of controlling fiber release to the occupied areas of the building. This area is controlled so as to limit access and to ensure that, when accessed, all appropriate health and safety protocols are utilized.

51. Critical Barrier: Two (2) layers of plastic sheeting applied to openings occurring in a wall, the underside of ceiling construction, electrical outlets, non-removable lights, HVAC systems, windows, doorways, entranceways, ducts, grilles, grates, diffusers, floor drains, etc., that prevent the distribution of asbestos fibers to the surrounding area.

52. Curtained Doorway: A device which consists of at least three overlapping sheets of plastic over an existing or temporarily framed doorway. One sheet shall be secured at the top and left side, the second sheet at the top and right side, and the third sheet at the top and left side. All sheets shall have weights attached at the bottom to ensure that the sheets hang straight and maintain a seal over the doorway when not in use.

53. Decontamination Enclosure System: A series of connected rooms, separated from the work area and from each other by air locks, for the decontamination of workers, materials, waste containers, and equipment.

54. Demolition: The wrecking or taking out of any building component, system, finish or assembly of a facility together with any related handling operations.

55. Disposal Bag: A properly labeled 6-mil thick leak-tight plastic bags used for transporting asbestos waste from the work area to the disposal site. Each bag is labeled as follows:

DANGER
CONTAINS ASBESTOS FIBERS
MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS
DO NOT BREATHE DUST
AVOID CREATING DUST

AND
ASBESTOS, NA 2212, RQ
AND
CLASS 9 LABEL

In addition to the above labeling, all disposal containers will also be labeled with the owner's name and the location where the waste was generated.

56. Disturb: Any action taken which may alter, change, or stir, including but not limited to the removal, encapsulation, enclosure or repair of asbestos-containing material.

57. Encapsulant: A material that surrounds or embeds asbestos fibers in an adhesive matrix, to prevent release of fibers.

58. Bridging encapsulant: An encapsulant that forms a discrete layer on the surface of an in situ asbestos matrix.

59. Penetrating encapsulant: An encapsulant that is absorbed by the in situ asbestos matrix without leaving a discrete surface layer.

60. Removal encapsulant: A penetrating encapsulant specifically designed to minimize fiber release during removal of asbestos-containing materials rather than for in situ encapsulation.

61. Encapsulation: The spraying or coating of exposed asbestos materials with a sealant to prevent the release of asbestos fibers.

62. Enclosure: The construction of an air-tight, impermeable, permanent barrier around asbestos-containing material to control the release of asbestos fibers into the air.

63. EPA: United States Environmental Protection Agency.

64. Equipment Decontamination Enclosure System: That portion of a decontamination enclosure system designed for controlled transfer of materials and equipment into or out of the work area, typically consisting of a washroom and holding area.

65. Equipment Room: A contaminated area or room which is part of the worker decontamination enclosure system with provisions for the storage of contaminated clothing and equipment.

66. Fiber: An acicular single crystal or a similarly elongated polycrystalline aggregate which displays some resemblance to organic fibers by having such properties as flexibility, high aspect ratio, silky luster, axial lineation, and others, and which has attained its shape primarily through growth rather than cleavage.

67. Fiber Count: Average number of fibers in a cubic centimeter of air (f/cc).

68. Filter: A media component used in respirators to remove solid or liquid particles from the inspired air.

69. Fixed Object: A unit of equipment or furniture in the work area which cannot be removed from the work area.

70. Friable Asbestos Material: Material that contains more than 1.0% asbestos by weight and that can be crumbled, pulverized, or reduced to powder by hand pressure when dry or by the proposed abatement activity.

71. Glove bag: A sack (typically constructed of 6 mil transparent polyethylene or polyvinylchloride plastic) with inward projecting long sleeve gloves, which are designed to enclose an object from which an asbestos-containing material is to be removed.

72. Glove bag Technique: A method with limited applications for removing small amounts of friable asbestos-containing material from HVAC ducts, short piping runs, valves, joints, elbows, and other non-planar surfaces. The glove bag is constructed and installed in such a manner that it surrounds the object or material to be removed and contains all asbestos fibers released during the process. All workers who are permitted to use the glove bag technique must be highly trained, experienced and skilled in this method.

73. HEPA Filter: A High Efficiency Particulate Air (HEPA) filter capable of trapping and retaining 99.97% of asbestos fibers greater than 0.3 microns in diameter.

74. HEPA Filter Vacuum Collection Equipment (or vacuum cleaner): High efficiency particulate air filtered vacuum collection equipment with a filter system capable of collecting and retaining asbestos fibers. Filters should be of 99.97% efficiency for retaining fibers of 0.3 microns or larger.

75. High Volume Sampling Pump: An instrument used to draw ambient air over a filter at a flow rate between ten (10) and thirty (30) liters per minute. The high-volume sampling pumps are generally utilized for background or baseline samples, environmental samples, decontamination unit samples, and post-abatement samples.

76. Holding Area: A small chamber in the equipment decontamination enclosure located between the washroom and an uncontaminated area.

77. HVAC: Heating, ventilation, and air conditioning.

78. Incidental Exposure: Occupational exposure to asbestos fibers caused to oneself by disturbing ACM during the performance of one's job, except during the performance of an asbestos project or minor project.

79. Industrial Hygiene: That science and art devoted to the recognition, evaluation and control of those environmental factors or stresses, arising in or from the work place, which may cause sickness, impaired health and well-being, or significant discomfort and inefficiency among workers or among the citizens of the community.

80. Industrial Hygienist: An individual having a college or university degree or degrees in Engineering, Chemistry, Physics, or Medicine or related Biological Sciences who, by virtue of special studies and training must have been sufficient in all of the above cognate sciences to provide the following abilities:

    a. To recognize the environmental factors and to understand their effect on people and their well-being.
    b. To evaluate, on the basis of experience and with the aid of quantitative measurement techniques, the magnitude of these stresses in terms of ability to impair people's health and well-being.
    c. To prescribe methods to eliminate, control or reduce such stresses when necessary to alleviate their effects.

81. Isolation Barrier: The construction of partitions, the placement of solid materials, and the plasticizing of apertures to seal off the work place from surrounding areas to contain asbestos fibers in the work area.

82. Log: An official record of all activities that occurred during the project and it shall identify the Building Owner, Agent, Contractor, and Workers, and other pertinent information (e.g., equipment malfunctions, contamination beyond the work area, etc.).

83. Low Volume Sampling Pump: An instrument used to collect air samples at rates ranging from one (1) to three (3) liters per minute. The low volume sampling pump, also known as the personal sampling pump, is essentially utilized for personal samples and work area samples.

84. Negative Pressure Equipment: A portable local exhaust system equipped with HEPA filtration. The system shall be capable of creating a negative pressure differential between the outside and inside of the work area.

85. Negative Pressure Respirator: A respirator in which the air pressure inside the respiratory-inlet covering is positive during exhalation in relation to the air pressure of the outside atmosphere, and negative during inhalation in relation to the air pressure of the outside atmosphere.

86. NESHAP: National Emission Standards for Hazardous Air Pollutants as prescribed in 40 CFR Part 61.

87. NIOSH: National Institute for Occupational Safety and Health.

88. Occupied Area: An area of the worksite where abatement is not taking place and where personnel or occupants normally function, or where workers are not required to use personal protective equipment.

89. OSHA: United States Occupational Safety and Health Administration.

90. Outside Air: The air outside the work place.

91. PCM: Phase contrast microscopy.

92. Permissible Exposure Limit: The permitted exposure to a particular concentration of a substance as specified by OSHA. The current permissible exposure limit for asbestos is 0.1 f/cc for an eight-hour (8) time-weighted average.

93. Personal Air Monitoring: Sampling of the asbestos fiber concentrations within the breathing zone of an employee.

94. Personal Protective Equipment (PPE): Appropriate protective clothing, gloves, eye protection, footwear, head gear and approved respiratory protection.

95. Plasticize: To cover walls and floors with plastic sheeting as herein specified or by using approved spray plastics.

96. Protection Factor: The ratio of the ambient concentration of an airborne substance to the concentration of the substance inside the respirator at the breathing zone of the wearer. The protection factor is a measure of the degree of protection provided by a respirator to the wearer.

97. Qualitative Fit Test: The individual test subject's responding (either voluntarily or involuntarily) to a chemical challenge outside the respirator face piece. Three of the most popular methods include: irritant smoke test, odorous vapor test and taste test.

98. Quantitative Fit Test: Exposing the respirator wearer to a test atmosphere containing an easily detectable nontoxic aerosol, vapor or gas as the test agent. Instrumentation, which samples the test atmosphere and the air inside the face piece of the respirator, is used to measure quantitatively the leakage into the respirator. There are a number of test atmospheres, test agents, and exercises to perform during the tests.

99. Regulated Asbestos-Containing Material (RACM): (a) Friable asbestos material, (b) Category I non-friable ACM that has become friable, (c) Category I non-friable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading, or (d) Category II non-friable ACM that has

a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of demolition or renovation operations.

100. Removal: The stripping of any asbestos-containing materials from surfaces or components of a facility or taking out structural components in accordance with 40 CFR 61 Subparts A and M.

101. Removal Encapsulant: A penetrating encapsulant specifically designed for removal of asbestos-containing materials rather that for in situ encapsulation.

102. Renovation: Altering in any way one or more facility components. Operations in which load supporting structural members are wrecked or taken out are excluded.

103. Replacement Material: Any material used to replace ACM that contains less than .01% asbestos.

104. Repair: Returning damaged ACBM to an undamaged condition or to an intact state so as to prevent fiber release.

105. Respirator: A device designed to protect the wearer from the inhalation of harmful atmospheres.

106. Shift: A worker's, or simultaneous group of worker's, complete daily term of work.

107. Shower Room: A room between the clean room and the equipment room in the worker decontamination enclosure with hot and cold running water controllable at the tap and arranged for complete showering during decontamination.

108. Staging Area: The work area near the waste decontamination chamber where containerized asbestos waste has been placed prior to removal from work area.

109. Strip: To remove friable asbestos materials from any part of the facility.

110. Structural Member: Any load-supporting member of a facility, such as beams and load-supporting walls, or any non-load-supporting member, such as ceiling and non-load-supporting walls.

111. Surface Barriers: The plasticizing of walls, floors, and fixed objects within the work area to prevent contamination from subsequent work.

112. Surfacing Material: Material in a building that is sprayed-on, troweled-on, or otherwise applied to surfaces, such as acoustical plaster on ceilings and fireproofing materials on structural members, or other materials on surfaces for acoustical, fireproofing, or other purposes.

113. Surfactant: A chemical wetting agent added to water to improve penetration, thus reducing the quantity of water required for a given operation or area.

114. Time Weighted Average (TWA): The average concentration of a contaminant in air during a specific time period.

115. Visible Emissions: Any emissions containing particulate asbestos material that are visually detectable without the aid of instruments. This does not include condensed uncombined water vapor.

116. Wet Cleaning: The process of eliminating asbestos contamination from building surfaces and objects by using cloths, mops, or other cleaning utensils which have been dampened with amended water or diluted removal encapsulant and afterwards thoroughly decontaminated or disposed of as asbestos-contaminated waste.

117. Wet Methods: The use of amended water or removal encapsulant to minimize the generation of fibers during ACM disturbance.

118. Work Area: The area where asbestos-related work or removal operations are performed which is defined and/or isolated to prevent the spread of asbestos dust, fibers or debris, and entry by unauthorized personnel. Work area is a Regulated Area as defined by 29 CFR 1926.

119. Worker Decontamination Enclosure System: A system designed for the controlled ingress and egress of workers, authorized visitors, and other individuals between the work area and the non-work area consisting of a clean room, a shower room, and an equipment room and maintained separately by the use of airlocks.

1.5 SPECIFICATION FORMAT AND CONTENT EXPLANATION

A. This Article is provided to help the user of these Specifications understand the format, language, implied requirements, and similar conventions. None of the explanations shall be interpreted to modify the substance of Contract requirements.

B. Specification Format: These Specifications are organized into Divisions, Sections or Trade Headings based on the Construction Specifications Institute's 16-Division format and the MASTERFORMAT numbering system. This organization conforms generally to recognized construction industry practice.

C. Specification Content: This Specification has been produced employing conventions in the use of language and the intended meaning of certain terms, words, and phrases when used in particular situations or circumstances. These conventions are explained as follows:

1. Language used in the Specifications and other Contract Documents is the abbreviated type. Implied words and meanings will be appropriately

interpreted. Singular words will be interpreted as plural and plural words interpreted as singular where applicable and where the full context of the Contract Documents so indicates.

2. Imperative language is used generally in the Specifications. Requirements expressed imperatively are to be performed by the Contractor. At certain locations in the text, for clarity, subjective language is used to describe responsibilities which must be fulfilled indirectly by the Contractor, or by others when so noted.

D. Assignment of Specialists: The Specification requires that certain specific construction activities shall be performed by specialists who are recognized experts in the operations to be performed. The specialists must be engaged for those activities, and the assignments are requirements over which the Contractor has no choice or option. Nevertheless, the ultimate responsibility for fulfilling Contract requirements remains with the Contractor.

1. This requirement should not be interpreted to conflict with enforcement of building codes or regulations governing the work. It is also not intended to interfere with local trade union jurisdictional settlements and similar conventions.

E. Trades: Use of titles such as “carpentry” is not intended to imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as “carpenter”. It also does not imply that requirements specified apply exclusively to tradespersons of the corresponding generic name.

1.6 INDUSTRY STANDARDS:

A. Applicability of Standards: Except where Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into Contract Documents. Such standards are made a part of the Contract Documents by reference. Individual Sections indicate which codes and standards the Contractor must keep available at the project site for reference.

1. Referenced industry standards take precedence over standards that are not referenced but recognized in the construction industry as applicable.

2. Unreferenced industry standards are not directly applicable to the work, except as a general requirement of whether the work complies with recognized construction industry standards.

B. Publication Dates: Where compliance with an industry standard is required,

comply with standard in effect as of date of Contract Documents.

C. Updated Standards: At the request of the Owner's Agent/ Fee Developer, Contractor or authority having jurisdiction, submit a Change Order proposal where applicable code or standard has been revised and reissued after the date of the Contract Documents and before performance of Work affected. The Owner's Agent/ Fee Developer will decide whether to issue a Change Order to proceed with the updated standard.

D. Conflicting Requirements: Where compliance with two or more standards is specified, and they establish different or conflicting requirements for minimum quantities or quality levels, the most stringent requirement will be enforced, unless the Contract Documents indicate otherwise. Refer requirements that are different, but apparently equal, and uncertainties as to which quality level is more stringent to the Owner's Agent/ Fee Developer for a decision before proceeding.

E. Minimum Quantities or Quality Levels: In every instance the quantity or quality level shown or specified shall be the minimum to be provided or performed. The actual installation may comply exactly, within specified tolerances, with the minimum quantity or quality specified, or it may exceed that minimum within reasonable limits. In complying with these requirements, indicated numeric values are minimum or maximum values, as noted, or appropriate for the context of the requirements. Refer instances of uncertainty to the Owner's Agent/ Fee Developer for decision before proceeding.

F. Copies of Standards: Each entity engaged in construction on the project is required to be familiar with industry standards applicable to that entities' construction activity. Copies of applicable standards are not bound with the Contract Documents.

1. Where copies of standards are needed for performance of a required construction activity, the Contractor shall obtain copies directly from the publication source.

2. Although copies of standards needed for enforcement of requirements may be part of required submittals, the Owner's Agent/ Fee Developer reserves the right to require the Contractor to submit additional copies as necessary for enforcement of requirements.

G. Abbreviations and Names: Trade association names and titles of general standards are frequently abbreviated. The following acronyms or abbreviations as referenced in Contract Documents are defined to mean the associated names. Names and addresses are subject to change, and are believed to be, but are not assured to be, accurate and up-to-date as of date of Contract Documents:

1. ACGIH - American Conference of Governmental Industrial Hygienists,

6500 Glenway Avenue, Building D-5, Cincinnati, Ohio 45211

2. AIHA - American Industrial Hygiene Association, 2700 Prosperity Ave., Suite 250, Fairfax, VA 22031
3. CFR - Code of Federal Regulations Available from Government Printing Office, Washington, DC 20402 (usually first published in Federal Register)
4. CGA - Compressed Gas Association, 1235 Jefferson Davis Highway, Arlington, VA 22202, 703/979-0900
5. CS - Commercial Standard of NBS (U.S. Dept. of Commerce), Government Printing Office, Washington, DC 20402, 202/377-2000
6. DOL&I(PA) - State of Pennsylvania Department of Labor and Industry Asbestos 0ccupations Accreditation and Certification, P.O. Box 3465, Harrisburg, PA 17105-3465
7. DOT - Department of Transportation, 400 Seventh St. SW, Washington, DC 20590, 202/426-4000
8. EPA - Environmental Protection Agency, 401 M St. SW, Washington, DC 20460, 202/382-3949
9. FS - Federal Specification (General Services Admin.) Regional GSA Office or GSA Specifications Unit (WFSIS), 7th and D Streets SW, Washington, DC 20406, 202/472-2205 or 2140.
10. GA - Gypsum Association, 1603 Orrington Ave. Evanston; IL 60201, 312/491-1744.
11. GSA - General Services Administration, F St. and 18th St. NW, Washington, DC 20405, 202/655-4000.
12. IEEE - Institute of Electrical and Electronic Engineers, 345 E. 47th Street New York, NY 10017, 212/705-7900.
13. MIL - Military Standardization Documents (U.S. Dept. of Defense) Naval Publications and Forms Center, 5801 Tabor Ave., Philadelphia, PA 19120.
14. MSHA - Mine Safety and Health Administration, Approval and Certification Center, P.O. Box 251, Route 1, Triadelphia, WV 26059.
15. NBS - National Bureau of Standards (U.S. Dept. of Commerce) Gaithersburg, MD 20234, 301/921-1000.
16. NEC - National Electrical Code (by NFPA).
17. NESHAP - National Emission Standards for Hazardous Air Pollutants (40 CFR Part 61).
18. NIOSH - National Institute for Occupational Safety and Health, 4676 Columbia Parkway, Cincinnati, OH 45226.
19. NFPA - National Fire Protection Association, Batterymarch Park, Quincy, MA 02269 617/770-3000.

20. NIST - National Institute of Standards & Technology, Gaithersburg, MD 20234, 301/921-1000

21. NRCA - National Roofing Contractors Association, 6250 River Road Rosemont, IL 60018, 312/318-6722.

22. NVLAP - National Voluntary Laboratory Accreditation Program, Gaithersburg, MD 20234, 301/921-1000

23. OSHA - Occupational Safety & Health Administration (U.S.D.O.L.), Government Printing Office Washington, DC 20402, 202/783-3238.

24. PS - Product Standard of NBS (U.S. Dept. of Commerce), Government Printing Office Washington, DC 20402, 202/783-3238.

25. RFCI - Resilient Floor Coverings Institute, 966 Hungerford Drive, Suite 12-B Rockville, MD 20805, 301/340-8580.

26. UL - Underwriters Laboratories, 333 Pfingsten Rd. Northbrook, IL 60062, 312/272-8800.

H. Trade Union Jurisdictions: The Contractor shall maintain and require subcontractors to maintain complete current information on jurisdictional matters, regulations and pending actions, as applicable to construction activities. The Contract Documents have not been organized or subdivided to imply any trade union or jurisdictional agreements.

1. Discuss new developments at project meetings at the earliest feasible dates. Record relevant information and actions agreed upon.

2. Assign and subcontract construction activities, and employ tradesmen and laborers in a manner that will not unduly risk jurisdictional disputes that could result in conflicts, delays, claims and losses.

1.8 SUBMITTALS:

A. Permits, Licenses and Certificates: For the Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, and similar documents, correspondence and records established in conjunction with compliance with standards and regulations bearing upon performance of the work.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

END OF SECTION

SECTION 01092

CODES, REGULATIONS, AND STANDARDS

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this section.

1.2 SUMMARY:

A. This section sets forth governmental regulations and industry standards which are included and incorporated herein by reference and made a part of the specification. This section also sets forth those notices and permits which are known to the Owner and which either must be applied for and received, or which must be given to governmental agencies before start of work.
   1. Requirements include adherence to all work practices and procedures set forth in applicable codes, regulations and standards and this specification.
   2. Requirements include obtaining permits, licenses, inspections, releases and similar documentation, as well as payments, statements and similar requirements associated with codes, regulations, and standards.

1.3 CODES AND REGULATIONS:

A. General Applicability of Codes and Regulations, and Standards: Except to the extent that more explicit or more stringent requirements are written directly into the contract documents, all applicable codes, regulations, and standards have the same force and effect (and are made a part of the contract documents by reference) as if copied directly into the contract documents, or as if published copies are bound herewith.

B. Contractor Responsibility: The Contractor shall assume full responsibility and liability for the compliance with all applicable Federal, State, and local regulations pertaining to work practices, hauling, disposal, and protection of workers, visitors to the site, and persons occupying areas adjacent to the site. The Contractor is responsible for providing medical examinations and maintaining medical records of personnel as required by the applicable Federal, State, and local regulations. The Contractor shall hold the Owner and Owner's Representative harmless for failure to comply with any applicable work, hauling, disposal, safety, health or other regulation on the part of himself, his employees, or his subcontractors.

C. Federal Requirements: which govern asbestos abatement work or hauling and disposal of asbestos waste materials include but are not limited to the following:

D. OSHA: U.S. Department of Labor, Occupational Safety and Health Administration, (OSHA), including but not limited to:

1. Occupational Exposure to Asbestos, Tremolite, Anthophyllite, and Actinolite; Final Rules Title 29, Part 1910, Section 1001 and Part 1926, Section 58 of the Code of Federal Regulations
2. Respiratory Protection Title 29, Part 1910, Section 134 of the Code of Federal Regulations
3. Construction Industry Title 29, Part 1926, of the Code of Federal Regulations
4. Access to Employee Exposure and Medical Records Title 29, Part 1910, Section 2 of the Code of Federal Regulations
5. Hazard Communication Title 29, Part 1910, Section 1200 of the Code of Federal Regulations
6. Specifications for Accident Prevention Signs and Tags Title 29, Part 1910, Section 145 of the Code of Federal Regulations

E. DOT: U. S. Department of Transportation, including but not limited to:
1. Hazardous Substances Title 29, Part 171 and 172 of the Code of Federal Regulations

F. EPA: U. S. Environmental Protection Agency (EPA), including but not limited to:
1. Asbestos Abatement Projects; Worker Protection Rule Title 40 Part 763, Sub-part G of the Code of Federal Regulations
2. Asbestos Hazard Emergency Response Act (AHERA) Regulation Asbestos Containing Materials in Schools Final Rule & Notice Title 40, Part 763, Sub-part E of the Code of Federal Regulations
3. Training Requirements of (AHERA) Regulation Asbestos Containing Materials in Schools Final Rule & Notice Title 40, Part 763, Sub-part E, Appendix C of the Code of Federal Regulations.
4. National Emission Standards for Hazardous Air Pollutants (NESHAP) National Emission Standard for Asbestos Title 40, Part 61, Sub-part A, and Sub-part M (Revised Sub-part B) of the Code of Federal Regulations

G. State Requirements: which govern asbestos abatement work or hauling and disposal of asbestos waste materials include but are not limited to the following:
1. Air Pollution Control Act, Chapter 124.
2. Bureau of Solid Waste Management Major Asbestos Standards.
3. Commonwealth of Pennsylvania Department of Labor and Industry Asbestos Occupations Accreditation and Certification Act, Act 194-1990

H. Local Requirements:
1. City of Philadelphia, Department of Public Health, Board of Health, Asbestos Control Regulation adopted pursuant to Title 6, Health Code, of the Phila. Code, specifically Chapter 6-600, Asbestos Projects; effective May 22, 1989, Amended March 4, 1993.

1.4 STANDARDS:

A. General Applicability of Standards: Except to the extent that more explicit or more stringent requirements are written directly into the Contract Documents, all applicable standards have the same force and effect (and are made a part of the Contract Documents by reference) as if copied directly into the Contract Documents, or as if published copies are bound herewith.

B. Contractor Responsibility: The Contractor shall assume full responsibility and liability for the compliance with all standards pertaining to work practices, hauling, disposal, and protection of workers, visitors to the site, and persons occupying areas adjacent to the site. The Contractor shall hold the Owner and Owner's Representative harmless for failure to comply with any applicable standard on the part of himself, his employees, or his subcontractors.

C. Standards: which apply to asbestos abatement work or hauling and disposal of asbestos waste materials include but are not limited to the following:

1. American National Standards Institute (ANSI) 1430 Broadway New York, New York 10018 (212)354-3300E
    a. Fundamentals Governing the Design and Operation of Local Exhaust Systems Publication Z9.2-79
    b. Practices for Respiratory Protection Publication Z88.2-80
2. American Society for Testing and Materials (ASTM) 100 Bar Harbor Drive, Conshohocken, PA 19428 (610)832-9585
    a. Safety and Health Requirements Relating to Occupational Exposure to Asbestos E 849-82

1.5 EPA GUIDANCE DOCUMENTS:

discuss asbestos abatement work or hauling and disposal of asbestos waste materials listed below for the Contractor's information only. These documents do not describe the work and are not a part of the work of this contract. EPA maintains an information number (800) 334-8571, publications can be ordered from (800) 424-9065 (554-1404 in Washington, DC):

A. Asbestos-Containing Materials in School Buildings - A Guidance Document. Part 1 & 2. (Orange Books) EPA C00090 (out of print)

B. Guidance for Controlling Asbestos-Containing Materials in Buildings (Purple Book) EPA 560/5-85-024

C. Friable Asbestos-Containing Materials in Schools: Identification and Notification Rule (40 CFR Part 763)

D. Evaluation of the EPA Asbestos-in-Schools Identification and Notification Rule. EPA 560/5-84-005

E. Asbestos in Buildings: National Survey of Asbestos-Containing Friable Materials. EPA

560/5-84-006

F. Asbestos in Buildings: Guidance for Service and Maintenance Personnel. EPA 560/5-85-018

G. Asbestos Waste Management Guidance. EPA 530-SW-85-007

H. Asbestos Fact Book. EPA Office of Public Affairs. Asbestos in Buildings. Simplified Sampling Scheme for Friable Surfacing Materials

I. Commercial Laboratories with Polarized Light Microscopy Capabilities for bulk asbestos identification

J. A Guide to Respiratory Protection for the Asbestos Abatement Industry. EPA-560-OPTS-86-001

1.6 NOTICES:

A. U.S. ENVIRONMENTAL PROTECTION AGENCY

1. Send Written Notification as required by USEPA National Emission Standards for Hazardous Air Pollutants (NESHAP) Asbestos Regulations (40 CFR 61, Subpart M) to the regional Asbestos NESHAP Contact at least 10 days prior to beginning any work on asbestos-containing materials. Send notification to the following address:
2. USEPA REGION 3: Asbestos NESHAP Contact, Air & Waste Management Division, 841 Chestnut Street, Philadelphia, PA 19107, (215) 597-6552.Notification: Include the following information in the notification sent to the NESHAP contact:
    a. Name and address of owner or operator.
    b. Description of the facility being demolished or renovated, including the size, age, and prior use of the facility.
    c. Estimate of the approximate amount of friable asbestos material present in the facility in terms of linear feet of pipe, and surface area on other facility components. For facilities in which the amount of friable asbestos materials is less than 260 linear feet on pipes and less than 160 square feet on other facility components, explain techniques of estimation.
    d. Location of the facility being demolished or renovated.
    e. Scheduled starting and completion dates of demolition or renovation.
    f. Nature of planned demolition or renovation and method(s) to be used.
    g. Procedures to be used to comply with the requirements of USEPA National Emission Standards for Hazardous Air Pollutants (NESHAP) Asbestos Regulations (40 CFR 61 Subpart M).
    h. Name and location of the waste disposal site where the friable asbestos waste material will be deposited.
    i. For facilities being demolished under an order of a State or local governmental agency, issued because the facility is structurally unsound and

in danger of imminent collapse, the name, title, and authority of the State or local governmental representative who has ordered the demolition.

B. STATE AND LOCAL AGENCIES:

1. Send written notification as required by state and local regulations prior to beginning any work on asbestos-containing materials.

1.7 PERMITS:

A. The Contractor shall obtain all required Permits, and pay all Fees associated with his contract.

B. All asbestos containing waste is to be transported by an entity maintaining a current "Industrial waste hauler permit" specifically for asbestos-containing materials, as required for transporting of waste asbestos-containing materials to a disposal site.

1.8 LICENSES:

A. Licenses: Maintain current licenses as required by applicable state or local jurisdictions for the removal, transporting, disposal or other regulated activity relative to the work of this contract.

1.9 POSTING AND FILING OF REGULATIONS:

A. Posting and Filing of Regulations: Post all notices required by applicable federal, state and local regulations. Maintain two (2) copies of applicable federal, state and local regulation and standard. Maintain one copy of each at job site. Keep on file in Contractor's office one copy of each.

1.10 SUBMITTALS:

A. Before Start of Work: Submit the following to the Owner's Representative for review. No work shall begin until these submittals are returned with Owner's Representative's action stamp indicating that the submittal is returned for unrestricted use or final-but-restricted use.

B. Permits, Licenses, and Certificates: For the Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, and similar documents, correspondence and records established in conjunction with compliance with standards and regulations bearing upon performance of the Work including:

1. State and Local Regulations: Submit copies of codes and regulations applicable to the work.
2. Notices: Submit notices required by federal, state and local regulations together with

proof of timely transmittal to agency requiring the notice.

3. Permits: Submit copies of current valid permits required by state and local regulations.
4. Licenses: Submit copies of all State and local licenses and permits necessary to carry out the work of this contract.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

END OF SECTION

SECTION 01140

WORK RESTRICTIONS

PART 1 GENERAL

1.1 RELATED DOCUMENTS:

A. General provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 USE OF PREMISES:

A. Use of Site: Limit use of premises to work in areas indicated. Do not disturb portions of site beyond areas in which the Work is indicated.

1. Driveways and Entrances: Keep driveways and entrances serving premises clear and available to adjacent property owners, and emergency vehicles at all times. Do not use these areas for parking or storage of materials unless approval is granted by the School.

a. Schedule deliveries to minimize use of driveways and entrances.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

END OF SECTION

SECTION 01301

SUBMITTALS

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. General provisions of the Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this section.

1.2 SUMMARY

A. This section specifies administrative and procedural requirements for submittals required for performance of the work, including:

1. Contractor's construction schedule
2. Submittal schedule
3. Daily construction reports
4. Product Data
5. Miscellaneous Submittals

B. Administrative Submittals: Refer to other Division-1 Sections and other Contract Documents for requirements for administrative submittals. Such submittals include, but are not limited to:

1. Permits/Notifications
2. Applications for Payment
3. Performance and Payment Bonds
4. Insurance Certificates
5. Emergency Plan
6. Licenses/Certifications/Pennsylvania Act 34 Clearance
7. List of Subcontractors

1.3 SUBMITTAL PROCEDURES

A. Coordination: Transmit each submittal to the Environmental Consultant sufficiently in advance of performance of related activities to avoid delay.

1.4 CONTRACTOR'S CONSTRUCTION SCHEDULE

A. Bar Chart Schedule: Prepare a fully developed, horizontal bar chart type Contractor's construction schedule. Submit at pre-construction meeting.

1. Coordinate the contractor's construction schedule with the schedule of values, list of subcontracts, submittal schedule, progress reports, payment requests and other schedules.

2. Indicate completion and clearance of each work area in advance of the date established for substantial completion. Allow time for testing and other Owner's Representative's procedures necessary for certification of clearance and substantial completion.

B. Phasing: Provide notations on the schedule to show how the sequence of the work is affected by requirements for phased completion to permit work by separate Contractors and partial occupancy by the Owner prior to substantial completion.

C. Work Stages: Indicate important stages of construction for each major portion of the work, including testing and installation.

1. Mobilization
2. Non-asbestos demolitions
3. Preparation of the work area
4. Asbestos removal
5. Clearance testing
6. Substantial completion
7. Demobilization

D. Area Separations: Provide a separate time bar to identify each work area or major construction area for each major portion of the work. Indicate where each element in an area must be sequenced or integrated with other activities.

E. Distribution: Following response to the initial submittal, print and distribute copies to the Owner's Representative, Owner, Environmental Consultant, subcontractors, and other parties required to comply with scheduled dates.

F. Schedule Updating: Revise the schedule after each meeting or activity, where revisions have been recognized or made. Issue the updated schedule concurrently with report of each meeting.

1.5 PRODUCT DATA

A. Collect product data into a single submittal. Product data includes printed information such as manufacturer's installation instructions, catalog cuts, standard wiring diagrams and performance curves. Where product data must be specially prepared because standard printed data is not suitable for use, submit as "shop drawings".

B. Mark each copy to show applicable choices and options. Where printed product data includes information on several products, some of which is not required, mark copies to indicate the applicable information. Include the following information:

1. Manufacturer's printed recommendations.
2. Compliance with recognized trade association standards.
3. Compliance with recognized testing agency standards.
4. Application for testing agency labels and seals.

C. Preliminary Submittal: Submit a preliminary single-copy of product data where selection of options is required.

D. Submittals: Submit five (5) copies of each required submittal. The Owner's Representative will retain two (2) and will return the one marked with action taken and corrections or modifications required.

1.7 MISCELLANEOUS SUBMITTALS

A. Safety Data Sheets: Process material safety data sheets as “product data”.

B. Closeout Submittals: Refer to section "Project Closeout" and to individual sections of these specifications for specific submittal requirements of project closeout information.

C. Field Records: Furnish a set of original documents as maintained on site.

1.8 OWNER'S REPRESENTATIVE'S ACTION

A. Compliance with specified characteristics is the Contractor's responsibility.

PART 2 PRODUCTS (NOT APPLICABLE).

PART 3 EXECUTION (NOT APPLICABLE).

END OF SECTION

SECTION 01410

AIR MONITORING

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. General provisions of the Contract, including General and Supplementary Conditions and other Division - 1 Specification Sections, apply to work of this section.

B. Air Monitoring: Work area clearance is described in Section 01714 Work Area Clearance.

1.2 DESCRIPTION OF THE WORK

A. Not in Contract Sum: This section describes work being performed by the Environmental Consultant. This work is not in the Contract Sum.

B. This section describes air monitoring carried out by the Environmental Consultant to verify that the building beyond the work area and the outside environment remains uncontaminated. This section also sets forth airborne fiber levels both inside and outside the work area as action levels, and describes the action required by the Contractor if an action level is met or exceeded.

C. Air monitoring required by OSHA is work of the Contractor and is not covered in this Section. The Abatement Contractor is responsible for providing daily OSHA compliance monitoring as per 29 C.F.R. 1926.1101. OSHA monitoring shall be included in the Asbestos Contractor’s Contract Sum.

1.3 AIR MONITORING

A. Work Area Isolation: The purpose of the Environmental Consultant's air monitoring is to detect faults in the work area isolation such as:

1. Contamination of the building outside of the work area with airborne asbestos fibers.
2. Failure of filtration or rupture in the differential pressure system.
3. Contamination of air outside the building envelope with airborne asbestos fibers.

B. Should any of the above occur, immediately cease asbestos abatement activities until the fault is corrected. Do not recommence work until authorized by the Environmental Consultant.

1.4 WORK AREA AIRBORNE FIBER COUNT

A. The Environmental Consultant will monitor airborne fiber counts in the Work Area. The purpose of this air monitoring will be to detect airborne asbestos concentrations which may challenge the ability of the Work Area isolation procedures to protect the balance of the building or outside of the building from contamination by airborne fibers.

1.5 WORK AREA CLEARANCE

A. To determine if the elevated airborne fiber counts encountered during abatement operations have been reduced to an acceptable level, the Environmental Consultant will sample and analyze air per Section 01714 Work Area Clearance.

B. The Environmental Consultant will be conducting air monitoring throughout the course of the project.

1.6 STOP ACTION LEVELS

A. Inside Work Area:

1. Maintain an average airborne count in the work area of less than the Stop Action Level given below for the type of respiratory protection in use. If the fiber counts rise above this figure for any sample taken, revise work procedures to lower fiber counts. If the Time Weighted Average (TWA) fiber count for any work shift or 8-hour period exceeds the Stop Action Level, stop all work except corrective action, leave pressure differential and air circulation system in operation and notify the Environmental Consultant. After correcting cause of high fiber levels, do not recommence work for 24 hours unless otherwise authorized, in writing, by Environmental Consultant.

STOP ACTION LEVEL (f/cc)	IMMEDIATE STOP LEVEL (f/cc)	MINIMUM RESPIRATOR REQUIRED	PROTECTION FACTOR
0.5	1.0	PAPR	50

2. If airborne fiber counts exceed Immediate Stop Level given above for type of respiratory protection in use for any period of time cease all work except corrective action. Notify the Environmental Consultant. Do not recommence work until fiber counts fall below Stop Action Level given above for the type of respiratory protection in use. After correcting cause of high fiber levels, do not recommence work for 24 hours unless otherwise authorized, in writing, by the Environmental Consultant.

B. Outside Work Area:

1. If any air sample taken outside of the Work Area exceeds the base line established below or is greater than 0.010 f/cc as determined by PCM analysis, whichever is greater, immediately and automatically stop all work except corrective action. The Environmental Consultant shall inspect and determine the source of the high reading and so notify the Contractor in writing.

2. If the high reading was the result of a failure of Work Area isolation measures initiate the following actions:

   a. Immediately erect new critical barriers as set forth in Section 01526 Temporary Enclosures to isolate the affected area from the balance of the building. Erect Critical Barriers at the next existing structural isolation of the involved space (e.g. wall, ceiling, and floor).

   b. Decontaminate the affected area in accordance with Section 01712 Cleaning & Decontamination Procedures.

   c. Require that respiratory protection as set forth in Section 01562 Respiratory Protection be worn in affected area until area is cleared for re-occupancy in accordance with Section 01714 Work Area Clearance.

   d. Leave Critical Barriers in place until completion of work and insure that the operation of the pressure differential system in the Work Area results in a flow of air from the balance of the building into the affected area.

   e. If the exit from the clean room of the personnel decontamination unit enters the affected area, establish a decontamination facility consisting of a Shower Room and Changing Room as set forth in Section 01563 Decontamination Units at entry point to affected area.

   f. After Certification of Visual Inspection in the Work Area remove critical barriers separating the work area from the affected area. Final air samples will be taken within the entire area as set forth in Section 01714 Work Area Clearance.

3. If the high reading was the result of other causes initiate corrective action as determined by the Environmental Consultant.

C. Effect on Contract Sum: Complete corrective work with no change in the Contract Sum if high airborne fiber counts were caused by Contractor's activities or negligence. The Contract Sum and schedule will be reviewed and may be adjusted for additional work caused by high airborne fiber counts beyond the Contractor's control.

1.7 ANALYTICAL METHODS

A. The following methods will be used by the Environmental Consultant in analyzing filters used to collect air samples. Sampling rates may be varied from printed standards to allow for high volume sampling.

1. Phase Contrast Microscopy (PCM) will be performed using the NIOSH 7400 methodology.

2. Phase Contrast Microscopy (PCM) and Transmission Electron Microscopy (TEM) NIOSH Method 7402 clearance criteria shall be performed by EPA 40 CFR Part 763 Appendix A to Subpart E methodology and compared to the Philadelphia Asbestos Control Regulation Chapter 6-600.

1.8 SAMPLE VOLUMES

A. General: The number and volume of air samples taken by the Environmental Consultant will be in accordance with the following schedule. Sample volumes given may vary depending upon the analytical method used.

1.9 SCHEDULE OF AIR SAMPLES

A. Daily:

1. From start of work of Section 01526 Temporary Enclosures through the work of Section 01711 Project Decontamination, the Environmental Consultant may be taking the following samples on a daily basis:

a. Inside the Work Area: A minimum of one (1) sample shall be taken per work shift. A low volume sampler shall be employed, drawing a minimum sample volume of 180 liters.

b. Outside the Work Area, but inside the building: A minimum of two (2) samples shall be taken per work shift. A sampler shall be employed, drawing a sufficient sample volume to reach a detection limit of 0.010f/cc. The sampling device shall be placed in locations where potential contamination could occur (e.g. outside entrances and exits to the Work Area) and shall be moved periodically to assess the potential for contamination of adjacent areas at all critical points in the containment system. Special attention shall be given to locations where exhaust ducts from air filtration devices run through occupied areas of the building.

c. In the Clean Room of the Personnel/Waste Decontamination Unit: A minimum of one (1) sample shall be taken in the Decontamination Unit Clean Room per work shift. A high volume sampler shall be employed drawing a sufficient sample volume to reach a detection limit of 0.010f/cc. The sample(s) shall be taken at a time when

activity levels are expected to be at their peak (e.g. shift breaks).

d. Downwind of Air Filtration Unit Exhaust: Where feasible due to on site conditions, one (1) sample shall be taken per work shift to evaluate potential fiber escape through the Air Filtration Device. A high volume sampler shall be employed drawing a sufficient sample volume to reach a detection limit of 0.010f/cc.

e. The Analytical Method for all daily environmental monitoring shall be Phase Contrast Microscopy (PCM) (NIOSH 7400).

B. Additional samples may be taken at the Environmental Consultant's discretion or as required by the Asbestos Control Regulation. If airborne fiber counts exceed allowable limits, additional samples will be taken as necessary to monitor fiber levels.

1.10 LABORATORY TESTING

A. The services of a testing laboratory may be employed by the Environmental Consultant to perform laboratory analyses of the air samples. A microscope and technician with a Philadelphia Asbestos Lab License may be set up at the job site, or samples will be sent overnight on a daily basis, so that verbal reports on air sample results can be obtained within 24 hours. The Contractor shall have access to all air monitoring tests and results.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION

3.1 ADDITIONAL TESTING

A. The Contractor may conduct his/her own air monitoring and laboratory testing. If he/she elects to do this, the cost of such air monitoring and laboratory testing shall be at no additional cost to the Owner.

3.2 PERSONAL MONITORING

A. The Environmental Consultant shall not perform air monitoring to meet Contractor's OSHA requirements for personnel sampling or any other purpose.

END OF SECTION

SECTION 01503

TEMPORARY FACILITIES

PART 1 GENERAL

1.1 RELATED DOCUMENTS:

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to work of this section.

1.2 DESCRIPTION OF REQUIREMENTS:

A. General: Provide temporary connection to existing building utilities or provide temporary facilities as required herein or as necessary to carry out the work.

1.3 SUBMITTALS:

A. Before the Start of Work: Submit the following to the Owner's Representative for review. Begin no work until these submittals are approved by the Owner's Representative.
   1. Scaffolding: Submit list of rolling and fixed scaffolding intended for use on the project. Submit sufficient detail to indicate compliance with applicable worker safety regulations or other requirements.
   2. Hot water heater: Submit manufacturers name, model number, size in gallons, heating capacity, power requirements.
   3. Decontamination Unit Sub-panel: Submit product data.
   4. Ground Fault Circuit Interrupters (GFCI): Submit product data.
   5. Lamps and Light Fixtures: Submit product data.
   6. Self-Contained Toilet Units: Provide product data and name of subcontractor to be used for servicing self-contained toilets. Submit method to be used for servicing.
   7. First Aid Supplies: Provide list of contents of first aid kit. Submit in form of check list.
   8. Fire Extinguishers: Provide product data. Submit schedule indicating location at job site.

PART 2 PRODUCTS

2.1 MATERIALS AND EQUIPMENT:

A. General: Provide new or used materials and equipment that are undamaged and in serviceable condition. Provide only materials and equipment that are recognized as being suitable for the intended use, by compliance with appropriate standards.

2.2 SCAFFOLDING:

A. Provide all scaffolding, ladders and/or staging, etc. as necessary to accomplish the work of this contract. Scaffolding may be of suspension type or standing type such as metal tube and coupler, tubular welded frame, pole or outrigger type or cantilever type. The type, erection and use of all scaffolding shall comply with all applicable OSHA provisions.

B. The rungs of all metal ladders, etc. shall be equipped with an abrasive non-slip surface.

C. All surfaces subject to foot traffic shall have a nonskid surface. Surfaces shall be cleaned as required to remove slippery materials.

D. At the completion of the removal work, all construction aids shall be cleaned within the work area (encapsulated for wood) and wrapped in one layer of six (6) mil polyethylene sheeting and sealed before removal from the work area.

2.3 WATER SERVICE:

A. Temporary Water Service Connection: All connections to the Owner's water system shall include backflow protection. Valves shall be temperature and pressure rated for operation of the temperatures and pressures encountered. After completion of use, connections and fittings shall be removed without damage or alteration to existing water piping and equipment. Leaking or dripping valves shall be piped to the nearest drain or located over an existing sink or grade where water will not damage existing finishes or equipment.

B. Water Hoses: Employ heavy-duty abrasion-resistant hoses with a pressure rating greater than the maximum pressure of the water distribution system to provide water into each work area and to each Decontamination Unit. Provide fittings as required to allow for connection to existing wall hydrants or spouts, as well as temporary water heating equipment, branch piping, showers, shut-off nozzles and equipment.

C. Hot Water Heater: Provide UL rated 30 gallon electric hot water heater or on-demand instant water heater to supply hot water for the Decontamination Unit shower. Activate from 30 amp circuit breaker located within the Decontamination Unit subpanel. Provide with relief valve compatible with water heater operation; pipe relief valve down to drip pan on floor with type L copper. Drip pans shall consist of a 12" X 12" X 6" deep pan, made of 19 gauge galvanized steel, with handles. Drip pan shall be securely fastened to the hot water heater with bailing wire or similar material. Wiring of the hot water heater shall be in compliance with NEMA, NECA, and UL standards.

D. Hot Water: May be secured from the building hot water system, provided backflow protection is installed at the point of connection as described in this section under Temporary Water Service connection, and if authorized in writing by the Owner's Representative.

2.4 ELECTRICAL SERVICE:

A. General: Comply with applicable NEMA, NECA and UL standards and governing regulations for materials and layout of temporary electric service.

B. Temporary Power: Provide service to Decontamination Unit subpanel with minimum 60 amp, 2 pole circuit breaker or fused disconnect connected to the buildings main distribution panel. Subpanel and disconnect shall be sized and equipped to accommodate all electrical equipment required for completion of the work.

C. Voltage Differences: Provide identification warning signs at power outlets which are other than 110-120 volt power. Provide polarized outlets for plug-in type outlets, to prevent insertion of 110-120 volt plugs into higher voltage outlets. Dry type transformers shall be provided where required to provide voltages necessary for work operations.

D. Ground Fault Protection: Equip all circuits for any purpose entering Work Area with ground fault circuit interrupters (GFCI). Locate GFCI's exterior to Work Area so that all circuits are protected prior to entry to Work Area. Provide circuit breaker type ground fault circuit interrupters (GFCI) equipped with test button and reset switch for all circuits to be used for any purpose in work area, decontamination units, exterior, or as otherwise required by national electrical code, OSHA or other authority. Locate the panel exterior to Work Area.

E. Electrical Power Cords: Use only grounded extension cords; use "hard service" cords where exposed to abrasion and traffic. Use single lengths or use waterproof connectors to connect separate lengths of electric cords, if single lengths will not reach areas of work.

F. Lamps and Light Fixtures: Provide general service incandescent lamps or fluorescent lamps of wattage indicated or required for adequate illumination as required by the work or this section. Protect lamps with guard cages or tempered glass enclosures, where fixtures are exposed to breakage by construction operations. Provide vapor tight fixtures in work area and decontamination units. Provide exterior fixtures where fixtures are exposed to the weather or moisture. Use of building lighting fixtures is strictly prohibited.

2.5 TEMPORARY HEAT:

A. Provide temporary heating units that have been tested and labeled by UL, FM, or another recognized trade association related to the fuel being consumed. Use steam or hot water radiation heat where available, and where not available use electric resistant fin radiation supplied from a branch circuit with ground fault circuit interrupter.

2.6 FIRST AID:

A. Comply with governing regulations and recognized recommendations within the construction industry.

2.7 FIRE EXTINGUISHERS:

A. Provide Type "A" fire extinguishers for temporary offices and similar spaces where there is minimal danger of electrical or grease-oil-flammable liquid fires. In other locations provide type "ABC" dry chemical extinguishers, or a combination of several extinguishers of NFPA recommended types for the exposures in each case. The fire extinguishers shall comply with the applicable recommendations of NFPA Standard 10 "Standard for Portable Fire Extinguishers". Provide not less than one extinguisher in each work area in the equipment room of the decontamination unit and one outside the work area in the clean room. Distance between fire extinguishers within the work area shall not exceed seventy-five (75) feet.

PART 3 EXECUTION

3.1 SCAFFOLDING:

A. During the erection and/or moving of scaffolding, care must be exercised so that the polyethylene floor covering is not damaged.

B. Clean as necessary, debris from non-slip surfaces.

C. At the completion of abatement work clean all construction aids within the work area, wrap in one layer of 6 mil polyethylene sheeting and seal before removal from the Work Area.

3.2 INSTALLATION, GENERAL:

A. Use qualified tradesmen for installation of temporary services and facilities. Locate temporary services and facilities where they will serve the entire project adequately and result in minimum interference with the performance of the Work.

B. Require that tradesmen accomplishing this work be licensed as required by local authority for the work performed.

C. Relocate, modify and extend services and facilities as required during the course of work so as to accommodate the entire work of the project.

D. The Contractor shall coordinate with the Building Owner for connection to existing building utilities. No connections shall be executed without prior approval of the building owner.

3.3 WATER SERVICE:

A. Water connection (without charge) to Owner's existing potable water system is the responsibility of the Contractor. Install using vacuum breakers or other backflow preventer as required by local authority. Hot water shall be supplied at a minimum

temperature of 100 F. Supply hot and cold water to the Decontamination Unit in accordance with Section 01516. In addition, water shall be supplied for all worksite uses.

B. Maintain hose connections and outlet valves in leak proof condition. Where finish work below an outlet might be damaged by spillage or leakage, provide a drip pan of suitable size to minimize the possibility of water damage. Drain water promptly from pans as it accumulates.

3.4 ELECTRICAL SERVICE:

A. Provide a weatherproof, grounded temporary electric power service and distribution system of sufficient size, capacity, and power characteristics to accommodate performance of work during the construction period. Install temporary lighting adequate to provide sufficient illumination for safe work and traffic conditions in every area of work.

B. Lockout all existing power to or through the work area as described below. Unless specifically noted otherwise existing power and lighting circuits to the Work Area are not to be used. All power and lighting to the Work Area and Decontamination facilities are to be provided from temporary electrical panel described below.

1. Lockout power to Work Area by switching off all breakers serving power or lighting circuits in work area. Label breakers with tape over breaker with notation “DANGER circuit being worked on”. Lock panel and have all keys under control of the Owner's designated Representative.
2. Lockout power to circuits running through Work Area wherever possible by switching off all breakers serving these circuits. Label breakers with tape over breaker with notation “DANGER circuit being worked on”. Sign and date danger tag. Lock panel and turn keys over to the Owner's Representative for control. If circuits cannot be shut down for any reason, label at intervals 4’-0” on center with tags reading, “DANGER live electric circuit. Electrocution hazard”.

C. Provide temporary electrical panel sized and equipped to accommodate all electrical equipment and lighting required by the work. Connect temporary panel to existing building electrical system. Protect with circuit breaker or fused disconnect. Locate temporary panel as directed by Owner or Owner's Representative.

D. Upon request provide and bear all costs associated with off-hour or twenty-four (24) hour electrical service to the work area as required by the Building Owner for Air Monitoring services.

E. Power Distribution System: Provide circuits of adequate size and proper characteristics for each use. In general run wiring overhead, and rise vertically where wiring will be at least exposed to damage from construction operations.

F. Circuit Protection: Protect each circuit with a ground fault circuit interrupter (GFCI) of

proper size located in the temporary panel. Do not use outlet type GFCI devices.

G. Temporary wiring in the Work Area shall be type UF non-metallic sheathed cable located overhead and exposed for surveillance. Do not wire temporary lighting with plain, exposed (insulated) electrical conductors. Provide liquid tight enclosures or boxes for wiring devices.

H. Number of Branch Circuits: Provide sufficient branch circuits as required by the work. All branch circuits are to originate at temporary electrical panel. At minimum provide the following:

1. One Circuit for each HEPA filtered fan unit.
2. For power tools and task lighting, provide one temporary 4-gang outlet in the following locations. Provide a separate 110-120 Volt, 20 Amp circuit for each 4-gang outlet (4 outlets per circuit).
    a. One outlet in the work area for each 2500 square feet of work area
    b. One outlet at each decontamination unit, located in equipment room
3. 110-120 volt 20 amp branch circuits with 4-gang outlet for Owner's exclusive use while conducting air sampling during the work as follows:
    a. One in each work area
    b. One at clean side of each Decontamination Unit.
    c. One at each exhaust location for HEPA filtered fan units
4. 110-120 volt 20 amp branch circuits with 4-gang outlet for Owner's exclusive use for conducting final air sampling as set forth in Section 01714 Work Area Clearance as follows:
    a. Five inside work area
    b. Two outside work area in location designated by Owner's Representative

3.5 TEMPORARY LIGHTING:

A. Lockout: Lock out all existing power to lighting circuits in Work Area as described in section 01526 Temporary Enclosures. Unless specifically noted otherwise existing lighting circuits to the Work Area are not to be used. All lighting to the Work Area and Decontamination facilities is to be provided from temporary electrical panel described above.

B. Provide the following or equivalent where natural lighting or existing building lighting does not meet the required light level.

1. One 200-watt incandescent lamp per 1000 square feet of floor area, uniformly distributed, for general construction lighting, or equivalent illumination of a similar nature. In corridors and similar traffic areas provide one 100-watt incandescent lamp every 50 feet. In stair ways and at ladder runs, provide one lamp minimum per story,

located to illuminate each landing and flight. Provide sufficient temporary lighting to ensure proper workmanship everywhere; by combined use of daylight, general lighting, and portable plug-in task lighting.

C. Provide lighting in areas where work is being performed as required to supply a 100 foot candle minimum light level.

D. Provide lighting in any area being subjected to a visual inspection as required to supply a 100 foot candle minimum light level.

E. Provide lighting in the Decontamination Unit as required to supply a 50 foot candle minimum light level.

F. Provide sufficient lighting circuits as required by the work. All lighting circuits are to originate at temporary electrical panel.

G. Protect each circuit with a ground fault circuit interrupter (GFCI) of proper size located in the temporary panel.

3.6 TEMPORARY HEAT:

A. General: Provide temporary heat where indicated or needed for performance of work.

B. Maintain a minimum temperature of 70 degrees F where finished work has been installed.

C. Maintain a minimum temperature of 75 degrees F in the shower of the decontamination unit.

D. Maintain a minimum temperature of 70 degrees F in the Work Area at all times that work is being performed. At all other times and at the completion of removal work, but before the start of reconstruction work, maintain a minimum temperature of 50 degrees F.

E. Maintain a minimum temperature of 70 degrees F in the Work Area at all times during and after removal work.

3.8 FIRE EXTINGUISHERS:

A. Fire Extinguishers: Comply with the applicable recommendations of NFPA Standard 10 “Standard for Portable Fire Extinguishers”. Locate fire extinguishers where they are most convenient and effective for their intended purpose, but provide not less than one extinguisher in each Work Area in the Equipment Room and one outside Work Area in the Clean Room.

END OF SECTION

SECTION 01513

TEMPORARY PRESSURE DIFFERENTIAL & AIR FILTRATION SYSTEM

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. General provisions of the Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to work included in this section.

1.2 SUBMITTALS

A. Before Start of Work: Submit design of pressure differential system to the Environmental Consultant for review. Do not begin work until submittal is returned with the Environmental Consultant's approval. Include in the submittal:

1. Number of HEPA filtered fan units required and the calculations necessary to determine the number of machines.
2. Description of projected airflow within work area and methods required to provide adequate airflow in all portions of the work area.
3. Anticipated pressure differential across work area enclosures.
4. Description of methods of testing for correct air flow and pressure differentials.
5. Manufacturer's product data on the HEPA filtered fan units to be used.
6. Location of the machines in the work area.
7. Method of supplying adequate power to the machines and designation of building electrical panel(s) which will be supplying the power.
8. Description of work practices to ensure that airborne fibers travel away from workers.
9. Manufacturer's product data on equipment used to monitor pressure differential between inside and outside of work area.

1.3 QUALITY ASSURANCE

A. Monitor pressure differential at Personnel and Equipment Decontamination Units with one or more digital manometers equipped with a continuous recorder. Manometers shall be equipped with a warning buzzer which will sound if pressure differential drops below negative 0.02 inches of water column.

PART 2 PRODUCTS

2.1 RECORDING MANOMETERS

A. The Contractor shall supply a manometer for each Work Area for the purpose of continuously monitoring and recording the pressure differential between the Work Area and the building outside of the Work Area.

2.2 HEPA FILTERED FAN UNITS

A. General: Supply the required number of HEPA filtered fan units to the site in accordance with these specifications. A minimum of one (1) additional unit shall be installed as a backup to be used during primary unit filter changing and/or upon unit failure. Use units that meet the following requirements:

1. Cabinet: Constructed of durable materials able to withstand damage from rough handling and transportation. The width of the cabinet should be less than 30 inches to fit through standard-size doorways. Provide units whose cabinets are:
    a. Factory-sealed to prevent asbestos-containing dust from being released during use, transport, or maintenance.
    b. Arranged to provide access to and replacement of all air filters from intake end.
    c. Mounted on casters or wheels.

2. Fans: Rated capacity of fan according to usable air-moving capacity under actual operating conditions.

3. HEPA Filters: Provide units whose final filter is the HEPA type with the filter media (folded into closely pleated panels) completely sealed on all edges with a structurally rigid frame.
    a. Provide units with a continuous rubber gasket located between the filter and the filter housing which is in good condition in order to form a tight seal.
    b. Provide HEPA filters that are individually tested and certified by the manufacturer to have an efficiency of not less than 99.97 percent when challenged with 0.3 um dioctylphthalate (DOP) particles when tested in accordance with Military Standard Number 282 and Army Instruction Manual 136-300-175A. Provide filters that bear a UL586 label to indicate ability to perform under specified conditions.
    c. Provide filters that are marked with the name of the manufacturer, serial number, airflow rating, efficiency and resistance, and the direction of test airflow.

d. Pre-filters, which protect the final filter by removing the larger particles, are required to prolong the operating life of the HEPA filter. Two stages of pre-filtration are required. Provide units with the following pre-filters:

1) First-stage pre-filter: low-efficiency type (e.g., for particles 100 um and larger).

2) Second-stage (or intermediate) filter: medium efficiency (e.g., effective for particles down to 5 um in size).

e. Provide units with pre-filters and intermediate filters installed either on or in the intake grid of the unit and held in place with special housings or clamps.

4. Instrumentation: Provide units equipped with:

a. Magnahelic gauge or manometer to measure the pressure drop across filters and indicate when filters have become loaded and need to be changed.

b. A table indicating the usable air-handling capacity for various static pressure readings on the Magnahelic gauge affixed near the gauge for reference, or the Magnahelic reading indicating at what point the filters should be changed, noting cubic feet per minute (CFM) air delivery at that point.

c. Elapsed time meter to show the total accumulated hours of operation.

5. Safety and Warning Devices: Provide units with the following safety and warning devices:

a. Electrical (or mechanical) lockout to prevent fan from operating without a HEPA filter.

b. Automatic shutdown system to stop fan in the event of a rupture in the HEPA filter or blocked air discharge.

c. Warning lights to indicate normal operation (green), too high a pressure drop across the filters (i.e., filter overloading) (yellow), and too low of a pressure drop (i.e., rupture in HEPA filter or obstructed discharge) (red).

d. Audible alarm if unit shuts down due to operation of safety systems.

6. Electrical components: Provide units with electrical components approved by the National Electrical Manufacturers Association (NEMA) and Underwriter's Laboratories (UL). Each unit is to be equipped with overload protection sized for the equipment. The motor, fan, fan housing, and cabinet are to be grounded.

7. Manufacturers: Subject to compliance with requirements, manufacturers

offering products, which may be incorporated in the work, include, but are not limited to, the following:

a. Aerospace America, Inc. "Aero-Clean 2000" 900 Harry S. Truman Parkway Bay City, Michigan 48706

b. Asbestos Control Technology, Inc. "Micro-Trap" 115 Twinbridge Dr Ste G Pennsauken, NJ 08110

c. Control Resource Systems, Inc. "Hog" 2000 670 Mariner Drive Michigan City, Indiana 46360

d. Tri-Dim Filter Corporation "ACCU-2M" 93 Industrial Drive Louisa, VA 23093

PART 3 EXECUTION

3.1 AIR CIRCULATION IN THE WORK AREA

A. Air Circulation: For purposes of this section air circulation refers to either the introduction of outside air to the work area or the circulation and cleaning of air within the work area.

B. Air circulation in the work area is a minimum requirement intended to help maintain airborne fiber counts at a level that does not significantly challenge the work area isolation measures. The Contractor may also use this air circulation as part of the engineering controls in his worker protection program.

C. Determining the Air Circulation Requirements: Provide a fully operational air circulation system supplying a minimum of four (4) air changes per hour.

D. Determine the number of units needed to achieve required air circulation according to the following procedure:

1. Determine the volume in cubic feet of the work area by multiplying floor area by ceiling height. Determine total air circulation requirement in cubic feet per minute (CFM) for the work area by dividing this volume by the air change rate.

$$\text{Cubic Feet of Air per Minute (CFM)} = \frac{\text{Volume of work area (cu. ft.)}}{\text{15 minutes}}$$

2. Divide the air circulation requirement (CFM) above by the capacity of HEPA filtered fan unit(s) used. Capacity of a unit for purposes of this section is the capacity in cubic feet per minute with fully loaded filters (pressure differential which causes loaded filter warning light to come on) in the machine's labeled operating characteristics.

$$\text{Number of Units Needed} = \frac{\text{Air circulation Requirement (CFM)}}{\text{Capacity of Unit with Loaded Filters (CFM)}}$$

3. Add one (1) additional unit as a backup in case of equipment failure or machine shutdown for filter changing.

3.2 PRESSURE DIFFERENTIAL ISOLATION

A. Isolate the work area from all adjacent areas or systems of the building with a pressure differential that will cause a movement of air from outside to inside at any breach in the physical isolation of the work area.

B. Relative Pressure in the work area: Continuously maintain the work area at an air pressure that is lower than that in any surrounding space in the building, or at any location in the immediate proximity outside of the building envelope, with a pressure differential of negative 0.02" water column as a minimum.

C. Accomplish the pressure differential by exhausting a sufficient number of HEPA filtered fan units from the work area. The number of units required will depend on machine characteristics, the seal at barriers, and required air circulation. The number of units will increase with increased make-up air or leaks into the work area. Determine the number of units required for pressure isolation by the following procedure:

1. Establish required air circulation in the work area, personnel and equipment decontamination units.
2. Exhaust a sufficient number of units from the work area to ensure the required air changes/hour.
3. The required number of units is the number determined above plus one additional unit.

D. Vent HEPA filtered fan units to the outside of the building unless otherwise authorized in writing by the Environmental Consultant. An Alternative Method Request may be required to vent exhaust into water filled barrels if venting to the exterior is not feasible.

1. Mount the units to exhaust directly or through disposable ductwork.
2. Use only new ductwork except for sheet metal connections and elbows.
3. Use ductwork and fittings of same diameter or larger than the discharge connection on fan unit.
4. Use inflatable, disposable plastic ductwork in lengths not greater than 100 feet.
5. Use spiral wire-reinforced flex duct in lengths not greater than 50 feet.
6. Arrange exhaust as required to inflate the duct to a rigidity sufficient to

prevent flapping.

7. If direction of discharge from fan unit is not aligned with duct, use sheet metal elbow to change direction. Use six feet of spiral wire reinforced flex duct after direction change.
8. Do not combine two (2) or more exhaust ductwork lengths into each other.

3.3 EXHAUST SYSTEM

A. Pressure differential isolation and air circulation in the work area are to be accomplished by an exhaust system as described below.

B. Exhaust all units from the work area outside the building unless approved by an Alternative Method Request.

C. Location of HEPA Filtered Fan Units: Locate fan unit(s) so that makeup air enters work area primarily through decontamination facilities and traverses work area as much as possible. This may be accomplished by positioning the HEPA filtered fan unit(s) at a maximum distance from the worker access opening or other makeup air sources.

D. Place the intake end of the HEPA unit at the perimeter of the work area enclosure or locate its exhaust duct through an opening in the plastic barrier or wall covering. Seal plastic around the unit or duct with tape.

E. Vent to the outside of the building, unless authorized in writing by the Owner's Representative and approved by an Alternative Method Request.

F. Decontamination Units: Arrange the work area and decontamination units so that the majority of make-up air comes through the decontamination units. Use only the personnel or equipment decontamination unit at any one time and seal the other so that make up air passes through the unit in use.

G. Supplemental Makeup Air Inlets: Provide, where required, for proper airflow through the work area in a location approved by the Asbestos Technician. This can be done by making louvered openings in the plastic sheeting that allow air from outside the building into the work area. Locate auxiliary makeup air inlets as far as possible from the fan unit(s) (e.g., on an opposite wall), off the floor (preferably near the ceiling), and away from barriers that separate the work area from any clean areas. Cover with flaps to reseal automatically if the pressure differential system should shut down for any reason. Spray flap and around opening with spray adhesive so that if flap closes meeting surfaces are both covered with adhesive. Use adhesive that forms contact bond when dry.

3.4 RECIRCULATION SYSTEM

A. Pressure differential isolation and air circulation in the work area are to be accomplished by a recirculation system as described below:

1. Recirculate air in the work area through HEPA filtered fan units to accomplish air circulation requirements of this section.

2. Location of Fan Units: Locate HEPA filtered fan units so that air is circulated through all parts of the work area, and so that required pressure is maintained at all parts of work area geometry. Move units as necessary so that in any location where asbestos-containing materials are being disturbed the discharge from one HEPA filtered fan unit is blowing contamination away from workers. Direct airflow in these locations so that it is predominantly toward workers' backs at the breathing zone elevation.

3.5 AIR CIRCULATION IN DECONTAMINATION UNITS

A. Pressure Differential Isolation: Continuously maintain the pressure differential required for the work area in the:

1. Personnel Decontamination Unit: Across the shower room with the equipment room at a lower pressure than the clean room.

2. Equipment Decontamination Unit: Across the holding room with the wash room at a lower pressure than the clean room.

B. Air Circulation: Continuously maintain air circulation in decontamination units at the same level as required for the work area.

C. Air Movement: Arrange air circulation through the personnel unit so that it produces a movement of air from the clean room through the shower room into the equipment room.

3.6 USE OF THE PRESSURE DIFFERENTIAL AND AIR CIRCULATION SYSTEM

A. General: Each unit shall be serviced by a dedicated minimum 115V-20A circuit with ground fault circuit interrupter (GFCI) supplied from temporary power supply installed under requirements of Section 01503 “Temporary Facilities”. Do not use existing branch circuits to power fan units.

B. Testing the System: Test pressure differential system before any asbestos-containing material is wetted or removed. After the work area has been prepared, the decontamination facility set up, and the fan unit(s) installed, start the unit(s) (one at a time). Demonstrate operation and testing of pressure differential system to Asbestos Project Inspector.

C. Demonstrate condition of equipment for each HEPA filtered fan unit and pressure

differential monitoring equipment including proper operation of the following:

1. Squareness of HEPA filter.
2. Condition of seals.
3. Proper operation of lights.
4. Proper operation of automatic shut down if exhaust is blocked.
5. Proper operation of alarms.
6. Proper operation of magnehelic gauge.
7. Proper operation and calibration on pressure-monitoring equipment.

D. Demonstrate operation of the pressure differential system for the Asbestos Project Inspector. Including, but do not limited to, the following:

1. Plastic barriers and sheeting move slightly in toward the work area.
2. Curtain of decontamination units move slightly in toward the work area.
3. There is a noticeable movement of air through the decontamination unit.
4. Use smoke tube to demonstrate air movement from clean room through shower room to equipment room.
5. Use smoke tubes to demonstrate a definite motion of air across all areas in which work is to be performed.

E. Modify the pressure differential system as necessary to demonstrate successfully the above.

F. Use of system during abatement operations:

1. Start fan units before beginning work (before any asbestos-containing material is disturbed). After abatement work has begun, run units continuously to maintain a constant pressure differential and air circulation until decontamination of the work area is complete. Do not turn off units at the end of the work shift or when abatement operations temporarily stop.

2. Do not shut down air pressure differential system during encapsulating procedures, unless authorized by the Asbestos Technician in writing. Supply sufficient pre-filters to allow frequent changes.

3. Start abatement work at a location farthest from the fan units and proceed toward them. If an electric power failure occurs, immediately stop all abatement work and do not resume until power is restored and fan units are operating again.

4. At completion of abatement work, allow fan units to run as specified under

Section 01711, to remove airborne fibers that may have been generated during abatement work and cleanup and to purge the work area with clean makeup air. The units may be required to run for a longer time after decontamination, if dry or only partially wetted asbestos material was encountered during any abatement work.

G. Dismantling the System:

1. When a final inspection and the results of final air tests indicate that the area has been decontaminated, fan units may be removed from the work area. Before removal from the Work Area, remove and properly dispose of pre-filters, secondary filters, and HEPA filters, decontaminate exterior of machine and seal intake to the machine with 6-mil polyethylene to prevent environmental contamination from the filters.

END OF SECTION

SECTION 01526

TEMPORARY ENCLOSURES AND WORK AREA PREPARATION

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. General provisions of the Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to work of this section.

1.2 SUBMITTALS

A. Before the start of work the Contractor shall submit a work plan to the Environmental Consultant for review. The Contractor shall not begin work until work plan submittals are approved by the Environmental Consultant. The work plan shall identify specific engineering controls and removal methods to be utilized for each work area.

1.3 TEMPORARY ENCLOSURES - CATEGORY I AND II NON-FRIABLE ACM MATERIAL

A. Primary Barriers shall not be required for work areas where Category I and II non-friable materials are to be removed using EPA approved non-friable removal methods.

B. Localized isolation consisting of critical barriers, drop cloths, splash guards if needed, and air filtration units shall be required.

1.4 TEMPORARY ENCLOSURES – FRIABLE ACM

A. Removal of asbestos-containing materials shall be accomplished utilizing full containment procedures techniques as outlined in the City of Philadelphia Asbestos Control Regulation, Chapter 6-600, Section VI STANDARDS.

B. Air filtration units and negative pressure enclosures shall be required.

PART 2 PRODUCTS

2.1 SHEET PLASTIC

A. Polyethylene Sheet: Provide flame-resistant 6 mil polyethylene film that conforms to requirements set forth by the National Fire Protection Association Standard 701, Small Scale Fire Test for Flame-Resistant Textiles and Films. Provide largest size possible to minimize seams, 6-mil thick, frosted or black as indicated.

2.2 MISCELLANEOUS MATERIALS

A. Duct Tape: Provide duct tape (or approved equivalent) in 2" or 3" widths as indicated, with an adhesive which is formulated to stick aggressively to sheet polyethylene.

B. Spray Cement: Provide spray adhesive in aerosol cans which is specifically formulated to stick tenaciously to sheet polyethylene.

C. Asbestos warning signs for posting at the perimeter of all work areas, as required by EPA and OSHA.

D. Flame resistant kiln dried lumber, any grade, 2” x 4” or 2” x 3” wood stud, PVC piping, metal stud or equivalent, in lengths appropriate for wall construction.

E. Flame resistant plywood sheathing (3/8” thick minimum) shall be used at all locations called for in the specifications. This may include, but is not limited to, isolation barriers, exhaust manifolds and personnel and waste/equipment decontamination units.

PART 3 EXECUTION

3.1 GENERAL REQUIREMENTS

A. The work area shall mean the location where asbestos-abatement work occurs. It is a variable of the extent of work of the Contract. It may be a portion of a room, a single room, or a complex of rooms. A “work area” is considered contaminated during the work, and must be isolated from the balance of the building, and decontaminated at the completion of the asbestos-control work.

B. The Contractor shall inspect each work location with the Asbestos Project Inspector. The Contractor and Asbestos Project Inspector shall agree on conditions of materials and worksite and select the appropriate abatement procedures. Should the Asbestos Project Inspector and Contractor not be in agreement, the Owner’s Representatives and Environmental Consultant shall make the final decision.

C. Completely isolate and seal the work area(s) from other parts of the building so as to prevent asbestos-containing dust or debris from passing beyond the isolated area. All seals and critical barriers shall be maintained in an air-tight condition to allow for clearance air testing to be conducted while abatement activities are in progress in adjacent areas. Should any area beyond the work area(s) become contaminated with asbestos-containing dust or debris as a consequence of the work, clean those areas in accordance with the procedures indicated in Section 01711. Perform all such required cleaning or decontamination at no additional cost to the owner.

D. Place all tools, scaffolding, staging, etc. necessary for the work in the area to be isolated prior to completion of work area isolation.

E. Lockout/tag-out all power to work area in accordance with Section 01503.

3.2 EMERGENCY PRECAUTIONS

A. The Contractor shall prepare a contingency plan for emergencies including fire, accident, power failure, air pressure differential system failure, supplied air system failure, or any other event that may require modification or abridgment of decontamination or work area isolation. Note that nothing in this Specification should impede safe exiting or providing of adequate medical attention in the event of an emergency.

B. The Contractor shall provide barricades and adequate protection to safely prevent accidental entrance to the abatement area by any building occupants.

C. Before the Contractor starts actual abatement of asbestos material, the local fire department and ambulance crews shall be notified by the Contractor as to the dangers of entering the work area. The Contractor shall make every effort to help these agencies and form plans of action, should their personnel need to enter the contaminated area.

D. Local medical emergency personnel, both ambulance crews and hospital emergency room staff, shall be notified by the Contractor as to the possibility of having to handle injured work persons who are contaminated with asbestos dust. They shall be advised on safe decontamination procedures.

E. First aid shall comply with the governing regulations and all recognized recommendations within the construction industry.

F. Except as otherwise indicated, submit special reports directly to the Owner within one day of occurrence requiring special report, with a copy to the Owner's Representative, Environmental Consultant and others affected by the occurrence.

3.3 EMERGENCY EXITS

A. Provide emergency exits and emergency lighting as set forth below:

1. Emergency Exits: At each existing exit door from the work area provide the following means for emergency egress:

   a. Arrange exit door so that it is secure from outside the Work Area but permits exiting from the Work Area.

   b. Mark outline of door on Primary and Critical Barriers with luminescent paint at least 1" wide. Hang a razor knife on a string beside outline. Arrange Critical and Primary barriers so that they can be easily cut with one pass of the razor knife. Paint words “EMERGENCY EXIT” inside outline with luminescent paint in letters at least one foot high and 2” thick.

3.4 CONTROLLED ACCESS

A. Isolate the Work Area to prevent unauthorized entry into work area or

surrounding controlled areas. Accomplish isolation by the following:

1. After receiving authorization from the Asbestos Project Inspector, lock all doors into the Work Area, or, if doors cannot be locked, chain shut. Cover any signs that direct emergency exiting, either outside or inside of the Work Area, to locked doors. Do not obstruct doors required for emergency exits from the Work Area or from building.

2. Arrange the Work Area so that the only access into the Work Area is through lockable doors to personnel and equipment decontamination units.

3. Install temporary shuttered, lockable doors with entrance type locksets that are key lockable from the outside and always unlocked and operable from the inside. Do not use deadbolts or padlocks.

B. Provide warning signs at each locked door leading to work area printed in both English and Spanish reading as follows:

DANGER
ASBESTOS
MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS
AUTHORIZED PERSONNEL ONLY
WEAR RESPIRATORY PROTECTION AND PROTECTIVE CLOTHING IN THIS AREA

C. Provide spacing between respective lines at least equal to the height of the respective upper line.

D. Provide Warning Signs (in English and Spanish) at each locked door leading to work area reading as follows:

LEGEND	**NOTATION**
KEEP OUT	3” Sans Serif Gothic or Block
BEYOND THIS POINT	1” Sans Serif Gothic or Block
ASBESTOS ABATEMENT WORK	1” Sans Serif Gothic or Block
IN PROGRESS	1” Sans Serif Gothic or Block
BREATHING ASBESTOS DUST MAY BE	14 Point Gothic
HAZARDOUS TO YOUR HEALTH	

3.5 ALTERNATE METHODS OF ENCLOSURE

A. NA

3.6 RESPIRATORY AND WORKER PROTECTION

A. Before proceeding beyond this point in providing Temporary Enclosures:

1. Provide Worker Protection per Section 01560.

2. Provide Respiratory Protection per Section 01562.
3. Provide Personnel Decontamination Unit per Section 01563.

3.7 ISOLATION BARRIERS

A. When an isolation barrier is required, it shall consist of partitions constructed of a minimum of: conventional 2x3 wood, polyvinyl chloride piping, or metal stud framing, on a sixteen-inch maximum center-to-center to support barriers in all openings larger than thirty-two square feet, except where any one dimension is one foot or less.

B. A solid construction material, such as plywood, of at least 3/8 inch thickness shall be applied to the work side of the framing where the barrier could be subject to damage.

C. Partitions shall be plasticized with Primary Barriers as described below.

D. All accessible walls surrounding the area shall contain a minimum 18” square transparent viewing port made of shatterproof material greater than or equal to 0.125” thickness located at a height appropriate for accessible viewing and in such a manner so as to maximize visibility of the work area. Viewing ports shall be maintained in a clear and unobstructed manner at all times.

3.8 CRITICAL BARRIERS

A. Completely separate the Work Area(s) from other portions of the building and the outside by closing all openings with two (2) independent layers of sheet plastic barriers at least 6 mil in thickness, individually sealed and sealing cracks and irregular openings with expanding fire-rated foam. All openings shall be air-tight and shall remain in place until clearance sampling indicates acceptable fiber concentration levels have been achieved.

B. Individually seal all ventilation openings (supply and exhaust), lighting fixtures, clocks, doorways, windows, elevator shafts, convectors and speakers, and other openings into the Work Area(s) with two (2) independent layers of polyethylene sheeting at least 6 mil in thickness, taped securely in place with duct tape. Maintain seals until all work including project decontamination is completed.

C. Provide two (2) individual layers of Sheet Plastic barriers at least 6 mil in thickness as required to seal openings completely from the work area into adjacent areas. Seal the perimeter of all sheet plastic barriers with duct tape or spray cement.

D. Fire-rated expandable foam may be used to properly seal any irregular openings not conducive to sealing with polyethylene sheeting.

E. Mechanically support sheet plastic independently of duct tape or spray cement seals so that seals do not support the weight of the plastic. The following are

acceptable methods of supporting sheet plastic barriers. Alternative support methods may be used if approved in writing by the Owner's Representative:

1. Plywood squares 6” x 6” x 3/8” held in place with one smooth masonry nail or electro-galvanized common nail driven through center of the plywood and duct tape on plastic so that plywood clamps the plastic to the wall. Locate plywood squares at each end, corner and at maximum 4 feet on centers.
2. Nylon or polypropylene rope or wire with a maximum unsupported span of 10 feet, minimum ¼” in diameter suspended between supports securely fastened on either side of opening at maximum 1 foot below ceiling. Tighten rope so that it has 2” maximum dip. Drape plastic over rope from outside work area so that a two foot long flap of plastic extends over rope into work area. Staple or wire plastic to itself 1” below rope at maximum 6” on centers to form a sheath over rope. Lift flap and seal to ceiling with duct tape or spray cement. Seal loop at bottom of flap with duct tape. Erect entire assembly so that it hangs vertically without a “shelf” upon which debris could collect.

F. Provide Pressure Differential System per Section 01513.

G. Clean housings and ducts of all debris or overspray materials prior to erection of any Critical Barrier that will restrict access.

3.9 PREPARE AREA:

A. Scaffolding: If fixed scaffolding is to be used to provide access, HEPA vacuum and wet clean area prior to scaffolding installation.

B. Remove all electrical and mechanical items, such as lighting fixtures, clocks, diffusers, registers, escutcheon plates, etc. which cover any part of the surface to be worked on with the work.

C. Remove all general construction items such as cabinets, casework, door and window trim, moldings, ceilings, trim, etc., which cover the surface of the work as required to prevent interference with the work.

D. Clean all furniture, equipment, and or supplies with a HEPA filtered vacuum cleaner or by wet cleaning, as specified in Section 01712 Cleaning and Decontamination Procedures, prior to being moved or covered. All equipment, furniture, etc. is to be deemed contaminated unless specifically declared as uncontaminated on the drawings or in writing by Environmental Consultant.

E. Clean all surfaces in the Work Area with a HEPA filtered vacuum or by wet wiping prior to the installation of the primary barrier.

3.10 PRIMARY BARRIER:

A. Protect building and other surfaces in the Work Area from damage from water and high humidity or from contamination from asbestos-containing debris, slurry or high airborne fiber levels by covering with a primary barrier as described below.

B. Sheet Plastic: Protect floor surfaces in the Work Area with two (2) layers of six (6) mil plastic sheeting and wall surfaces with two (2) layers of six (6) mil. thick plastic sheeting, or as otherwise directed on the Contract Drawings.

1. Protect floor surfaces in the Work Area with two (2) layers of six (6) mil plastic sheeting. Wall sheeting must extend up the wall surfaces a minimum of 12" in an alternating fashion with the wall sheeting or as otherwise directed on the Contract Drawings.

2. Cover all walls in the Work Area including "Critical Barrier" sheet plastic barriers with two layers of polyethylene sheeting, at least 6 mil in thickness, mechanically supported and sealed with duct tape and spray-glue, so as to overlap floor sheeting by at least 12 inches in the same manner as "Critical Barrier" sheet plastic barriers. Tape all joints including the joining with the floor covering with duct tape. Wall sheet barriers shall extend to the floor.

3. All vertical and horizontal surfaces except those of asbestos-containing materials shall be sealed with polyethylene sheeting. This includes all non-ACM pipe insulation.

4. Stairs and Ramps: Do not cover stairs or ramps with unsecured sheet plastic. Where stairs or ramps are covered with plastic, provide ¾" exterior grade plywood treads securely held in place, over the plastic. Do not cover rungs or rails with any type of protective materials.

5. Repair of Damaged Polyethylene Sheeting: Remove and replace plastic sheeting which has been damaged by removal operations or where seal has failed allowing water to seep between layers. Remove affected sheeting and wipe down entire area. Install new sheet plastic only when area is completely dry.

C. Viewing Port: All accessible walls surrounding the area shall contain a minimum 18"square viewing port made of shatterproof material greater than or equal to 0.125" thickness located at a height appropriate for accessible viewing and in such a manner as to maximize visibility of the work area.

3.11 STOP WORK

A. If the Critical barrier falls or is breached in any manner, stop work immediately. Do not start work until authorized in writing by the Asbestos Project Inspector.

3.12 EXTENSION OF THE WORK AREA

A. Extension of the Work Area: If the Critical Barrier is breached in any manner that could allow the passage of asbestos debris or airborne fibers, then add the affected area to the work area, enclosing it as required by this Section of the specification and decontaminate it as described in Section 01711 Project Decontamination.

3.13 CONTAINMENT BAG REMOVAL

A. See Section 02079 Containment Bag Removal for Enclosure and Work Area Preparation for use during Containment Bag Removal of asbestos-containing Joint Insulation and asbestos-containing Pipe Insulation.

END OF SECTION

SECTION 01560

WORKER PROTECTION

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. General provisions of the Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to work of this section.

1.2 DESCRIPTION OF WORK

A. This section describes the equipment and procedures required for protecting workers and site visitors against asbestos contamination and other workplace hazards except for respiratory protection.

1.3 RELATED WORK SPECIFIED ELSEWHERE

A. Respiratory Protection is specified in Section 01562.

1.4 WORKER TRAINING

A. State and Local License: All workers are to be trained and currently certified as asbestos workers and/or supervisors by the Commonwealth of Pennsylvania, Department of Labor and Industry and shall provide evidence of such certification upon request.

B. Train, in accordance with 29 CFR 1926.1101(k)(8), all workers in the dangers inherent in handling asbestos and breathing asbestos dust and in proper work procedures and personal and area protective measures. Include but do not limit the topics covered in the course to the following:

1. Methods of recognizing asbestos
2. Health effects associated with asbestos
3. Relationship between smoking and asbestos in producing lung cancer
4. Nature of operations that could result in exposure to asbestos
5. Importance of and instruction in the use of necessary protective controls, practices and procedures to minimize exposure including:
    a. Engineering controls
    b. Work practices
    c. Respirators
    d. Housekeeping procedures
    e. Hygiene facilities

f. Protective clothing

g. Decontamination procedures

h. Emergency procedures

i. Waste disposal procedures

6. Purpose, proper use, fitting, instructions, and limitations of respirators as required by 29 CFR 1910.134

7. Appropriate work practices for the work

8. Requirements of medical surveillance program

9. Review of 29 CFR 1926.1101 (amended), including appendices

10. Pressure differential systems

11. Work practices including hands-on or on-job training

12. Personal decontamination procedures

13. Air monitoring, personal and area

1.5 MEDICAL EXAMINATIONS

A. Provide medical examinations for all workers who may encounter an airborne fiber level of 0.1 f/cc or greater for an 8 hour Time Weighted Average. In the absence of specific airborne fiber data, provide medical examinations for all workers who will enter the Work Area for any reason. Examination shall as a minimum meet OSHA requirements as set forth in 29 CFR 1926.1101(m). In addition, provide an evaluation of each individual's ability to work in environments capable of producing heat stress in the worker.

1.6 SUBMITTALS

A. Before start of work submit the following to the Owner's Representative for review. Do not start work until these submittals are approved by the Environmental Consultant.

1. State and Local License: Submit evidence that all workers have been trained and licensed as asbestos workers by the Commonwealth of Pennsylvania Department of Labor and Industry.

2. Certificate of Worker Acknowledgement: Submit an original signed copy of the Certificate of Worker's Acknowledgement for each worker who is to be at the job site or enter the Work Area.

3. Report from a medical examination conducted within last 12 months as part of compliance with OSHA medical surveillance requirements for each worker who is to enter the Work Area. Submit, at a minimum, for each worker the following:

a. Name and Social Security Number

b. Physicians written opinion from examining physician including at a minimum the following:

1) Whether worker has any detected medical conditions that would place the worker at an increased risk of material health impairment from exposure to asbestos.

2) Any recommended limitations on the worker or on the use of personal protective equipment such as respirators.

3) Statement that the worker has been informed by the physician of the results of the medical examination and of any medical conditions that may result from asbestos exposure.

c. Copy of information that was provided to physician in compliance with 29 CFR 1926.

d. Statement that worker is able to wear and use the type of respiratory protection proposed for the project, and is able to work safely in an environment capable of producing heat stress in the worker.

4. Notarized Certifications: Submit certification signed by an officer of the abatement contracting firm and notarized confirming that exposure measurements, medical surveillance, and worker training records are being kept in conformance with 29 CFR 1926.

5. Copies of OSHA-approved confined space training (1910.146) certification for all workers entering OSHA-defined confined spaces.

PART 2 PRODUCTS

2.1 PROTECTIVE CLOTHING

A. Clothing: Provide fire-retardant “Tyvek” disposable protective clothing consisting of full-body coveralls, headcovers, and boots as required by the most stringent OSHA standards applicable to the work and as manufactured by DuPont or approved equal. Eye protection, hard hats, gloves, and safety shoes shall be worn. They shall be in accordance with ANSI Z89.1 (1969) and ANSI Z41.1 (1967).

B. Boots: Provide work boots with non-skid soles, and where required by OSHA, foot protectives, for all workers. Provide boots at no cost to workers. Paint uppers of all boots red with waterproof enamel. Do not allow boots to be removed from the Work Area for any reason, after being contaminated with asbestos-containing material. Dispose of boots as asbestos- contaminated waste at the end of the work.

C. Hard Hats: Provide head protection (hard hats) as required by OSHA for all workers, and provide 4 spares for use by Owner's Representative, Project Administrator, and Owner. Label hats with same warning labels as used on disposal bags. Require hard hats to be worn at all times that work is in progress

that may potentially cause head injury. Provide hard hats of type with plastic strap type suspension. Require hats to remain in the Work Area throughout the work. Thoroughly clean, decontaminate and bag hats before removing them from Work Area at the end of the work.

D. Goggles: Provide eye protection (goggles) as required by OSHA for all workers involved in scraping, spraying, or any other activity which may potentially cause eye injury. Thoroughly clean, decontaminate and bag goggles before removing them from Work Area at the end of the work.

E. Gloves: Provide work gloves to all workers and require that they be worn at all times in the Work Area. Do not remove gloves from Work Area. Dispose of gloves as asbestos-contaminated waste at the end of the work.

2.2 ADDITIONAL PROTECTIVE EQUIPMENT

A. Respirators, disposable coveralls, head covers, and footwear covers shall be provided by the Contractor for the Owner, Owner's Representative, Environmental Consultants, and other authorized representatives who may inspect the jobsite. Provide two (2) respirators and six (6) complete coveralls and where applicable provide six (6) respirator filter changes per day. Sufficient HEPA cartridges for powered air-purifying respirators shall be provided for the workers to change during the work shift. No HEPA cartridges shall be used for longer than three (3) eight (8) hour work shifts. The respirators shall be worn at all times when in the contaminated area. There shall be no exceptions.

PART 3 EXECUTION

3.1 GENERAL

A. Provide worker protection as required by the most stringent OSHA and/or EPA standards applicable to the work. The following procedures are minimums to be adhered to regardless of fiber count in the Work Area.

B. Each time the Work Area is entered remove all street clothes in the Changing Room of the Personnel Decontamination Unit and put on new disposable coverall, new head cover, and a clean respirator. Proceed through shower room to equipment room and put on work boots.

3.2 DECONTAMINATION PROCEDURES

A. Require all workers to adhere to the following personal decontamination procedures whenever they leave the Work Area:

1. Type C Supplied Air or Powered Air-Purifying Respirators: Require that all workers use the following decontamination procedure as a minimum requirement whenever leaving the Work Area:

a. When exiting area, remove disposable coveralls, disposable head covers, and disposable footwear covers or boots in the equipment room.

b. Still wearing respirators, proceed to showers. Showering is mandatory. Care must be taken to follow reasonable procedures in removing the respirator to avoid asbestos fibers while showering. The following procedure is required as a minimum:

1) Thoroughly wet body including hair and face. If using a Powered Air-Purifying Respirator (PAPR) hold blower unit above head to keep canisters dry.

2) With respirator still in place thoroughly wash body, hair, respirator face piece, and all parts of the respirator except the blower unit and battery pack on a PAPR. Pay particular attention to seal between face and respirator and under straps.

3) Take a deep breath, hold it and/or exhale slowly, completely wet hair, face, and respirator. While still holding breath, remove respirator and hold it away from face before starting to breath.

4) Carefully wash facepiece of respirator inside and out.

5) If using PAPR, shut down in the following sequence, first cap inlets to filter cartridges, then turn off blower unit (this sequence will help keep debris which has collected on the inlet side of filter from dislodging and contaminating the outside of the unit). Thoroughly wash blower unit and hoses. Carefully wash battery pack with wet rag. Be extremely cautious of getting water in battery pack as this will short out and destroy battery.

6) Shower completely with soap and water.

7) Rinse thoroughly.

8) Rinse shower room walls and floor prior to exit.

c. Proceed from shower to Clean Room and change into street clothes or into new disposable work items.

2. If air-purifying negative pressure respirators are being utilized, require that all workers use the following decontamination procedures as a minimum requirement whenever leaving the Work Area with a half or full face cartridge-type respirator:

a. When exiting area, remove disposable coveralls, disposable headcovers and disposable footwear covers or boots in the equipment room.

b. Still wearing respirators. Proceed to showers. Showering is mandatory. Care must be taken to follow reasonable procedures in removing the respirator and filters to avoid inhaling asbestos fibers while showering. The following procedure is required as a minimum:

1) Thoroughly wet body from neck down.

2) Wet hair as thoroughly as possible without wetting the respirator filter if using an air purifying type respirator.

3) Take a deep breath, hold it and/or exhale slowly, complete wetting of hair thoroughly wetting face, respirator and filter (air purifying respirator). While still holding breath, remove respirator and hold it away from face before starting to breath.

4) Dispose of wet filters from air purifying respirator after each use.

5) Carefully wash facepiece of respirator inside and out.

6) Shower completely with soap and water.

7) Rinse thoroughly.

8) Rinse shower room walls and floor to exit

c. Proceed from shower to clean room and change into street clothes or into new disposable work suit.

B. Within the Work Area: Require that workers NOT eat, drink, smoke, chew tobacco or gum, or apply cosmetics in the Work Area. To eat, chew, or drink, workers shall follow the procedure described above, then dress in street clothes before entering the non-work areas of the building. **Smoking is not permitted in any part of the building complex.**

END OF SECTION

SECTION 01562

RESPIRATORY PROTECTION

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. General provisions of the Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to work of this section.

1.2 DESCRIPTION OF WORK

A. Instruct and train each worker involved in asbestos abatement or maintenance and repair of friable asbestos-containing materials in proper respiratory use. Require that each worker properly wear a respirator in the Work Area from the start of any operation which may cause airborne asbestos fibers until the Work Area is completely decontaminated and cleared through air monitoring. Use respiratory protection appropriate for the fiber level encountered in the workplace or as required for other toxic or oxygen-deficient situations encountered.

1.3 STANDARDS

A. Except to the extent that more stringent requirements are written directly into the Contract Documents, the following regulations and standards have the same force and effect (and are made a part of the Contract Documents by reference) as if copied directly into the Contract Documents, or as if published copies were bound herewith. Where there is a conflict in requirements set forth in these regulations and standards, meet the more stringent requirement.

1. OSHA - U.S. Department of Labor Occupational Safety and Health Administration, Safety and Health Standards 29 CFR 1910.1001 and 1910.134 as well as 29 CFR 1926.1101.

2. CGA - Compressed Gas Association, Inc., New York, Pamphlet G-7, “Compressed Air for Human Respiration if, and Specification G-7.1 “Commodity Specification for Air”.

3. CSA - Canadian Standard Association, Rexdal, Ontario, Standard Z180.1-1978, "Compressed Breathing Air".

4. ANSI - American National Standard Practices for Respiratory Protection, ANSI Z88.2-1992.

5. NIOSH - National Institute for Occupational Safety and Health.

6. MSHA - Mine Safety and Health Administration.

1.4 SUBMITTALS

A. Before Start of Work submit the following to the Environmental Consultant for review. Do not begin work until these submittals are approved by the Environmental Consultant.

1. Product Data: Submit manufacturer's product information for each component used, including NIOSH and MSHA Certifications for each component in an assembly and/or for entire assembly.

2. Operating Instruction: Submit complete operating and maintenance instructions for all components and systems as a whole. Submittal is to be in bound manual form suitable for field use.

3. Respiratory Protection Program: Submit Contractor's written respiratory protection program manual as required by OSHA 1926.1101.

1.5 DELIVERY

A. Deliver replacement parts, etc., not otherwise labeled by NIOSH or MSHA to job site in manufacturer's containers.

PART 2 EQUIPMENT

2.1 AIR PURIFYING RESPIRATORS

A. Respirator Bodies: Provide half face or full face type respirators. Equip full face respirators with a nose cup or other anti-fogging device as would be appropriate for use in air temperatures less than 32 degrees Fahrenheit.

B. Filter Cartridges: Provide, at a minimum, HEPA type filters labeled with NIOSH Certification for “Radionuclides, Radon Daughters, Dust, Fumes, Mists including Asbestos-Containing Dusts and Mists” and color coded in accordance with ANSI Z228.2 (1980). In addition, a chemical cartridge section may be added, if required, for solvents, etc., in use. In this case, provide cartridges that have each section of the combination canister labeled with the appropriate color code and NIOSH Certification.

C. Non-permitted respirators: The use of single use, disposable or quarter face respirators is strictly forbidden.

2.2 POWERED AIR PURIFYING RESPIRATORS

A. Respirator Bodies: Provide full face type powered respirators. Equip full face respirators with a nose cup or other anti-fogging device as would be appropriate for use in air temperatures less than 32 degrees Fahrenheit.

B. Filter Cartridges: Provide, at a minimum, HEPA type filters labeled with NIOSH Certification for “Radionuclides, Radon Daughters, Dust, Fumes, Mists including Asbestos-Containing Dusts and Mists” and color coded in accordance with ANSI

Z228.2 (1980). In addition, a chemical cartridge section may be added, if required, for solvents, etc., in use. In this case, provide cartridges that have each section of the combination canister labeled with the appropriate color code and NIOSH Certification.

PART 3 EXECUTION

3.1 GENERAL

A. Respiratory Protection Program: Comply with ANSI Z88.2 - 1980 “Practices for Respiratory Protection” and OSHA 29 CFR 1910 and 1926.

B. Require that respiratory protection be used at all times that there is any possibility of disturbance of asbestos-containing materials whether intentional or accidental.

C. Require that a respirator be worn by anyone in a Work Area at all times, regardless of activity, during a period that starts with any operation which could cause airborne fibers until the area has been cleared for re-occupancy in accordance with Section 01714.

D. Regardless of Airborne Fiber Levels, require that the minimum level of respiratory protection used be half-face negative pressure air-purifying respirators with high efficiency filters.

E. Do not allow the use of single-use, disposable, or quarter-face respirators for any purpose.

F. No one having a beard or other facial hair that will interfere with the mask seal will be permitted to don a respirator and enter any Work Area.

3.2 FIT TESTING

A. Initial Fitting: Provide initial fitting of respiratory protection during a respiratory protection course of training set up and administered by a Certified Industrial Hygienist. Fit types of respirator to be actually worn by each individual. Allow an individual to use only those respirators for which training and fit testing has been provided.

B. On a weekly basis, check the fit of each worker's respirator by having irritant smoke blown onto the respirator from a smoke tube.

C. Upon each wearing, require that each time an air-purifying respirator is put on it be checked for fit with a positive and negative pressure fit test in accordance with the manufacturer's instructions or ANSI Z88.2 (1980).

3.3 TYPE OF RESPIRATORY PROTECTION REQUIRED

A. The Asbestos Contractor shall, at a minimum, provide the following respiratory protection:

1. Air-Purifying Respirators: APR(s), Negative pressure, full-face or half-face respirators shall be worn during the Work Area preparation phase of

the project (at a minimum). There will be no exceptions. If air monitoring results show that fiber counts meet or exceed the action level, defined as half of the respirator use limit concentration (5f/cc), then Powered Air-Purifying respirators shall be used.

2. Powered Air-Purifying Respirators: PAPR(s), Positive pressure, full-face respirators or Type "C" respirators as specified shall be worn during removal and cleanup phases of the project (at a minimum). There will be no exceptions. If air monitoring results show that fiber counts meet or exceed (50f/cc) action level defined as half of the respirator use limit concentration, then Type "C" respirators shall be used.

3.4 PERMISSIBLE EXPOSURE LIMIT (PEL)

A. 8-Hour Time Weighted Average (TWA) of asbestos fibers to which any worker may be exposed shall not exceed 0.1 fibers/cubic centimeter.

3.5 RESPIRATORY PROTECTION FACTOR

A. OSHA Respirator Type Protection Factor:

1. Air purifying: PF=10 - Negative pressure respirator high efficiency filter half-face piece.

2. Air purifying: PF=50 - Negative pressure respirator High efficiency filter full-face piece.

3. Powered Air Purifying (PAPR): PF= 50 - Positive pressure respirator high efficiency filter half-face piece.

4. Powered Air Purifying (PAPR): PF= 1000 - Positive pressure respirator high efficiency filter full-face piece.

3.6 AIR PURIFYING RESPIRATORS

A. Air purifying-half or full-face mask: Supply a sufficient quantity of high efficiency respirator filters approved for asbestos so that workers can change filters at any time that flow through the face piece decreases to the level at which the manufacturer recommends filter replacement. Require that regardless of flow, filter cartridges be replaced after 40 hours of use. Require that HEPA elements in filter cartridges be protected from wetting during showering. Require entire exterior housing of respirator, filter cartridges and facemask be washed each time a worker leaves the Work Area.

3.7 POWERED AIR PURIFYING RESPIRATORS

A. Powered air purifying full-face mask: Supply a sufficient quantity of high efficiency respirator filters approved for asbestos so that workers can change

filters at any time that flow through the face piece decreases to the level at which the manufacturer recommends filter replacement. Require that regardless of flow, filter cartridges be replaced after 40 hours of use. Require that HEPA elements in filter cartridges be protected from wetting during showering. Require entire exterior housing of respirator, including blower unit, filter cartridges, hoses, battery pack, face mask, belt, and cords, are washed each time a worker leaves the Work Area. Caution should be used to avoid shorting battery pack during washing. Provide an extra battery pack for each respirator so that one can be charging while one is in use.

END OF SECTION

SECTION 01563

DECONTAMINATION UNITS

PART 1 GENERAL

1.1 RELATED DOCUMENTS:

A. General provisions of the Contract, including General and Supplementary Conditions and other Division-1 Specification sections, apply to work of this section.

1.2 RELATED WORK SPECIFIED ELSEWHERE:

A. Refer to Section 01503 Temporary Facilities for electrical requirements and requirements relative to connection of decontamination facilities to utilities such as water and electric.

1.3 SUBMITTALS:

A. Before the Start of Work: Submit the following to the Environmental Consultant for review. Do not begin work until these submittals are approved by the Environmental Consultant.

B. Personnel Decontamination Unit: Provide shop drawing showing location and assembly of personnel decontamination units.

C. Equipment Decontamination Unit: Provide shop drawing showing location and assembly of equipment decontamination units.

D. Shower Pan: Provide shop drawing.

E. Shower Walls: Provide product data.

F. Shower Head and Controls: Provide product data.

G. Filters: Provide product data and shop drawing of installation on the decontamination unit.

H. Hose Bibb: Provide product data.

I. Shower Stall: For wash down station provide product data and shop drawing showing location and modifications.

J. Elastomeric membrane: Provide product data.

K. Lumber: Provide product data on fire resistance treatment.

L. Sump Pump: Provide product data.

M. Signs: Submit samples of signs to be used.

PART 2 PRODUCTS

2.1 SUPPLIES

A. Polyethylene Sheet: Provide flame resistant polyethylene film that conforms to requirements set forth by the National Fire Protection Association Standard 701, Small Scale Fire Test for Flame-resistant Textiles and Films. Provide largest size possible to minimize seams, 6 mil thick as indicated, frosted or black as indicated.

B. Reinforced Polyethylene Sheet: Where plastic sheet is the only separation between the Work Area and the building exterior, provide translucent, nylon reinforced, laminated, flame resistant, polyethylene film that conforms to requirements set forth by the National Fire Protection Association Standard 701, Small Scale Fire Test for Flame-resistant Textiles and Films. Provide largest size possible to minimize seams, 6 mil reinforced thick as indicated.

C. Duct Tape: Provide duct tape in 2” or 3” widths as indicated, with an adhesive which is formulated to stick aggressively to sheet polyethylene.

D. Spray Adhesive: Provide spray adhesive in aerosol cans which is specifically formulated to stick tenaciously to sheet polyethylene.

E. Shower Pan: Provide one piece stainless steel shower pan with a minimum 6” depth.

F. Shower Walls: Provide a shower with walls fabricated from rigid, impervious, waterproof material, either corrugated fiberglass roofing or equivalent. Structurally support as necessary for stability.

G. Shower Head and Controls: Provide a factory-made shower head producing a spray of water which can be adjusted for spray size and intensity. Feed shower with water mixed from hot and cold supply lines. Arrange so that control of water temperature, flow rate, and shut off is from inside shower without outside aid.

H. Filters: Provide cascaded filter units on drain lines from showers or any other water source carrying asbestos-contaminated water from the Work Area. Provide units with disposable filter elements as indicated below. Connect so that discharged water passes primary filter and output of primary filter passes through the secondary filter.

1. Primary Filter - Passes particles 20 microns and smaller.

2. Secondary Filter - Passes particles 5 microns and smaller.

I. Hose Bibb: Provide heavy bronze angle type with wheel handle, vacuum breaker, and ¾” National Standard male hose outlet.

J. Shower Stall: For the Wash down Station, provide a leak tight shower enclosure with integrated drain pan fabricated from fiberglass or other durable waterproof material, approximately 3' x 3' square with minimum 6' high sides and back. Structurally support as necessary for stability. Equip with hose bibb, as specified

in this section, mounted at approximately 4'-0" above drain pan. Connect the drain to a reservoir, pump water from the reservoir through the above specified water filters and store for use in the work area or discharge to the public sanitary sewer system after obtaining written permission from the City of Philadelphia Water Department. Mount filters inside shower stall on back wall beneath hose bib.

K. Elastomeric membrane: Provide uniform flat sheets of flexible sheet roofing material fabricated from EPDM (ethylene propylene diene monomers) or Neoprene (polychloroprene), in a nominal 45 mil thickness.

L. Lumber: Provide kiln dried fire retardant lumber and plywood sheathing of any grade or species.

PART 3 EXECUTION

3.1 PERSONNEL DECONTAMINATION UNIT:

A. Provide a Personnel Decontamination Unit consisting of a serial arrangement of connected rooms or spaces, Clean Room, Shower Room, Equipment Room. Require all persons, without exception, to pass through the Personnel Decontamination Unit for entry into and exiting from the Work Area for any purpose. Provide temporary heating and lighting within the Personnel Decontamination Units as necessary to provide safe and comfortable conditions. Decontamination chamber doors shall be of sufficient height and width to enable replacement of equipment that may fail and to safely stretch or carry an injured worker from the site without destruction of the chamber or unnecessary risk to the integrity of the Work Area. Such doors must be at least three (3) feet wide, and the distance between sets of flaps must be at least three (3) feet. It shall also have a lockable, louvered door. When located outdoors, the decontamination unit shall be waterproof and windproof. It shall be constructed utilizing fire-retardant lumber and shall be sheathed with 3/8" minimum thickness plywood.

B. Clean Room: Provide a room that is physically and visually separated from the rest of the building for the purpose of changing into protective clothing.

1. Construct using two (2) layers of opaque polyethylene sheeting, at least 6 mil thickness, to provide an airtight seal between the Clean Room and the rest of the building.

2. Locate so that access to the Work Area from the Clean Room is through the Shower Room.

3. Separate the Clean Room from the building by a sheet plastic flapped doorway with overlapping flags, and a lockable, louvered door.

4. Require workers to remove all street clothes in this room, dress in clean, disposable coveralls, and don respiratory protection equipment. Do not

allow asbestos-contaminated items to enter this room. Require workers to enter this room either from outside the structure dressed in street clothes, or naked from the showers.

5. Maintain the floor of the Clean Room. Ensure that the floor is dry and clean at all times. Do not allow overflow of water from the shower to wet the floor in the Clean Room.

6. Wet wipe all surfaces twice after each shift change with a disinfectant solution.

7. Provide posted information for all emergency phone numbers and procedures.

8. Provide one (1) storage locker per employee.

C. Shower Room: Provide a completely watertight operational shower to be used for transit by cleanly dressed workers heading for the Work Area from the Clean Room, or for showering by workers headed out of the Work Area after undressing in the Equipment Room.

1. Construct this room by providing a shower pan and 2 shower walls in a configuration that will cause water that will run down the walls to drip into the pan. Install a freely draining wooden floor in the shower pan at an elevation level with the top of the shower pan.

2. Separate this room from the rest of the building with airtight walls fabricated of two (2) layers of opaque 6 mil polyethylene.

3. Separate this room from the Clean Room with airtight walls fabricated of 6 mil polyethylene.

4. Provide splash proof entrances to Clean Room with doors of overlapping flapped polyethylene.

5. Provide shower head and controls supplied with hot and cold water adjustable within the shower. Provide one (1) shower for every eight (8) workers based upon largest shift size. Provide one (1) separate shower for every eight (8) women workers.

6. Provide a continuously adequate supply of liquid bath soap and shampoo and maintain in sanitary condition.

7. Provide a continuously adequate supply of disposable bath towels.

8. Arrange so that water from showering does not splash into the Clean or Equipment Rooms.

9. Arrange water shut off and drain pump operation controls so that a single individual can shower without assistance from either inside or outside of the Work Area.

10. Used filters shall be disposed of as asbestos-containing waste material.

11. All wastewater shall be containerized as asbestos containing waste, solidified using an approved polymer for transport and disposal or collected and filtered using a five (5) micron particle size filtration system.

12. Properly filtered wastewater may be disposed of into the sanitary sewer system only after obtaining written approval from the City of Philadelphia Water Department.

D. Equipment Room (contaminated area): Require work equipment, footwear and additional contaminated work clothing to be left here. This is a change and transit area for workers.

1. Separate this room from the Work Area by a 6-mil polyethylene overlapping flapped doorway.

2. Separate this room from the rest of the building with airtight walls fabricated from two (2) layers of opaque 6 mil polyethylene.

3. Separate this room from the Shower Room and Work Area with airtight walls fabricated from 6 mil polyethylene.

4. Provide a drop cloth layer of sheet plastic on floor in the Equipment Room for every expected shift change. Roll the drop cloth layer of plastic from the Equipment Room into the Work Area after each shift change. Replace the drop cloth before the next shift change. Provide a minimum of two (2) layers of plastic at all times. Use only clear plastic to cover floors.

E. Work Area: Separate the Work Area from the Equipment Room by polyethylene barriers. If the airborne asbestos level in the Work Area is expected to be high, as in dry removal, add an intermediate cleaning space between the Equipment Room and the Work Area. Damp wipe clean all surfaces after each shift change. Provide one additional floor layer of 6 mil polyethylene per shift change and remove the contaminated layer after each shift.

F. Decontamination Sequence: Require that all workers and authorized visitors adhere to the following sequence when entering or leaving the Work Area.

1. All individuals that enter the Work Area shall sign the entry log, located in the Clean Room, upon each entry and exit.

2. Entering the Work Area: A worker enters the Clean Room and removes street clothing, puts on clean disposable overalls and respirator, and passes through the Shower Room into the Equipment Room, then into the Work Area.

a. Any additional clothing and equipment that is needed by the worker shall be obtained and donned in the Equipment Room.

b. Worker proceeds to Work Area.

3. Exiting the Work Area:

a. Before leaving the Work Area, the worker will be required to remove all gross contamination and debris from the outside of the

respirator, and protective clothing by wet wiping and HEPA vacuuming.

b. The worker then proceeds to the Equipment Room and removes all clothing except respiratory protection equipment.

c. Extra work clothing such as boots, hard hats, goggles, gloves are to be stored in the contaminated end of the Equipment Room.

d. Disposable coveralls are placed in a bag for disposal with other material.

e. Require that Decontamination procedures found in Section 01560 are followed by all individuals leaving the Work Area.

f. After showering, the worker moves to the Clean Room and dresses in either new coveralls for another entry or street clothes if leaving.

3.2 CONSTRUCTION OF THE DECONTAMINATION UNITS:

A. Walls and Ceiling: Construct airtight walls and ceiling using two (2) layers of polyethylene sheeting, at least 6 mil in thickness. Attach to existing building components or a temporary framework. If the decontamination unit is located exterior of the building, the decontamination unit shall be sheathed with ½" fire retardant plywood.

B. Floors: Use two (2) layers (minimum) of 6 mil polyethylene sheeting to cover the floors in all areas of the Decontamination Units. Use only clear plastic to cover the floors.

C. Lockable Louvered Door: An entrance door to the clean room shall be equipped with a louvered/shuttered opening and shall be lockable from the outside. The lockset shall be equipped to remain unlocked from the inside at all times and shall not consist of a padlock or clasp type lock.

D. Flap Doors: Use three (3) overlapping sheets of 6 mil polyethylene sheeting with openings a minimum of four feet (4') wide. Configure so that the sheeting overlaps adjacent surfaces. Weigh sheets at bottoms as required so that they quickly close after being released. Put arrows on sheets to indicate direction of overlap and/or travel. Provide a minimum of four feet (4') between the entrance and the exit of any room. Provide a minimum of four feet (4') between doors.

E. Visual Barrier: Where the Decontamination Area is immediately adjacent to and within view of occupied areas, provide a visual barrier of opaque polyethylene sheeting at least 6 mil in thickness so that worker privacy is maintained, and work procedures are not visible to building occupants. Where the area adjacent to the Decontamination Area is accessible to the public, construct a solid barrier on the public side of the sheeting to protect the sheeting. Construct a barrier with wood or metal studs covered with minimum ½" thick hardboard or ½" thick plywood. Where the solid barrier is provided, sheeting need not be opaque.

F. If the Decontamination unit is located within an area containing friable asbestos

on overhead ceilings, ducts, piping, etc., provide the decontamination unit with a minimum ½" plywood "ceiling" with polyethylene sheeting, at least 6 mil in thickness covering the top of the "ceiling".

G. Alternate methods of providing Decontamination facilities may be submitted to the Owner's Representative for approval. Do not proceed with any such method(s) without written authorization of the Owner's Representative.

H. Electrical: Provide subpanel at Clean Room to accommodate all removal equipment. Power subpanel directly from a building electrical panel. Connect all electrical branch circuits in Decontamination Unit and particularly any pumps in the shower room to a ground-fault circuit protection device.

3.3 CLEANING OF DECONTAMINATION UNITS:

A. Clean debris and residue from inside of Decontamination Units on a daily basis or as otherwise indicated on Contract Documents. Damp wipe or hose down all surfaces after each shift change. Clean debris from shower pans on a daily basis.

B. If the Clean Room of the Personnel Decontamination Unit becomes contaminated with asbestos-containing debris, abandon the entire Decontamination Unit and erect a new Decontamination Unit. Use the former Clean Room as an inner section of the new Equipment Room.

3.4 SIGNS:

A. Post an approximately 20 inch by 14 inch manufactured caution sign at each entrance to the Work Area displaying the following legend with letter sizes and styles of a visibility required by 29 CFR 1926:

1. Provide signs in both English and Spanish.

2. Legend:

DANGER
ASBESTOS
MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS
AUTHORIZED PERSONNEL ONLY
WEAR RESPIRATORY PROTECTION AND PROTECTIVE
CLOTHING IN THIS AREA

3. Provide spacing between respective lines at least equal to the height of the respective upper line.

4. Post an approximately 10 inch by 14 inch manufactured sign at each entrance to each Work Area displaying the following legend with letter sizes and styles of a visibility at least equal to the following, in both English and Spanish:

LEGEND	NOTATION
NO FOOD, BEVERAGES OR TOBACCO PERMITTED	3/4" Block
ALL PERSONS SHALL DON PROTECTIVE CLOTHING (COVERINGS) BEFORE ENTERING THE AREA	3/4" Block
ALL PERSONS SHALL SHOWER IMMEDIATELY AFTER LEAVING WORK AREA AND BEFORE ENTERING THE CHANGE AREA	3/4" Block

END OF SECTION

SECTION 01601

MATERIALS AND EQUIPMENT

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. General provisions of the Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this section.

1.2 SUMMARY

A. This Section specifies administrative and procedural requirements governing the Asbestos Contractor's selection of products for use in the project.

B. The Asbestos Contractor's Construction Schedule and the Schedule of Submittals are included under Section “Submittals”.

C. Standards: Refer to Section “Definitions and Standards” for applicability of industry standards to products specified.

1.3 DEFINITIONS

A. Definitions used in this Article are not intended to change the meaning of other terms used in the Contract Documents, such as “specialties”, “systems”, “structures”, “finishes”, “accessories”, and similar terms. Such terms such are self-explanatory and have well recognized meanings in the construction industry.

1. “Products” are items purchased for use in performing the work or for incorporation in the work, whether purchased for the project or taken from previously purchased stock. The term “product” includes the terms “material”, “equipment”, “system” and terms of similar intent.
2. “Named Products” are items identified by manufacturer's product name, including make or model designation, indicated in the manufacturer's published product literature, that is current as of the date of the Contract Documents.
3. “Materials” are products that are substantially shaped, cut, worked, mixed, finished, refined or otherwise fabricated, processed, or installed to form a part of the work.
4. “Equipment” are products that may be either operational or fixed.
    a. Operational equipment are products with operating parts, whether motorized or manually operated, that requires temporary or permanent service connections, such as wiring or piping.

b. Fixed equipment are products necessary for accomplishing the work that are used as a temporary facility during the work and removed afterward.

1.4 SUBMITTALS

A. Required submittals: A general listing of products requiring submittals is included at the end of Section 01301 “Submittals”. This listing may not be complete. Submittal requirements are found in each specification section. Prepare a schedule in tabular form showing each product listed. Include the manufacturer's name and proprietary product names for each item listed.

B. Product List Schedule:

1. Prepare a schedule showing products specified in a tabular form acceptable to the Environmental Consultant. Include generic names of products required. Include the manufacturer's name and proprietary product names for each item listed.

2. Coordinate the product list schedule with the Asbestos Contractor's Construction Schedule and the Schedule of Submittals.

C. Environmental Consultant's Action: The Environmental Consultant will approve the Asbestos Contractor's product list within 2 weeks of receipt. The Environmental Consultant's response will include a list of unacceptable product selections, containing a brief explanation for this action.

1.5 QUALITY ASSURANCE

A. Compatibility of Options: When the Asbestos Contractor is given the option of selecting between two or more products for use on the project, the product selected shall be compatible with products previously selected, even if previously selected products were also options.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store and handle products in accordance with the manufacturer's recommendations, using means and methods that will prevent damage, deterioration and loss, including theft.

1. Schedule delivery to minimize long-term storage at the site and overcrowding of construction spaces.

2. Deliver products to the site in the manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting and installing.

3. Inspect products upon delivery to ensure compliance with the Contract Documents, and to ensure that products are undamaged and properly protected.

4. Store products at the site in a manner that will facilitate inspection and measurement of quantity or counting of units.

5. Store heavy materials away from the project structure in a manner that will not endanger the supporting construction.

PART 2 PRODUCTS

2.1 PRODUCT SELECTION

A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, unused at the time of installation.

B. Provide products complete with all accessories, trim, finish, safety guards and other devices and details needed for a complete installation and for the intended use and effect.

C. Standard Products: Where available, provide standard products of types that have been produced and used successfully in similar situations on other projects.

D. Non-Proprietary Specifications: When the Specifications list products or manufacturers that are available and may be incorporated in the Work, but do not restrict the Asbestos Contractor to use of these products only, the Asbestos Contractor may propose any available product that complies with Contract requirements. Comply with Contract Document provisions concerning “substitutions” to obtain approval for use of an unnamed product.

E. Descriptive Specification Requirements: Where Specifications describe a product or assembly, listing exact characteristics required, with or without use of a brand or trade name, provide a product or assembly that provides the characteristics and otherwise complies with Contract requirements.

F. Performance Specification Requirements: Where Specifications require compliance with performance requirements, provide products that comply with these requirements, and are recommended by the manufacturer for the application indicated. General overall performance of a product is implied where the product is specified for a specific application.

1. Manufacturer's recommendations may be contained in published product literature, or by the manufacturer's certification of performance.

G. Compliance with Standards, Codes and Regulations: Where the Specifications only require compliance with an imposed code, standard or regulation, select a product that complies with the standards, codes or regulations specified.

PART 3 EXECUTION

3.1 INSTALLATION OF PRODUCTS

A. Comply with manufacturer's instructions and recommendations for installation of products in the applications indicated. Anchor each product securely in place, accurately located and aligned with other work.

B. Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

END OF SECTION

SECTION 01701

PROJECT CLOSEOUT

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. General provisions of the Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this section.

1.2 SUMMARY

A. This section specifies administrative and procedural requirements for project closeout, including but not limited to:

1. Project record document submittal
2. Final cleaning

1.3 RECORD DOCUMENT SUBMITTALS

A. Contractor's final report shall include, but not be limited to the following:

1. All daily logs
2. Operational data
3. Summary of all daily OSHA compliance test results
4. Any updated medical reports
5. Proof that employees were notified if exposure levels exceeded current standards
6. Documented proof (receipts) that all asbestos materials have been properly disposed of in a legal, regulated landfill

B. General: Do not use record documents for construction purposes; protect from deterioration and loss in a secure, fire-resistive location; provide access to record documents for the Owner's Representative's reference during normal working hours.

C. Miscellaneous Record Submittals: Refer to other Specification Sections for requirements of miscellaneous record keeping and submittals in connection with actual performance of the work. Immediately prior to the date or dates of Substantial Completion, complete miscellaneous records and place in good order, properly identified and bound or filed, ready for continued use and reference. Submit to the Owner's Representative for the Owner's records.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION

3.1 FINAL CLEANING

A. General: General cleaning during construction is required by the General Conditions and included in Section “Temporary Facilities”.

B. Removal of Protection: Remove temporary protection and facilities installed for protection of the work during construction.

C. Compliance: Comply with regulations of authorities having jurisdiction and safety standards for cleaning. Do not discharge volatile, harmful or dangerous materials into drainage systems. Remove waste materials from the site and dispose of in a lawful manner.

END OF SECTION

SECTION 01711

PROJECT DECONTAMINATION

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. General provisions of the Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to work of this section.

1.2 DESCRIPTION OF REQUIREMENTS

A. General: Decontamination of the Work Area following asbestos abatement.

1. If the asbestos abatement work is on damaged or friable materials the work is a three step procedure with two cleanings of the Primary Barrier plastic prior to its removal and one cleaning of the room surfaces to remove any new or existing contamination. Unless specifically indicated otherwise all materials are considered damaged or friable for purposes of this section.

2. Operation of the pressure differential system is used to remove airborne fibers generated by the abatement work.

1.3 RELATED WORK SPECIFIED ELSEWHERE

A. Removal of Gross Debris is integral with the performance of abatement work and as such is specified in the appropriate work section(s) of these specifications:

1. Section 02081 Removal of Asbestos-Containing Materials

B. Work Area Clearance: Air testing and other requirements which must be met before release of the Asbestos Contractor and re-occupancy of the work area are specified in Section 01714 Work Area Clearance.

PART 2 PRODUCTS

2.1 GENERAL

A. Encapsulant shall be Fiberset® PM No. 7470 as manufactured by Fiberlock Technologies, Inc. or approved equal.

PART 3 EXECUTION

3.1 GENERAL

A. Work of This Section includes the decontamination of air in the Work Area which has been, or may have been, contaminated by the elevated airborne asbestos fiber levels generated during abatement activities, or which may previously have had elevated fiber levels due to friable asbestos-containing materials in the space.

B. Work of This Section includes the cleaning, decontamination, and removal of temporary facilities installed prior to abatement work, including:

1. Primary and Critical Barriers erected by work of Section 01526
2. Decontamination Unit erected by work of Section 01563
3. Pressure Differential System installed by work of Section 01513

C. Work of This Section includes the cleaning and decontamination of all surfaces (ceilings, walls, floors) of the Work Area and all furniture or equipment in the Work Area.

3.2 START OF WORK

A. Previous Work: During completion of the asbestos abatement work specified in other sections, the secondary barrier of 6 mil polyethylene sheeting will have been removed and disposed of along with any gross debris generated by the asbestos abatement work.

B. Start of Work: Work of this section begins with the cleaning of the primary barrier. At start of work the following will be in place:

1. Primary Barrier: Two layers of 6 mil polyethylene sheeting on floor and two layers on walls.
2. Critical Barrier: An airtight barrier between the work area and other portions of the building or the outside.
3. Critical Barrier Sheeting: Over lighting fixtures and clocks, ventilation openings, doorways, convectors, speakers and other openings.
4. Decontamination Units: For personnel and equipment in operating condition.
5. Pressure Differential System: In operation.

3.3 FIRST CLEANING

A. First Cleaning: Carry out a first cleaning of all surfaces of the work area including items of remaining sheeting, tools, scaffolding and/or staging by use of damp-cleaning and mopping, and/or a High Efficiency Particulate Air (HEPA) filtered vacuum (Note: A HEPA vacuum may fail if used with wet material.). Do

not perform dry dusting or dry sweeping. Use each surface of a cleaning cloth one time only and then dispose of as contaminated waste. Continue this cleaning until there is no visible debris from removed materials or residue on plastic sheeting or other surfaces.

B. Remove all filters in air handling system(s) and dispose of as asbestos- containing waste in accordance with requirements of Section 02084 Disposal of Asbestos-Containing Waste Material.

C. Wait to allow HEPA filtered fan units to clean air of airborne asbestos fibers. Use oscillating fans as necessary to assure circulation of air in all parts of work areas during this period. Maintain pressure differential system in operation for the entire air change period.

D. After completion of the first cleaning operation of the facility, the Asbestos Contractor shall give written notification to the Asbestos Project Inspector that a pre-encapsulation inspection is needed.

E. The Asbestos Project Inspector shall perform a visual inspection of the work area to ensure that it is dry and dust free.

F. After approval by the Asbestos Project Inspector, the Asbestos Contractor shall spray coat all dried exposed surfaces with a sealant. The surfaces to be coated shall include the polyethylene sheeting which has been used to cover walls, floors, and non-removable fixtures and equipment.

G. Encapsulation of substrate: Perform encapsulation of substrate or installation of spray-applied finishes or fireproofing, where required, at this time. Maintain pressure differential system in operation during encapsulation work. Perform work only after the surfaces have met the requirements for a visual inspection in this section.

H. After the encapsulation of the polyethylene, the first layer shall be carefully removed and rolled up with the contaminated portion inside. All equipment, machinery, scaffolding, tools, etc. within the isolated work area shall be cleaned with amended water, moved to the equipment room, and properly removed from the work area.

3.4 SECOND CLEANING

A. Second Cleaning: Carry out a second cleaning of all surfaces in the work area in the same manner as the first cleaning.

B. Removal of Primary Barriers:

1. Immediately following the second cleaning of the remaining layer of primary plastic, remove all primary barrier sheeting and waste decontamination unit, if there is one, leaving only:

a. Critical Barrier: Which forms the sole barrier between the work area and other portions of the building or the outside.

b. Critical Barrier Sheeting: Over lighting fixtures and clocks, ventilation openings, doorways, convectors, speakers, and other openings.

c. Decontamination Unit: For personnel, in operating condition.

d. Pressure Differential System: Maintain in continuous operation.

3.5 FINAL CLEANING

A. Final Cleaning: Carry out a final cleaning of all surfaces in the work area in the same manner as the previous cleanings.

B. The Asbestos Contractor shall request that a cleanup inspection be performed to insure all visible asbestos has been removed, the area is dust free and that the work area is ready for Clearance Sampling. The Asbestos Project Inspector and the Asbestos Contractor shall perform a complete visual inspection of the entire work area including:

1. Decontamination Unit.

2. Primary seals and critical barriers over HVAC openings, doorways, windows, and other openings.

C. Look for debris from any source, residue on surfaces, dust or other material. If any such debris, residue, dirt or other material is found, repeat the final cleaning and continue decontamination procedure from that point.

D. When the area is visually determined to be clean, post removal clearance air sampling shall be performed.

E. During inspection time allow HEPA filtered fan units to clean air of airborne asbestos fibers. Use oscillating fans as necessary to assure circulation of air in all parts of work areas during this period. Maintain pressure differential system in operation for the entire period.

3.6 VISUAL INSPECTION

A. Temporary lighting: Provide a minimum of 100 foot candles of lighting on all surfaces in the areas to be subjected to visual inspection. Provide hand held lights providing 150 foot candles at 4 feet capable of reaching all locations in work area.

B. Lifts: Provide ladders, scaffolding, and lifts as required to provide access to all surfaces in the area to be subjected to visual inspection. Access is to allow touching of all surfaces.

3.7 FINAL AIR SAMPLING – PCM OR TEM

A. Phase Contrast Microscopy (PCM): After the work area is found to be visually clean, PCM air samples will be collected and analyzed in accordance with the procedure for Phase Contrast Microscopy set forth in Section 01714 Work Area Clearance:

1. If release criteria are not met, repeat final cleaning and continue decontamination procedure from that point.

2. If release criteria are met, proceed to work of this section on removal of work area isolation.

B. Transmission Electron Microscopy (TEM): After the work area is found to be visually clean, TEM air samples will be collected and analyzed in accordance with the procedure for Transmission Electron Microscopy set forth in Section 01714 Work Area Clearance:

1. If release criteria are not met, repeat final cleaning and continue decontamination procedure from that point.

2. If release criteria are met, proceed to work of this section on removal of work area isolation.

3.8 ENCAPSULATION

A. Encapsulation of substrate: Perform encapsulation of substrate or installation of spray-applied finishes or fireproofing, where required, before removal of work area isolation as specified below. Maintain pressure differential system in operation during encapsulation work.

B. After completion of cleaning all surfaces in the work area and upon receiving a satisfactory pre-sealant inspection, the Asbestos Contractor shall spray coat all dried exposed surfaces with a sealant. The color of this coat shall be separate and distinct from the underlying substrate. The surfaces to be coated shall include surfaces from which asbestos-containing materials have been removed (such as ceilings) and polyethylene which has been used to cover walls, floors and non-removable fixtures and equipment. Where the removal was conducted using the glove bag technique, the area within the glove bag enclosure shall be encapsulated.

C. Two coats of sealer shall be applied to the substrate after all asbestos-containing material has been removed. Application shall be with an airless spray gun and shall be in strict accordance with the manufacturers' instructions.

D. With the encapsulation procedure completed, a visual inspection shall be made of the area by the Asbestos Contractor and the Asbestos Project Inspector to check uniformity and coverage.

3.9 REMOVAL OF WORK AREA ISOLATION

A. After all requirements of this section and Section 01714 Work Area Clearance have been met:

1. Shut down and remove the pressure differential system. Seal HEPA filtered fan units, HEPA vacuums and similar equipment with 6 mil polyethylene sheet and duct tape to form a tight seal at intake end before

being moved from work area.

2. Remove personnel decontamination unit.

3. Remove the critical barriers separating the work area from the rest of the building. Remove any small quantities of residual material found upon removal of the plastic sheeting with wet wiping, HEPA filtered vacuum cleaners and local area protection. If significant quantities, as determined by the Owner's Representative, are found then the entire area affected shall be decontaminated as specified in Section 01712 Cleaning & Decontamination Procedures.

4. Remove all equipment, materials, debris from the work site.

5. Dispose of all asbestos-containing waste material as specified in Section 02084 Disposal of Asbestos Containing Waste Material.

3.10 SUBSTANTIAL COMPLETION OF ABATEMENT WORK

A. Asbestos abatement work is substantially complete upon meeting the requirements of this Section and Section 01714 Work Area Clearance, including submission of:

1. Certificate of Visual Inspection.

2. Receipts documenting proper disposal as required by Section 02084 Disposal of Asbestos-Containing Waste Material.

3. Punch list detailing repairs to be made and incomplete items.

END OF SECTION

SECTION 01714

WORK AREA CLEARANCE

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. General provisions of the Contract, including General and Supplementary Conditions and other Division - 1 Specification Sections, apply to work of this section.

B. Visual inspection required as a prerequisite of air testing, is set forth in Section 01711 Project Decontamination.

C. Air Monitoring performed by the Environmental Consultant during abatement work, is described in Section 01410 Air Monitoring - Test Laboratory Services.

1.2 SUMMARY

A. This section describes work being performed by the Owner's Environmental Consultant.

B. This Section sets forth required post-abatement airborne asbestos concentrations in the work area and describes testing procedures the Owner's Environmental Consultant will use to measure these levels.

C. This Section identifies specific contract requirements relative to re-testing a work area upon Asbestos Contractor's failure of clearance criteria.

1.3 ASBESTOS CONTRACTOR RELEASE CRITERIA

A. The asbestos abatement work area is cleared when the work area is visually clean and airborne asbestos fiber/structure concentrations have been reduced to the level specified below.

B. In the event of clearance criteria failure, the Asbestos Contractor shall reimburse the Owner for all expenses incurred by the Environmental Consultant for re-testing the work area.

1.4 VISUAL INSPECTION

A. Work of this Section will not begin until the visual inspection described in Section 01711 Project Decontamination is complete and has been certified by the API.

1.5 AIR MONITORING

A. To determine if the elevated airborne asbestos fiber/structure concentration encountered during abatement has been reduced to the specified level, the API will secure samples and analyze them according to the following procedures:

1. Aggressive sampling procedures as described below will be followed.
2. Clearance sampling shall be conducted utilizing Phase Contrast Microscopy (PCM) methodology for exterior and interior non-friable materials and Transmission Electron Microscopy (TEM) methodology for interior materials, if required.
3. Upon meeting clearance criteria, the requirements of Section 01711 Project Decontamination can continue.
4. Upon failure of clearance criteria, the Asbestos Contractor shall re-clean the work area at no additional expense to the Building Owner.

1.6 AGGRESSIVE SAMPLING

A. All air samples will be taken using aggressive sampling techniques as follows:

1. Sampling sites in the abatement area shall be selected on a random basis.
2. A field blank shall be taken at each abatement areas before sampling is initiated by removing the cap for not more than thirty (30) seconds and replacing it at the time of sampling. A sealed blank shall be carried with each sample set and shall not be opened in the field.
3. One 10 inch diameter fan per 10,000 cubic feet of work area volume will be mounted in a central location, directed toward ceiling and operated at low speed for the entire period of sample collection.
4. Air samples will be collected in areas subject to normal air circulation away from room corners and obstructed locations.
5. Floor, ceilings, and walls shall be swept with the exhaust of a one (1) horsepower (or equivalent) leaf blower.
6. Pump flow rates shall not exceed ten (10) liters per minute for twenty-five (25) millimeter cassettes.
7. After air sampling pumps have been shut off, fans will be shut off.
8. A minimum of 5 clearance samples shall be collected per work area per AHERA.

1.7 SCHEDULE OF AIR SAMPLES

A. At a minimum, the number of air samples procured within the work area by the Owner's Environmental Consultant shall be in accordance with the Philadelphia Asbestos Control Regulation Chapter6-600 and AHERA.

1.8 CLEARANCE CRITERIA

A. Each work area shall be considered cleared for removal of critical barriers, decontamination unit(s) and air filtration equipment when the fiber concentration does not exceed the Philadelphia Asbestos Control Regulation Chapter 6-600 for

a major project.

B. **If the first set of clearance samples fail, the Contractor will be financially responsible for subsequent analysis costs and sampling technician costs.**

1.9 ANALYTICAL METHODOLOGY

A. Phase Contrast Microscopy (PCM) air sampling and analysis shall be conducted in accordance with NIOSH 7400 Methodology.

B. Phase Contrast Microscopy (PCM) clearance criteria shall be performed by EPA 40 CFR Part 763 Appendix A to Subpart E methodology and compared to the Philadelphia Asbestos Control Regulation Chapter 6-600.

C. Transmission Electron Microscopy (TEM) clearance criteria shall be performed by EPA 40 CFR Part 763 Appendix A to Subpart E methodology and compared to the Philadelphia Asbestos Control Regulation Chapter 6-600.

1.10 LABORATORY TESTING & SAMPLE ANALYSIS

A. The services of a testing laboratory will be employed by the Owner's Environmental Consultant to perform laboratory analysis of the procured air samples. Air samples may be analyzed on-site or delivered to a laboratory on a daily basis. Verbal reports of PCM analysis shall be obtained within 24 hours of delivery to the laboratory. If required, verbal reports of TEM analysis shall also be obtained within 24 hours of delivery to the laboratory.

B. A complete record, certified by the testing laboratory, of all air monitoring tests and results will be furnished to the Owner, the Owner's Environmental Consultant, and the Asbestos Contractor (if requested).

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

END OF SECTION

SECTION 02079

GLOVE BAG REMOVAL

PART 1 GENERAL

1.1 GLOVE BAG TECHNIQUE:

A. The removal of asbestos by use of glove-bag procedures shall be limited to the removal of asbestos-containing insulation from pipe joints and pipe runs not exceeding 16" in diameter. No glove-bag work shall be permitted on hot pipes exceeding a temperature of 150 degrees Fahrenheit.

B. The preparation of the Work Area for glove-bag removal shall include the following:

1. A minimum of two (2) persons are required to perform a glove bag removal project. A third person may be required to assist with supplies.
2. Use each glove-bag once. Do not move the glove-bag once it has been mounted.
3. All glove-bag procedures shall be performed utilizing negative air pressure.
4. The Work Area where the technique is to be utilized shall be sealed with critical barriers and posted with warning signs to prevent unauthorized personnel from entering the Work Area.
5. Building occupants shall be removed from any floor where a removal project is in progress unless the work area is completely separated by an airtight physical barrier such as a wall, or by an isolation barrier.
6. The work area shall be separated from the rest of the work site by isolation barriers consisting of solid physical barriers such as ceiling, floors, and walls, or solid partitions, with all openings such as doors, windows, and air vents covered with a single layer of plastic sheeting.
7. At least one (1) layer of plaster sheeting shall be taped to the floor beneath the pipes subject to the abatement extending at least five (5) feet from the area of removal in all directions.
8. The contractor shall pre-clean all surfaces within the room and shall arrange for the shut down and sealing of all electrical, heating, cooling and ventilating air handling systems.
9. Provide a one stage change chamber attached to each glove-bag Work Area. Provide a remote three stage decontamination unit equipped with showering facilities if approved with an Alternative Method Request.
10. All non-moveable items within the Work Area shall be cleaned via wet cleaning methods and shall be HEPA vacuumed when the surfaces have dried.
11. All necessary materials and supplies shall be brought into the Work Area before removal begins.

C. A visual inspection of the pipe where the work will be performed shall be made to

determine if any damaged pipe covering (broken, hanging, etc.) exists. If there is damage, the pipe shall be wrapped in polyethylene sheeting and fully secured with tape. This procedure will prevent high airborne fiber concentrations from occurring during the glove bag work caused by damaged pipe lagging several feet or even several yards away which may be jarred loose by the activity. Debris on the floor and other surfaces which has accumulated and contains asbestos shall be HEPA vacuumed and wet wiped clean and disposed of as contaminated. If the pipe is undamaged, one layer of tape shall be placed around the pipe at each end where the glove bag will be attached. This creates a good surface to which to seal the ends of the glove bag, and it minimizes the chance of releasing fibers when the tape at the ends of the glove bag is peeled off at the completion of the job.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION

3.1 EXECUTE STEP BY STEP PROCEDURE AS FOLLOWS:

A. Slit the top of the glove bag open (if necessary) and cut down the sides to accommodate the size of the pipe (about two inches longer than the pipe diameter).

B. Place the necessary tools into the pouch located inside the glove bag. This will usually include the bone saw, utility knife, rags, scrub brush, wire cutters, tin snips and pre-cut wettable cloth. Cut out a donut shape in the cloth using the inner diameter of the pipe insulation being removed. Finally, cut a slit in each of the two donuts so they can be slipped around the pipe.

C. One strip of tape shall be placed along the edge of the open top slit of the glove bag for reinforcement.

D. Place the glove bag around the section of pipe to be worked on and staple the top together through the reinforcing tape. Staple at intervals of approximately one inch. Next, fold the stapled top flap back and tape it down. This should provide an adequate seal along the top. Next, tape the ends of the glove bag to the pipe itself, previously covered with plastic or duct tape.

E. The contractor shall smoke test each glove-bag to ensure that it does not leak. The asbestos project inspector shall personally witness the smoke testing of each glove-bag. Using the smoke tube and aspirator bulb, place the tube into the water sleeve (two-inch opening to glove bag). By squeezing the bulb, fill the bag with visible smoke. Remove the smoke tube and twist the water sleeve tightly to close it. Gently squeeze the glove bag and look for smoke leaking out, especially at the top and ends of the glove bag. If leaks are found, they shall be taped closed using duct tape and the bag shall be retested.

F. Insert the wand from the water sprayer through the water sleeve. Tape the water

sleeve tightly around the wand to prevent leakage.

G. One person places their hands into the long-sleeved gloves while the second person directs the amended water spray at the work.

H. If the section of pipe is covered with an aluminum jacket, this is removed first using the wire cutters to cut any bands and the tin snips to remove the aluminum. It is important to fold the sharp edges in to prevent cutting the bag when it is placed in the bottom. A box may be put in the bottom of the bag when the tools are placed in, and the metal placed in the box to further protect the bag from being cut.

I. With the insulation exposed, using the bone saw, cut the insulation at each end of the section to be removed. A bone saw is a serrated heavy-gauge wire with ring-type handles at each end. Throughout this process, amended water or removal encapsulant is sprayed on the cutting area to keep dust to a minimum.

J. Once the ends are cut, the section of insulation should be slit from end to end using the utility knife. The cut should be made along the bottom of the pipe and amended water continuously supplied. Again, care should be taken when using the knife not to puncture the bag. Some insulation may have wire to be clipped as well. Again, a box may be used here as in step (H) above to protect the bag from puncture.

K. Rinse all tools with water inside the bag and place back into pouch.

L. The insulation can now be lifted off the pipe and gently placed in the bottom of the bag, while the side of the insulation adjacent to the pipe is being thoroughly wetted.

M. Using the scrub brush, rags and amended water, scrub and wipe down the exposed pipe.

N. Wet the donut-shaped pieces of wettable cloth over the exposed ends of insulation remaining in the pipe.

O. Remove the water wand from the water sleeve, insert the encapsulant wand and encapsulate the pipe and the inside of the glove bag.

P. Remove the encapsulant wand from the water sleeve and attach the small nozzle from the HEPA filtered vacuum only briefly to collapse the bag.

Q. Remove the vacuum nozzle and twist the water sleeve closed and seal with tape.

R. From outside the bag, pull the tool pouch away from the bag. Place tape over the twisted portion and then cut the tool bag from the glove bag, cutting through the twisted/taped section. In this manner, the contaminated tools may be placed directly into the next glove bag without cleaning. Alternatively, the tool pouch with the tools can be placed in a bucket of water, opened underwater, and the tools cleaned and

dried without releasing asbestos into the air. This water shall be handled as asbestos-contaminated waste. Rags and the scrub brush cannot be cleaned in this manner and should be discarded with the asbestos waste. No more than one use of a glove-bag shall be permitted.

S. With removed insulation in the bottom of the bag, twist the bag several times and tape it to keep the material in the bottom during removal of the glove bag from the pipe.

T. Slip a six (6)-mil disposal bag over the glove bag (still attached to the pipe). Remove the tape and open the top of the glove bag and fold it down into the disposal bag.

U. All surfaces in the Work Area shall be cleaned using disposable cloths wetted with amended water. These cloths shall be disposed of or rinsed thoroughly to eliminate visible accumulation of debris. Then, when these surfaces have been allowed to dry, all surfaces shall be cleaned again using a HEPA filtered vacuum (See Section 01711).

V. Place any contaminated articles, debris, etc. into the bag with the waste.

W. Twist the top of the bag closed, fold this over, and seal with duct tape. Place this bag into a second six (6)-mil disposable bag, and seal as in the above manner. Label the bag with the appropriate warning labels.

X. Asbestos-containing material shall be disposed of as specified in with Section VI.C.7 of the Philadelphia Asbestos Control Regulation and Section 02084 of this specification.

Y. Air sampling shall be conducted after completion of glove bag projects to determine if undetected leakage occurred. Once the area has been found to be safe for re-entry by unprotected personnel, the barriers may be removed (See Section 01714).

END OF SECTION

SECTION 02081

REMOVAL OF ASBESTOS CONTAINING MATERIAL

PART 1 GENERAL

1.1 RELATED DOCUMENTS:

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division - 1 Specification Sections, apply to work of this section.

1.2 RELATED WORK SPECIFIED ELSEWHERE:

A. Installation of Critical and Primary Barriers, and Work Area Isolation Procedures are set forth in Section 01526 Temporary Enclosures.

B. Project Decontamination procedures after removal of the Secondary Barrier are specified in Section 01711 Project Decontamination.

C. Disposal of asbestos-containing waste is specified in Section 02084 Disposal of Asbestos-Containing Waste Material.

1.3 SUBMITTALS:

A. Before Start of Work: Submit the following to the Owner's Representative for review. Do not start work until these submittals are approved by the Environmental Consultant.

1. Surfactant: Submit product data, use instructions and recommendations from manufacturer of surfactant intended for use. Include data substantiating that material complies with requirements.
2. Removal Encapsulant: Submit product data, use instructions and recommendations from manufacturer of removal encapsulant intended for use. Include data substantiating that material complies with requirements.
3. NESHAP Certification: Submit certification from manufacturer of surfactant or removal encapsulant that, to the extent required by this specification, the material, if used in accordance with manufacturer's instructions, will wet Asbestos-Containing Materials to which it is applied as required by the National Emission Standard for Hazardous Pollutants (NESHAP) Asbestos Regulations (40 CFR 61, Subpart M).
4. Safety Data Sheet: Submit the Safety Data Sheet, or equivalent, in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200) for each surfactant, encapsulating material and solvent proposed for use on the work. Include a separate attachment for each sheet indicating the specific worker protective equipment proposed for use with the material indicated.

PART 2 PRODUCTS

A. Wetting Materials: For wetting prior to disturbance of Asbestos-Containing Materials use either amended water or a removal encapsulant:

1. Amended Water: Provide water to which a surfactant has been added. Use a mixture of surfactant and water which results in wetting of the Asbestos-Containing Material and retardation of fiber release during disturbance of the material equal to or greater than that provided by the use of one ounce of a surfactant consisting of 50% polyoxyethylene ester and 50% polyoxyethylene ether mixed with five gallons of water.
2. Removal Encapsulant: Provide a penetrating type encapsulant designed specifically for removal of Asbestos-Containing Material. Use a material which results in wetting of the Asbestos-Containing Material and retardation of fiber release during disturbance of the material equal to or greater than that provided by water amended with a surfactant consisting of one ounce of a mixture of 50% polyoxyethylene ester and 50% polyoxyethylene ether in five gallons of water.

B. Polyethylene Sheet: Provide flame resistant polyethylene film that conforms to requirements set forth by the National Fire Protection Association Standard 701, Small Scale Fire Test for Flame-resistant Textiles and Films. Provide largest size possible to minimize seams, 6.0 mil thick as indicated, frosted or black as indicated.

C. Duct Tape: Provide duct tape in 2" or 3" widths as indicated, with an adhesive which is formulated to stick aggressively to sheet polyethylene.

D. Spray Cement: Provide spray adhesive in aerosol cans which is specifically formulated to stick tenaciously to sheet polyethylene.

E. Disposal Bags: Provide 6 mil thick leak-tight polyethylene bags labeled as required by Section 02084 Disposal of Asbestos Containing Waste Material.

F. Fiberboard Drums: Provide heavy duty leak tight fiberboard drums with tight sealing locking metal tops.

G. Paper board Boxes: Provide heavy duty corrugated paper board boxes coated with plastic or wax to retard deterioration from moisture. Provide in sizes that will easily fit in disposal bags.

PART 3 EXECUTION

3.1 WORKER PROTECTION:

A. Before beginning work with any material for which a Safety Data Sheet has been

submitted provide workers with the required protective equipment. Require that appropriate protective equipment be used at all times.

3.2 GENERAL PROCEDURES FOR THE REMOVAL OF ASBESTOS-CONTAINING MATERIALS:

A. Preparation work for the removal of the identified asbestos-containing materials shall utilize Full Containment with three-stage personnel decontamination units, air filtration units and digital negative air pressure differential monitoring systems as indicated on the contract drawings and shall be in accordance with Philadelphia Asbestos Control Regulation Chapter 6-600 and shall be performed utilizing respiratory protection and proper Personal Protective Equipment (PPE). Preparation work shall only be deemed to be complete and acceptable following a satisfactory inspection by the API. Approval to proceed with removal activities shall be required in writing prior to commencing removal activities.

B. Thoroughly wet asbestos-containing materials to be removed prior to stripping and/or demolition to reduce fiber dispersal into the air. Accomplish wetting by a fine spray (mist) of amended water or removal encapsulant. Saturate material sufficiently to wet to the substrate without causing excess dripping. Allow time for amended water or removal encapsulant to penetrate material thoroughly. If amended water is used, spray material repeatedly during the work process to maintain a continuously wet condition. If a removal encapsulant is used, apply in strict accordance with manufacturer's written instructions.

C. Mist work area continuously with amended water whenever necessary to reduce airborne fiber levels.

D. Asbestos-containing fitting insulation and pipe insulation in the risers of the library shall be removed under a full containment.

E. Radiator heat shield insulation in the library shall be removed under a full containment.

F. Asbestos-containing fitting insulation and pipe insulation in the attic of the library will be removed using containment bag techniques.

G. Asbestos-containing fitting insulation and pipe insulation may be present in the attic of the recreation center; however, it was inaccessible during the asbestos survey. If renovation activities will impact this material the material must be abated prior to disturbance. If removal is required, the material will be removed using containment bag techniques.

H. Asbestos-containing floor tile that cannot be removed non-friably shall be removed utilizing a full containment. Removal of floor tile that is located below a layer of floor tile or other adhered layer, will likely result in breakage of the VAT, therefore,

these materials must be removed as a friable abatement project as per the Philadelphia Asbestos Control Regulation (ACR).

I. Asbestos containing floor tile in the kitchen of the recreation center shall be removed under limited containment utilizing critical barriers. Floor tiles must be removed non-friably in an intact manner utilizing heat machines or dry ice. If floor tiles are to be removed utilizing dry ice, proper ventilation shall be supplied by contractor. Mastic is to be removed utilizing a no-odor solvent designed for flooring mastic removal. Unbroken tiles may be placed into clear 6-mil polyethylene bags and then placed into sealed leakproof drums.

J. Metal fire doors with ACM interior insulation shall be removed intact, wrapped, and completely sealed in two layers of 6-mil polyethylene sheeting then properly labeled and disposed of as friable ACM.

K. Removal of the asbestos material shall be done in small sections by two-person teams, on staging platforms if needed. The wet material from each section shall be packed and sealed into clear labeled 6-mil polyethylene bags. When possible, one worker shall remove and hand sections of asbestos material to the other worker who shall then place the material into labeled 6-mil polyethylene bags.

L. Asbestos-containing and asbestos-contaminated materials shall be containerized at that height for eventual disposal. Asbestos-containing materials shall be handled carefully. No asbestos is permitted to drop directly to the ground. Any unnecessary agitation of the material is strictly prohibited.

M. All asbestos-containing and asbestos-contaminated materials described in the scope of work shall be removed. The Contractor shall take care that all asbestos has been removed from fasteners, from channels of support systems, construction blocks, ductwork and piping, and all other hard to reach places.

N. As a method of organizing the asbestos removal work, workers shall begin working on the areas nearest to the decontamination unit and work towards the negative air filtration units.

O. Operations shall be continuous so that once an area is started it shall be worked on to the first wet wipe. The wet material from each section shall be packed and sealed into labeled 6-mil polyethylene bags and double bagged with visible labels prior to starting the next section. Water-soaked fallen material shall be picked up while wet to prevent water loss due to evaporation.

P. Maintain good housekeeping so as not to accumulate loose asbestos.

Q. Reach the clean wipe state as quickly as possible.

R. Remove the residues as quickly as possible so as not to walk or track through it, thus grinding it to smaller, more potentially dangerous sizes.

S. Place the asbestos into clear 6-mil polyethylene bags as quickly as possible so as not to allow asbestos to dry out and become airborne. Bags shall be handed down or chuted down carefully from one worker to another. All bags shall be placed into a second clear labeled 6-mil polyethylene bag for disposal.

T. Contaminated material containing sharp edged items shall be cut to size while adequately wet, placed in small cardboard boxes or burlap bags and double bagged, or double bagged and then placed in temporary fiber drums, the integrity of which is the Contractor's responsibility.

U. Bags shall be marked with the labels prescribed by 40 CFR Part 61 Section 61.150 of the EPA regulations. The outside of all containers shall be wet cleaned or HEPA vacuumed before leaving the work area.

V. After removal, the underlying material shall be brushed with a stiff, nylon bristle brush. Wire brushes are not permitted; asbestos fiber bundles break into smaller more hazardous fiber sizes when a wire brush is utilized. After the material is brushed, it shall be wet wiped with amended water. Only 100% removal will be accepted.

END OF SECTION

SECTION 02084

DISPOSAL OF ASBESTOS-CONTAINING WASTE

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. General provisions of the Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work of this section.

B. Section 01092 Codes and Regulations - Asbestos Abatement describes applicable federal, state and local regulations.

1.2 DESCRIPTION OF THE WORK

A. This section describes the disposal of Asbestos-Containing Materials. Disposal includes packaging of asbestos-containing waste materials.

1.3 SUBMITTALS

A. Before Start of Work: Submit the following to the Owner's Representative for review. Do not commence work until these submittals are approved by the Environmental Consultant.

1. Copy of state or local license for waste hauler.
2. Name and address of landfill where asbestos-containing waste materials are to be buried. Include contact person and telephone number.
3. For operations that convert asbestos containing waste material into non-asbestos (asbestos-free) material, product data on process to be used.
4. Letters or other documents from the United States Environmental Protection Agency (USEPA) relative to the process:
    a. Indicating that the process to be used can produce an asbestos-free product and is capable of satisfying the requirement for an acceptable “alternative” means of complying with Section 61.150(a) of the NESHAP regulation for asbestos.
    b. Identifying process parameters or operating conditions important to the successful operation of the process.
5. Chain of Custody form and form of waste manifest proposed.
6. Sample of disposal bag and any added labels to be used.

B. On a weekly basis submit copies of all manifests and disposal site receipts to Owner's Environmental Consultant.

PART 2 PRODUCTS

2.1 DISPOSAL BAGS & LABELS

A. The Contractor shall provide 6 mil thick leak-tight polyethylene clear bags labeled with four (4) labels with text as follows:

B. First Label:

CAUTION: CONTAINS ASBESTOS FIBERS
AVOID OPENING OR BREAKING CONTAINER
BREATHING ASBESTOS IS HAZARDOUS TO YOUR HEALTH

C. Second Label: Provide in accordance with 29 CFR 1910.1200(f) of OSHA's Hazard Communication Standard:

DANGER
CONTAINS ASBESTOS FIBERS
MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS
DO NOT BREATHE DUST
AVOID CREATING DUST

D. Third Label: Provide in accordance with U. S. Department of Transportation regulation on hazardous waste marking. 49 CFR parts 171 and 172. Hazardous Substances: Final Rule. Published November 21, 1986 and revised February 17, 1987:

RQ HAZARDOUS
SUBSTANCE
SOLID, NOS,
ORM-E, NA 9188
(ASBESTOS)

E. Fourth Label: Provide in accordance with 40 CFR Part 61 Asbestos NESHAP revision; Final Rule dated November 20, 1990.

CITY OF PHILADELPHIA
4190 KINGSESSING AVENUE
PHILADELPHIA, PENNSYLVANIA 19143

PART 3 EXECUTION

3.1 GENERAL

A. Comply with the following sections during all phases of this work:

1. Section 01560 Worker Protection - Asbestos Abatement.

2. Section 01562 Respiratory Protection.

B. All waste is to be hauled by a waste hauler with all required licenses from all state and local authorities with jurisdiction.

C. Load all asbestos-containing waste material in disposal bags or leak-tight drums. All materials are to be contained in one of the following:

1. Two 6 mil thick clear waste disposal bags.

2. Two 6 mil thick clear waste disposal bags and a fiberboard drum.

D. Protect interior walls and floor of truck or dumpster with one layer of 6 mil polyethylene sheeting.

E. Carefully load containerized waste in fully enclosed dumpsters, trucks or other appropriate vehicles for transport. Exercise care before and during transport, to insure that no unauthorized persons have access to the material.

F. Do not store containerized materials outside of the Work Area. Take containers from the Work Area directly to a sealed truck or dumpster.

G. Do not transport asbestos-containing materials in open trucks or dumpsters. Label drums with same warning labels as bags. Uncontaminated drums may be reused. Treat drums that have been contaminated as asbestos-containing waste and dispose of in accordance with this specification.

H. Advise the landfill operator or processor, at least ten days in advance of transport, of the quantity of material to be delivered.

I. At disposal site, unload containerized waste:

1. At a disposal site, sealed plastic bags may be carefully unloaded from the truck. If bags are broken or damaged, return the bags to the work site for re-bagging. Clean entire truck and contents using procedures set forth in section 01711 Project Decontamination.

2. At a waste processing site the truck and loading dock are arranged as a controlled Work Area and containerized waste is transferred to the storage area by site personnel. All bags including broken ones will be transferred. Clean the truck, using procedures set forth in section 01711 Project Decontamination.

J. Retain receipts from landfill or processor for materials disposed of.

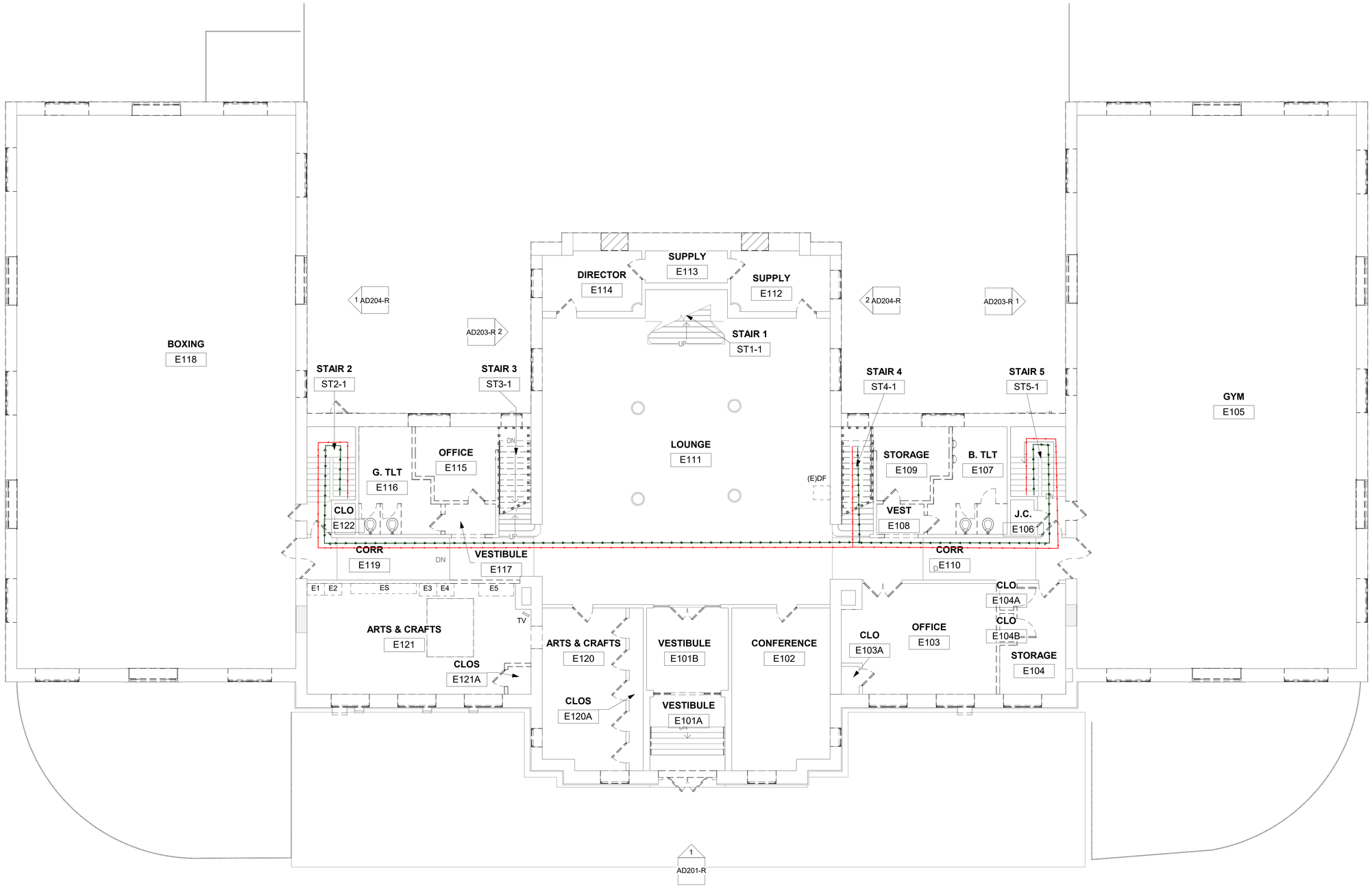
K. At completion of hauling and disposal of each load, submit a copy of the waste manifest, chain of custody form, and landfill receipt to Environmental Consultant.

END OF SECTION

LEGEND

WORKER INGRESS/EGRESS

WASTE ROUTE



Pennoni

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KINGSESSING RECREATION CENTER
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PHILADELPHIA, PENNSYLVANIA 19043
KINGSESSING BUILDING & SITE
IMPROVEMENT PROJECT
EGRESS PLAN - FIRST FLOOR

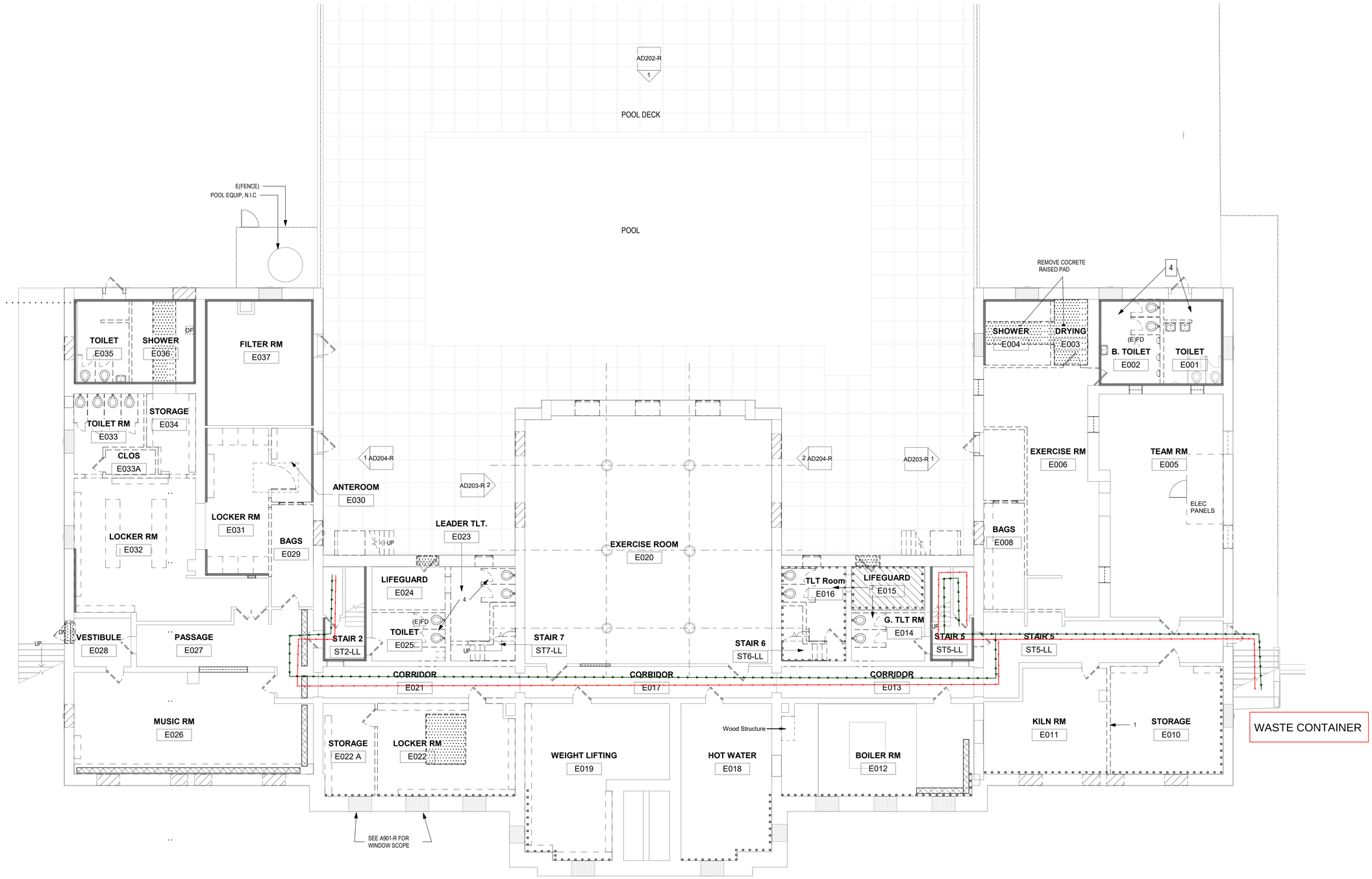
PROJECT	KLMLX21003
DATE	2/28/2022
DRAWING SCALE	NTS
DRAWN BY	NDV
APPROVED BY	

EGRESS-02

LEGEND

WORKER INGRESS/EGRESS

WASTE ROUTE



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IMPROVEMENT PROJECT
EGRESS PLAN - LOWER LEVEL

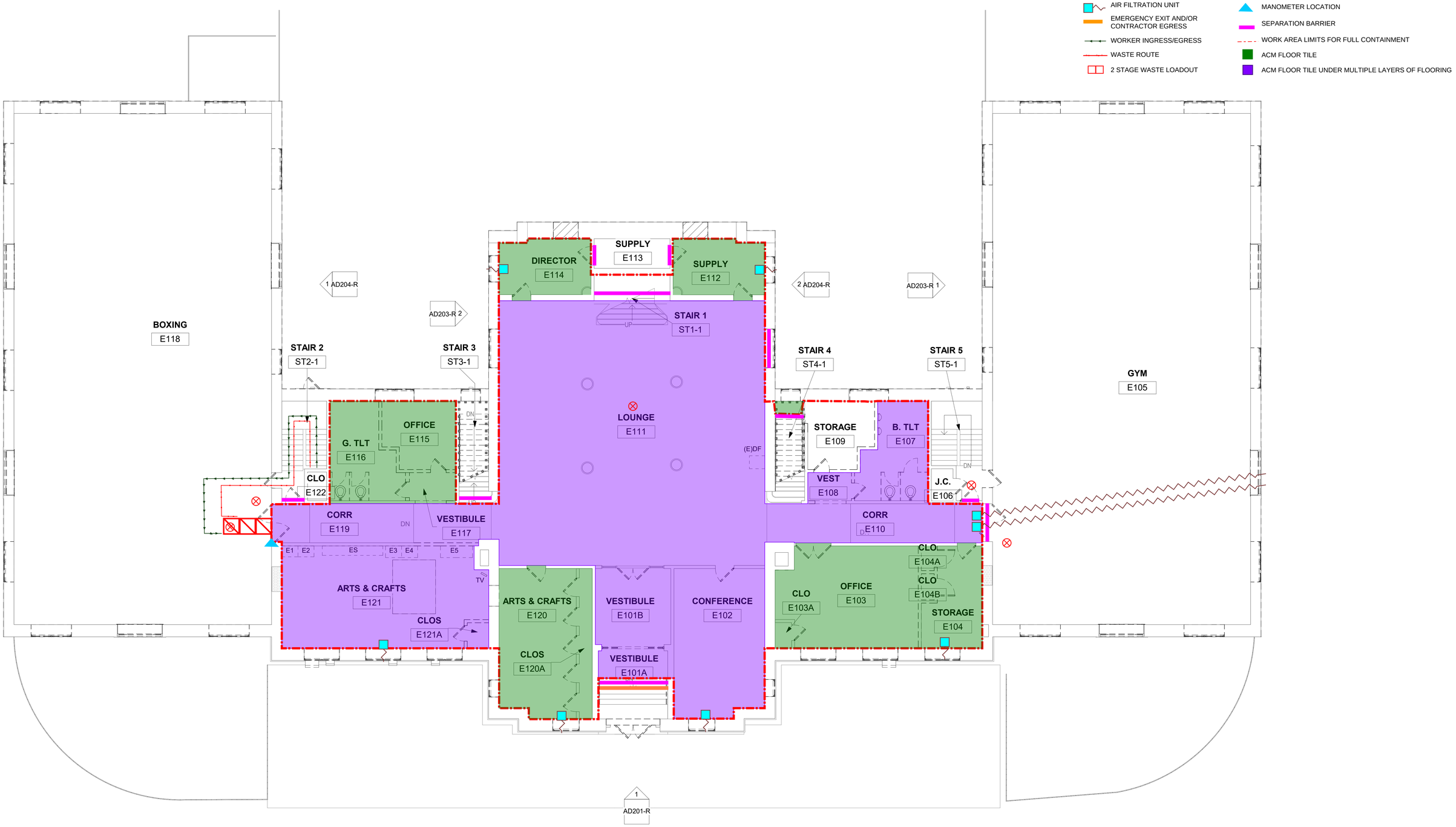
PROJECT	KLMLX21003
DATE	2/28/2022
DRAWING SCALE	NTS
DRAWN BY	NDV
APPROVED BY	

EGRESS-03

SHEET 3 OF 3

LEGEND

- 3 STAGE DECONTAMINATION UNIT
- AIR FILTRATION UNIT
- EMERGENCY EXIT AND/OR CONTRACTOR EGRESS
- WORKER INGRESS/EGRESS
- WASTE ROUTE
- 2 STAGE WASTE LOADOUT
- AIR SAMPLING LOCATION
- MANOMETER LOCATION
- SEPARATION BARRIER
- WORK AREA LIMITS FOR FULL CONTAINMENT
- ACM FLOOR TILE
- ACM FLOOR TILE UNDER MULTIPLE LAYERS OF FLOORING



PENNONI ASSOCIATES INC.
515 Grove Street, Suite 1B
Haddon Heights, NJ 08035
T 856.547.0505 **F** 856.547.9174

KINGSESSING RECREATION CENTER
4901 KINGSESSING AVENUE
PHILADELPHIA, PENNSYLVANIA 19043
KINGSESSING BUILDING & SITE
IMPROVEMENT PROJECT
ABATEMENT PLAN - FIRST FLOOR

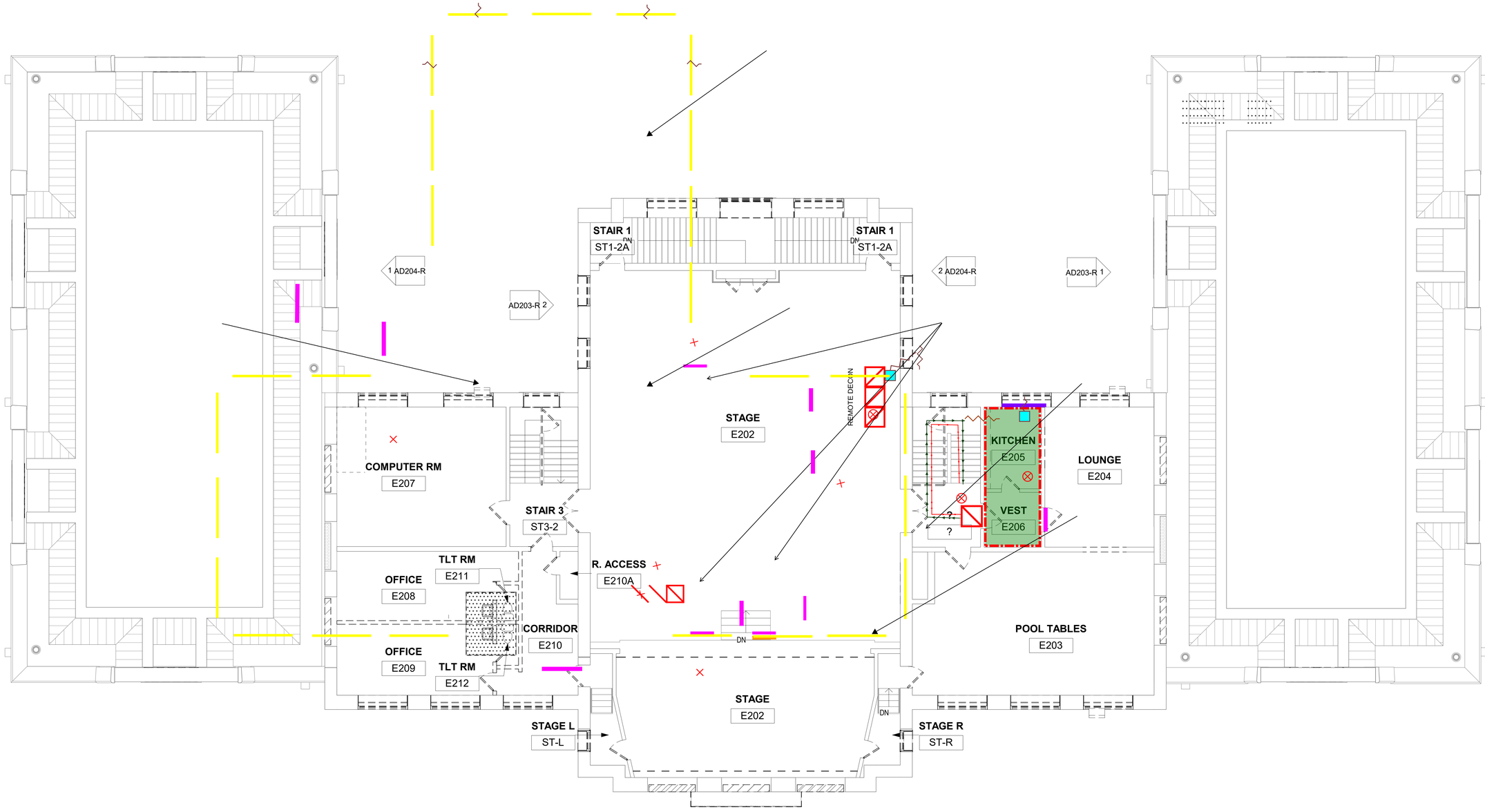
PROJECT	KLMLX21003
DATE	2/28/2022
DRAWING SCALE	NTS
DRAWN BY	NDV
APPROVED BY	

ASB-05

SHEET 5 OF 6

LEGEND

- 3 STAGE DECONTAMINATION UNIT
- AIR FILTRATION UNIT
- EMERGENCY EXIT AND/OR CONTRACTOR EGRESS
- WORKER INGRESS/EGRESS
- WASTE ROUTE
- 1 STAGE CHANGE ROOM
- AIR SAMPLING LOCATION
- MANOMETER LOCATION
- SEPARATION BARRIER
- WORK AREA LIMITS FOR LIMITED CONTAINMENT
- ACM FLOOR TILE
- POLY BARRIER



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515 Grove Street, Suite 1B
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T 856.547.0505 **F** 856.547.9174

KINGSESSING RECREATION CENTER
4901 KINGSESSING AVENUE
PHILADELPHIA, PENNSYLVANIA 19043
KINGSESSING BUILDING & SITE IMPROVEMENT PROJECT
ABATEMENT PLAN - SECOND FLOOR

PROJECT	KLMLX21003
DATE	2/28/2022
DRAWING SCALE	NTS
DRAWN BY	NDV
APPROVED BY	

ASB-06

SHEET 6 OF 6

City of Philadelphia - Department of Public Health
Air Management Services, 2nd Fl. Asbestos Control Unit
321 University Ave. Philadelphia, PA 19104

Asbestos Inspection Report

Office Use Only	Date Received L&I:	Date Received AMS:
	Date Inspected	Inspector No.

1. Name of Building / Property: Kingsessing Recreation Center Building
Address: 4901 Kingsessing Avenue, Philadelphia, PA 19143

2. Name of Building / Property Owner: City of Philadelphia Department of Recreation
Address: 1515 Arch Street, 10th Floor, Philadelphia, PA
Phone No.: 215-683-3600

3. Name of Philadelphia Certified Investigator: Jeremy Humble
Certification No.: AIC18-000023
Contact Information / Email / Phone No.: 856-547-0505/jhumble@pennoni.com

L&I Commercial Activity No. (Former Business Privilege License No.): 3702414478
Business Tax ID No.: 3133709

4. Name of Philadelphia Licensed Laboratory: EMSL Analytical Inc
License No.: 137
Phone No.: 800-220-3675

5. Scope of Work: (Insert or attach a complete description of the portion of the subject property inspected and the anticipated work that will result in the disturbance of the identified Asbestos Containing Materials (ACMs) (e.g. demolition, asbestos abatement, and / or renovation activities.)

Asbestos inspection performed in preparation of planned renovations of the Recreation Center Building. Pennoni's survey did not include operational, mechanical or electrical systems, below-grade sampling, inaccessible crawlspaces associated with foundations or roofing material.The roofing system was not sampled and is presumed to contain ACM.ACPI and ACPF is assumed in the Attic. ACPI and ACPF was not quantified (NQ).

6. ☐ Property has been declared to be in imminent danger (ID) of failure or collapse by the City of Philadelphia Department of Licenses & Inspections. Attached is a copy of the L&I Notice of Violation declaring the property I.D. **Note: INVESTIGATOR MUST BE ON SITE DURING DEMOLITION!

7. (ACMs) identified? ☑ Yes (List Below) ☐ No (explain)

8. Suspected ACM's sampled? ☑ Yes (attached are copies of the laboratory chain of custody and bulk sample results.) ☐ No (Why?)

9. List all identified ACM's located in the planned renovation/demolition areas. Damaged ACM must be listed and then repaired or removed prior to renovation. You (Investigator) must label all ACM that may be left in the work area. (Attached are add'tl sheets)

Location	Description	Type (Code 1)	Amount Square	Amount Linear	Condition (Code 2)	Action (Code 3)
Storage Rm (E104) & Closets (E104A & E104B), Office (E103) & Closet (E103A)	Gray 12" x 12 "VAT– single layer	NF1	1,110		DD	REM
Stair Landing (ST4-1), Supply Rm (E112), Director Office (E114), Office (E115)	^					
Restroom (E116), Arts & Crafts (E120) and Closet (E120A)	^					
Arts & Crafts (E121) and Closet (E121A)	Gray 12" x 12" VAT – below carpet	NF1	350		DD	REM
Vestibule (E101A&E101B), Conference Rm (E102), Restroom (E107),Vestibule (E108)	Gray 12" x 12" VAT,below multiple layers of non-AC	FRI	2,400		DD	REM
Corridor (E110), Lounge (E111), Corridor (E119)	^					

Code 1
FRI - Friable
NF1 - Non-Friable, Cat. 1
NF2 - Non-Friable, Cat. 2

Code 2
DD - Deteriorated or Delaminated
ND - Non-Damaged

Code 3
REM - Removal necessary prior to Demo/Reno
NRN - No removal necessary, label ACM
REP - Repair & Label ACM, removal not necessary

10. I hereby certify that the foregoing statements are true and the information contained in this report is true. This certification is made subject to the penalties set forth in 18 PA. C.S. S4904 relating to unsworn falsification to authorities. Furthermore I certify that the inspection, sampling, and labeling requirements of section X of the Asbestos Control Regulation (ACR) have been met. The building owner has been notified of the ACR requirements and given a copy of this report. If the inspection has revealed ACM which will be disturbed by the proposed work or if it has revealed ACM in bad condition, the building owner has been notified to remove or repair the ACM in accordance with the ACR prior to renovation or demolition activity.

11. Signature of Certified Asbestos Investigator:	Date:	Signature of Building Owner:	Date:
	11/22/22		

Location	Description	Type (Code 1)	Amount Square	Amount Linear	Condition (Code 2)	Action (Code 3)
Auditorium Projector Roo	Metal Wall	FRI	380		ND	REM
	Panel					
	Insulation					
Entire Roof	Roofing Mat.	NF1	12,200		ND	REM
	(Pacm)					
Kitchen (E205) &	Gray 12"x12"	NF1	80		ND	REM
Vestibule (E206)	Vat					
	Below Foam					
	Sheet Floor					

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: Synertech Inc.
228 Moore Street
Philadelphia PA 19148

Client: SYN177

Report Date: 7/19/2019
Report No.: 595068 - PLM Rev #2, 8/9/2019
Project: Kingsessing Rec Bldg
Project No.: 632-187

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6835750 **Analyst Observation:** White Ceiling Tile **Location:** Basement
Client No.: 1 **Client Description:** ACT **Facility:**

Percent Asbestos: *None Detected*
Percent Non-Asbestos Fibrous Material: 25 Mineral Wool
Percent Non-Fibrous Material: 75

Lab No.: 6835751 **Analyst Observation:** White/Grey Plaster **Location:** Basement NE Storage
Client No.: 2 **Client Description:** Ceiling Plaster **Facility:**

Percent Asbestos: *None Detected*
Percent Non-Asbestos Fibrous Material: None Detected
Percent Non-Fibrous Material: 100

Lab No.: 6835752 **Analyst Observation:** White Plaster **Location:** Hall O/S DOJO
Client No.: 3 **Client Description:** Ceiling Plaster **Facility:**

Percent Asbestos: *None Detected*
Percent Non-Asbestos Fibrous Material: None Detected
Percent Non-Fibrous Material: 100

Lab No.: 6835753 **Analyst Observation:** Grey Plaster **Location:** Hall O/S DOJO
Client No.: 4 **Client Description:** Scratch **Facility:**

Percent Asbestos: *None Detected*
Percent Non-Asbestos Fibrous Material: None Detected
Percent Non-Fibrous Material: 100

Lab No.: 6835754 **Analyst Observation:** White Plaster **Location:** Hall
Client No.: 5 **Client Description:** Wall Plaster Smooth **Facility:**

Percent Asbestos: *None Detected*
Percent Non-Asbestos Fibrous Material: None Detected
Percent Non-Fibrous Material: 100

Lab No.: 6835755 **Analyst Observation:** Grey Plaster **Location:** Hall
Client No.: 6 **Client Description:** Wall Plaster Scratch **Facility:**

Percent Asbestos: ***PC Trace*** *Chrysotile*
Percent Non-Asbestos Fibrous Material: None Detected
Percent Non-Fibrous Material: 100

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 7/18/2019
Date Analyzed: 07/19/2019
Signature:
Analyst: Terrence Mulhern

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
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CERTIFICATE OF ANALYSIS

Client: Synertech Inc.
228 Moore Street
Philadelphia PA 19148

Client: SYN177

Report Date: 7/19/2019
Report No.: 595068 - PLM Rev #2, 8/9/2019
Project: Kingsessing Rec Bldg
Project No.: 632-187

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6835756
Client No.: 7
Analyst Observation: Grey Fitting
Client Description: Pipe Fitting
Location: Basement Hall
Facility:

Percent Asbestos: *None Detected*
Percent Non-Asbestos Fibrous Material: 10 Mineral Wool
Percent Non-Fibrous Material: 90

Lab No.: 6835757
Client No.: 8
Analyst Observation: White Plaster
Client Description: Wall Plaster
Location: Basement NE Storage
Facility:

Percent Asbestos: *None Detected*
Percent Non-Asbestos Fibrous Material: None Detected
Percent Non-Fibrous Material: 100

Lab No.: 6835758
Client No.: 9
Analyst Observation: Grey Plaster
Client Description: Wall Plaster
Location: Basement NE Storage
Facility:

Percent Asbestos: *None Detected*
Percent Non-Asbestos Fibrous Material: None Detected
Percent Non-Fibrous Material: 100

Lab No.: 6835759
Client No.: 10
Analyst Observation: Grey Floor Tile
Client Description: Typical 12x12 Grey Tile/Mastic
Location: 1st Fl South Girls Rm
Facility:

Percent Asbestos: *None Detected*
Percent Non-Asbestos Fibrous Material: None Detected
Percent Non-Fibrous Material: 100

Lab No.: 6835760
Client No.: 11
Analyst Observation: Black Mastic
Client Description: Typical 12x12 Grey Tile/Mastic
Location: 1st Fl South Girls Rm
Facility:

Percent Asbestos: *None Detected*
Percent Non-Asbestos Fibrous Material: None Detected
Percent Non-Fibrous Material: 100

Lab No.: 6835761
Client No.: 12
Analyst Observation: White Plaster
Client Description: Wall Plaster Smooth And Scratch
Location: N Conf Rm
Facility:

Percent Asbestos: *None Detected*
Percent Non-Asbestos Fibrous Material: None Detected
Percent Non-Fibrous Material: 100

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 7/18/2019
Date Analyzed: 07/19/2019
Signature:
Analyst: Terrence Mulhern

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: Synertech Inc.
228 Moore Street
Philadelphia PA 19148

Client: SYN177

Report Date: 7/19/2019
Report No.: 595068 - PLM Rev #2, 8/9/2019
Project: Kingsessing Rec Bldg
Project No.: 632-187

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6835762
Client No.: 13
Analyst Observation: Grey Plaster
Client Description: Wall Plaster Smooth And Scratch
Location: N Conf Rn
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Lab No.: 6835763
Client No.: 14
Analyst Observation: White Fitting
Client Description: PFI
Location: Weight Rm Bath Basement
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
10 Mineral Wool

Percent Non-Fibrous Material:
90

Lab No.: 6835764
Client No.: 15
Analyst Observation: Grey Floor Tile
Client Description: All Layers Flooring
Location: 1st Fl North Storage
Facility:

Percent Asbestos:
PC 2.1 *Chrysotile*

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
97.9

Lab No.: 6835765
Client No.: 16
Analyst Observation: Black Mastic
Client Description: All Layers Flooring
Location: 1st Fl North Storage
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Lab No.: 6835766
Client No.: 17
Analyst Observation: Tan Underlayment
Client Description: All Layers Flooring
Location: 1st Fl North Storage
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
95 Cellulose

Percent Non-Fibrous Material:
5

Lab No.: 6835767
Client No.: 18
Analyst Observation: Sample Not Received
Client Description: All Layers Flooring
Location: 1st Fl North Storage
Facility:

Percent Asbestos:
Sample Not Received

Percent Non-Asbestos Fibrous Material:
Sample Not Received

Percent Non-Fibrous Material:

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 7/18/2019
Date Analyzed: 07/19/2019
Signature:
Analyst: Terrence Mulhern

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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ASBESTOS TESTING LABORATORIES

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CERTIFICATE OF ANALYSIS

Client: Synertech Inc.
228 Moore Street
Philadelphia PA 19148

Client: SYN177

Report Date: 7/19/2019
Report No.: 595068 - PLM Rev #2, 8/9/2019
Project: Kingsessing Rec Bldg
Project No.: 632-187

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6835768
Client No.: 19
Analyst Observation: Sample Not Received
Client Description: All Layers Flooring
Location: 1st Fl North Storage
Facility:

Percent Asbestos:
Sample Not Received

Percent Non-Asbestos Fibrous Material:
Sample Not Received

Percent Non-Fibrous Material:

Lab No.: 6835769
Client No.: 20
Analyst Observation: Grey Leveling Compound
Client Description: Flooring Below Carpet And Glue
Location: 1st Fl North Conf Rm
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Lab No.: 6835770
Client No.: 21
Analyst Observation: Yellow Mastic
Client Description: Flooring Below Carpet And Glue
Location: 1st Fl North Conf Rm
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Lab No.: 6835771
Client No.: 22
Analyst Observation: Brown Floor Tile
Client Description: Flooring All Layers
Location: 1st Fl Hall
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Lab No.: 6835772
Client No.: 23
Analyst Observation: Grey Leveling Compound
Client Description: Flooring All Layers
Location: 1st Fl Hall
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Lab No.: 6835773
Client No.: 24
Analyst Observation: Tan Mastic
Client Description: Flooring All Layers
Location: 1st Fl Hall
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 7/18/2019
Date Analyzed: 07/19/2019
Signature:
Analyst: Terrence Mulhern

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
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CERTIFICATE OF ANALYSIS

Client: Synertech Inc.
228 Moore Street
Philadelphia PA 19148

Client: SYN177

Report Date: 7/19/2019
Report No.: 595068 - PLM Rev #2, 8/9/2019
Project: Kingsessing Rec Bldg
Project No.: 632-187

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6835774
Client No.: 25
Analyst Observation: Beige Floor Tile
Client Description: Flooring All Layers
Location: 1st Fl Hall
Facility:

Percent Asbestos:
PC 1.5 *Chrysotile*

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
98.5

Lab No.: 6835775
Client No.: 26
Analyst Observation: Tan Underlayment
Client Description: Flooring All Layers
Location: 1st Fl Hall
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
95 Cellulose

Percent Non-Fibrous Material:
5

Lab No.: 6835776
Client No.: 27
Analyst Observation: Black Floor Tile
Client Description: Black Floor Tile
Location: 1st Fl Hall
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Lab No.: 6835777
Client No.: 28
Analyst Observation: White Mastic
Client Description: Black Floor Tile
Location: 1st Fl Hall
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 7/18/2019
Date Analyzed: 07/19/2019
Signature:
Analyst: Terrence Mulhern

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
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CERTIFICATE OF ANALYSIS

Client:	Synertech Inc.	Report Date:	7/19/2019
	228 Moore Street	Report No.:	595068 - PLM
	Philadelphia PA 19148	Project:	Kingsessing Rec Bldg
		Project No.:	632-187
Client:	SYN177		

Appendix to Analytical Report

Customer Contact: John Fiorelli
Method: 40 CFR Appendix E to Subpart E of Part 763, interim method for the Determination of Asbestos in Bulk Insulation Samples, and USEPA 600, R93-116 as needed.

This appendix seeks to promote greater understanding of any observations, exceptions, special instructions, or circumstances that the laboratory needs to communicate to the client concerning the above samples. The information below is used to help promote your ability to make the most informed decisions for you and your customers. Please note the following points of contact for any questions you may have.

iATL Customer Service: customerservice@iatl.com
iATL Office Manager: wchampion@iatl.com
iATL Account Representative: Shirley Clark
Sample Login Notes: See Batch Sheet Attached
Sample Matrix: Bulk Building Materials
Exceptions Noted: See Following Pages

General Terms, Warrants, Limits, Qualifiers:

General information about iATL capabilities and client/laboratory relationships and responsibilities are spelled out in iATL policies that are listed at www.iATL.com and ir our Quality Assurance Manual per ISO 17025 standard requirements. The information therein is a representation of iATL definitions and policies for turnaround times, sample submittal, collection media, blank definitions, quantification issues and limit of detection, analytical methods and procedures, sub-contracting policies, results reporting options, fees, terms, and discounts, confidentiality, sample archival and disposal, and data interpretation.

iATL warrants the test results to be of a precision normal for the type and methodology employed for each sample submitted. iATL disclaims any other warrants, expressed or implied, including warranty of fitness for a particular purpose and warranty of merchantability. iATL accepts no legal responsibility for the purpose for which the client uses test results. Any analytical work performed must be governed by our Standard Terms and Conditions. Prices, methods and detection limits may be changed without notification. Please contact your Customer Service Representative for the most current information.

This confidential report relates only to those item(s) tested and does not represent an endorsement by NIST-NVLAP, AIHA LAP LLC, or any agency of local, state or province governments nor of any agency of the U.S. government.

This report shall not be reproduced except in full, without written approval of the laboratory.

Information Pertinent to this Report:

Analysis by US EPA 600 93-116: Determination of Asbestos in Bulk Building Materials by Polarized Light Microscopy (PLM).

Certifications:

- NIST-NVLAP No. 101165-0
- NYSDOH-ELAP No. 11021
- AIHA-LAP, LLC No. 100188

Quantification at <0.25% by volume is possible with this method. (PC) Indicates Stratified Point Count Method performed. (PC-Trace) means that asbestos was detected but is not quantifiable under the Point Counting regimen. PC Trace represents a <0.25% amount. Analysis includes all distinct separable layers in accordance with EPA 600 Method. If not reported or otherwise noted, layer is either not present or the client has specifically requested that it not be analyzed (ex. analyze until positive instructions). Small asbestos fibers may be missed by PLM due to resolution limitations of the optical microscope. Therefore, PLM is not consistently reliable in detecting asbestos in non-friable organically bound (NOB) materials. Quantitative transmission electron microscopy (TEM) is currently the only method that can pronounce materials as non-asbestos containing.

Analytical Methodology Alternatives: Your initial request for analysis may not have accounted for recent advances in regulatory requirements or advances in technology that are routinely used in similar situations for other qualified projects. You may have the option to explore additional analysis for further information. Below are a few options, listed as the matrix followed by the appropriate methodology. Also included are links to more information on our website.

Bulk Building Materials that are Non-Friable Organically Bound (NOB) by Gravimetric Reduction techniques employing PLM and TEM: ELAP 198.6 (PLM-NOB), ELAP 198.4 (TEM-NOB)

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CERTIFICATE OF ANALYSIS

Client:	Synertech Inc.	Report Date:	7/19/2019
	228 Moore Street	Report No.:	595068 - PLM
	Philadelphia PA 19148	Project:	Kingsessing Rec Bldg
		Project No.:	632-187
Client:	SYN177		

Loose Fill Vermiculite Insulation, Attic Insulation, Zonolite (copyright), etc.: US EPA 600 R-4/004 (multi-tiered analytical process)
Sprayed On Insulation/Fireproofing with Vermiculite (SOF-V): ELAP 198.8 (PLM-SOF-V)

Soil, sludge, sediment, aggregate, and like materials analyzed for asbestos or other elongated mineral particles (ex. erionite, etc.): ASTM D7521, CARB 435, and other options available

Asbestos in Surface Dust according to one of ASTM's Methods (very dependent on sampling collection technique – by TEM): ASTM D 5755, D5756, or D6480

Various other asbestos matrices (air, water, etc.) and analytical methods are available.

Disclaimers / Qualifiers:

There may be some samples in this project that have a "NOTE:" associated with a sample result. We use added disclaimers or qualifiers to inform the client about something that requires further explanation. Here is a list with highlighted disclaimers that may be pertinent to this project. For a full explanation of these and other disclaimers, please inquire at **customerservice@iatl.com**.

1) Note: No mastic provided for analysis.
2) Note: Insufficient mastic provided for analysis.
3) Note: Insufficient material provided for analysis.
4) Note: Insufficient sample provided for QC reanalysis.
5) Note: Different material than indicated on Sample Log / Description.
6) Note: Sample not submitted.
7) Note: Attached to asbestos containing material.
8) Note: Received wet.
9) Note: Possible surface contamination.
10) Note: Not building material. 1% threshold may not apply.
11) Note: Recommend TEM-NOB analysis as per EPA recommendations.
12) Note: Asbestos detected but not quantifiable.
13) Note: Multiple identical samples submitted, only one analyzed.
14) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.080%.
15) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.125%.
16) Note: This sample contains >10% vermiculite mineral. See Appendix for Recommendations for Vermiculite Analysis.

Recommendations for Vermiculite Analysis:

Several analytical protocols exist for the analysis of asbestos in vermiculite. These analytical approaches vary depending upon the nature of the vermiculite mineral being tested (e.g. un-processed gange, homogeneous exfoliated books of mica, or mixed mineral composites).Please contact your client representative for pricing and turnaround time options available.

iATL recommends initial testing using the EPA 600/R-93/116 method. This method is specifically designed for the analysis of asbestos in bulk building materials. It provides an acceptable starting point for primary screening of vermiculite for possible asbestos.

Results from this testing may be inconclusive. EPA suggests proceeding to a multi-tiered analysis involving wet separation techniques in conjunction with PLM and TEM gravimetric analysis (EPA 600/R-04/004).

For New York State customers, NYSDOH requires disclaimers and qualifiers for various vermiculite containing samples that direct analysis via ELAP198.6 and ELAP198.8 for samples that contain >10% vermiculite mineral where ELAP198.6 may be used to evaluate the asbestos content of the material. However, any test result using ELAP198.6 will be reported with the following disclaimer: “ELAP198.6 method does not remove vermiculite and may underestimate the level of asbestos present in a sample containing >10% vermiculite.”

Further information on this method and other vermiculite and asbestos issues can be found at the following: Agency for Toxic Substances and Disease Registry (ATSDR) www.atsdr.cdc.gov, United States Geological Survey (USGS) www.minerals.usgs.gov/minerals/, US EPA www.epa.gov/asbestos. The USEPA also has an informative brochure "Current Best Practices for Vermiculite Attic Insulation" EPA 747F03001 May 2003, that may assist the health and remediation professional.

The following is a summary of the analytical process outlines in the EPA 600/R-04/004 Method:

1)**Analytical Step/Method:** Initial Screening by PLM, EPA 600R-93/116
Requirements/Comments: Minimum of 0.1 g of sample. ~0.25% LOQ for most samples.

2)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: Synertech Inc.
228 Moore Street
Philadelphia PA 19148

Client: SYN177

Report Date: 7/19/2019
Report No.: 595068 - PLM
Project: Kingsessing Rec Bldg
Project No.: 632-187

3)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Floats" only.

4)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

5)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Suspension" only.

LOQ, Limit of Quantitation estimates for mass and volume analyses.
*With advance notice and confirmation by the laboratory.
**Approximately 1 Liter of sample in double-bagged container (~9x6 inch bag of sample).

Synertech Inc.
ENVIRONMENTAL CONSULTING
228 Moore Street • Philadelphia, Pennsylvania 19148 • Phone 215-755-2305 • Fax 215-755-2405

Chain of Custody Transmittal
Asbestos Bulk Samples

Project Name: King Sessing Rec Bldg. Project No. 632-187-

Laboratory: IATL

Analysis: ☒ PLM ☐ Other _____ ☐ Test Until Positive Per Homogeneous Material

Turnaround Time: ☒ 24 hours ☐ 48 hours ☐ 72 hours ☐ Other _____

Samples Collected By: TDF Date/Time 7/17/19

Transmitted to Lab By: AJM Date/Time 7/18/19

Received in Lab By: _____ Date/Time _____

Samples Analyzed By: TDM Date/Time 7/19/19

QA: KJM 7/22/19

Synertech's Sample #	Homogeneous Material ID	Laboratory Sample #	C / D	Material / Location
1		6835750	C	ACT BASEMENT NOJO Rm.
2		6835751	C	BASEMENT - NE STORAGE Ceiling PLASTER
3		6835752	D	Ceiling PLASTER - HALL O/S NOJO Smooth
4		6835753	D	SCRATCH - HALL O/S NOJO
5		6835754	D	WALL PLASTER Smooth - HALL
6.		6835755	D	WALL PLASTER SCRATCH - HALL.
7		6835756	C	PIPE FITTING - BASEMENT HALL
8/9		6835757 6835758	D	WALL PLASTER - BASEMENT - NE STORAGE.

Note:

C = Composite- Samples indicated as composite should be analyzed/reported as a single material.

D = Discrete Stratum- Samples indicated as discrete stratum should be analyzed/reported by layer.

Synertech Inc.
ENVIRONMENTAL CONSULTING

228 Moore Street • Philadelphia, Pennsylvania 19148 • Phone 215-755-2305 • Fax 215-755-2405

Chain of Custody Transmittal
Asbestos Bulk Samples

Project Name: Kngsessing Rec Bldg Project No. 632-187

Laboratory: IATL

Analysis: [✓ PLM] ☐ Other ________ ☐ Test Until Positive Per Homogeneous Material

Turnaround Time: [✓ 24 hours] ☐ 48 hours ☐ 72 hours ☐ Other ________

Samples Collected By: JPF Date/Time 7 7 19

Transmitted to Lab By: ASR Date/Time 7 18 19

Received in Lab By: ________ Date/Time ________

Samples Analyzed By: ________ Date/Time ________

Synertech's Sample #	Homogeneous Material ID	Laboratory Sample #	C / D	Material / Location
10/11.		6835759 6835760	D	1ST FL South GIRLS Rm - TYPICAL 12X12 GREY TILE+MA
12/13		6835761 6835762	D	~~[illegible]~~ CONF Rm. WALL PLASTER SMOOTH+SCRATCH
14.		6835763 [illegible]	C	WEIGHT Rm BATH BASEMENT. PFI
15-19.		[illegible]	D	1ST FL NORTH STORAGE - ALL LAYERS Flooring.
20-21		[illegible]	D	1ST FL NORTH CONF Rm Flooring Below CARPET+GLUE
22-26		[illegible]	D	1ST FL HALL Flooring ALL LAYERS.
27 28		[illegible]	D	BLACK Floor TILE - 1ST FL HALL.
	15 – 28 10-11	are in the in this paper	next page are	with the correct IATL# correct

Note:

C = Composite- Samples indicated as composite should be analyzed/reported as a single material.

D = Discrete Stratum- Samples indicated as discrete stratum should be analyzed/reported by layer.

IATL International Asbestos Testing Laboratories

9000 Commerce Parkway, Suite B, Mt. Laurel, NJ 08054
Telephone: 856-231-9449 Fax: 856-231-9818

Sample Log

Client: _____ Project # _____

Date Received: _____ Project Name: _____

Turn Around Time: _____ Client Contact: _____

Client Sample #	iATL #	Location	Client Sample #	iATL #	Location/Description
15	6835764				
16	6835765				
17	766				
18	767				
19	768				
20	769				
21	770				
22	771				
23	772				
24	773				
25	774				
26	775				
27	776				
28	777				

Delivered By: _____ Date: _____

Received By: _____ Date: _____

Analyzed By: _____ Date: _____

EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077
Tel/Fax: (800) 220-3675 / (856) 786-5974
http://www.EMSL.com / cinnasblab@EMSL.com

EMSL Order:	042228993
Customer ID:	PENN50
Customer PO:	
Project ID:	

Attention:	Jeremy Humble	**Phone:**	(856) 547-0505
	Pennoni Associates, Inc.	**Fax:**	(856) 547-1039
	515 Grove Street	**Received Date:**	11/17/2022 5:05 PM
	Haddon Heights, NJ 08035	**Analysis Date:**	11/18/2022 - 11/19/2022
		Collected Date:	11/17/2022

Project: KLMLX21003A.A501 / 4901 Kingsessing Ave / Rec Center

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
01-A-Plaster *042228993-0001*	Projector Room - Plaster	Gray Non-Fibrous Homogeneous	3% Cellulose	97% Non-fibrous (Other)	None Detected
01-A-Skim Coat *042228993-0001A*	Projector Room - Skim Coat	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
01-B-Plaster *042228993-0002*	Projector Room - Plaster	Gray Fibrous Homogeneous	5% Cellulose	95% Non-fibrous (Other)	None Detected
01-B-Skim Coat *042228993-0002A*	Projector Room - Skim Coat	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
01-C-Plaster *042228993-0003*	Projector Room - Plaster	Gray Fibrous Homogeneous	3% Cellulose	97% Non-fibrous (Other)	None Detected
01-C-Skim Coat *042228993-0003A*	Projector Room - Skim Coat	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
01-D-Plaster *042228993-0004*	Auditorium - Plaster	Gray Fibrous Homogeneous	3% Cellulose	97% Non-fibrous (Other)	None Detected
01-D-Skim Coat *042228993-0004A*	Auditorium - Skim Coat	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
01-D-Texture *042228993-0004B*	Auditorium - Texture	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
01-E *042228993-0005*	1st Floor Foyer - Plaster	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
01-F *042228993-0006*	Attic - Plaster	Gray Fibrous Homogeneous	5% Cellulose 5% Glass	90% Non-fibrous (Other)	None Detected
01-G-Plaster *042228993-0007*	Basement Hall - Plaster	Gray Non-Fibrous Homogeneous	3% Cellulose	97% Non-fibrous (Other)	None Detected
01-G-Skim Coat *042228993-0007A*	Basement Hall - Skim Coat	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
01-G-Texture *042228993-0007B*	Basement Hall - Texture	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
02-A *042228993-0008*	Projector Room - Metal Wall Panel Insulation	Gray/White Fibrous Homogeneous		75% Non-fibrous (Other)	10% Amosite 15% Chrysotile
02-B *042228993-0009*	Projector Room - Metal Wall Panel Insulation				Positive Stop (Not Analyzed)

Initial report from: 11/19/2022 06:53:59

EMSL Analytical, Inc.
200 Route 130 North Cinnaminson, NJ 08077
Tel/Fax: (800) 220-3675 / (856) 786-5974
http://www.EMSL.com / cinnasblab@EMSL.com

EMSL Order:	042228993
Customer ID:	PENN50
Customer PO:	
Project ID:	

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
02-C *042228993-0010*	Projector Room - Metal Wall Panel Insulation				Positive Stop (Not Analyzed)

Analyst(s)

Andrea Doughty (11)
Nancy Stalter (4)

Samantha Rundstrom, Laboratory Manager
or Other Approved Signatory

Initial report from: 11/19/2022 06:53:59

OrderID: 042228993

042228993

Pennoni

Laboratory: EMSC

PAGE 1 of 1

Send invoice to *(circle one)*: (Haddon Heights *(PENN50)*) Philadelphia *(PENN54)* Newark/New York *(PNNJ42)* Other: _____

ASBESTOS BULK SAMPLE CHAIN OF CUSTODY

Project #: KLMLX21003A.AS01 Collected by: J Pt Date: 11/17/22

Site: 4901 KINGSESSING AVE Transported by: J Pt Date: 11/17/22

Section: REC CENTER Received by: David Stepp III Date: 11-17-22 5:05 pm

Floor: _____ Analyzed by: _____ Date: _____

Analysis Turnaround Time

1 Day ☒ 2 Day ☐ 3 Day ☐ 5 Day ☐ 7 Day ☐

Contact: JEREMY HUMBLE Cell: 609-970-6113 Email: jhumble@Pennoni.com

☒ PLM ☒ 1ST POSITIVE STOP ☐ ANALYZE AS NYC/NYS SAMPLES

☐ ANALYZE NOBs VIA PLM 1ST POSITIVE STOP, THEN ANALYZE 1ST SAMPLE OF EACH MATERIAL SET VIA TEM-NOB

☐ ANALYZE PLM-NOB 1ST POSITIVE STOP, THEN TEM-NOB 1ST POSITIVE STOP

10 DS

Sample ID #	Type of Material	Location
01-A	PLASTER	Projector Room
01-B	"	"
01-C	"	"
01-D	"	Auditorium
01-E	"	1st Floor Foyer
01-F	"	Attic
01-G	"	Basement Hall
02-A	Metal Wall Panel Insulation	Projector Room
02-B	"	"
02-C	"	"

RECEIVED EMSL CINNAMINSON, N.J. 2022 NOV 17 PM 5:05

Z:\ADMIN\0311 HH Industrial Hygiene\FORMS and CHECKLISTS\Asbestos Bulk Sample Chain of Custody.xlsx_New York