APPENDIX M

Engineering Reports

M.1 | SIGNATURE EAST – ENGINEER'S REPORT

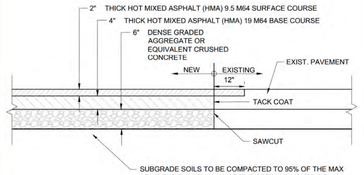
M.2 | SIGNATURE EAST – SITE DRAWINGS

M.3 | SIGNATURE SOUTH – ENGINEER'S REPORT

M.4 | SIGNATURE SOUTH – SITE DRAWINGS

APPENDIX M.2

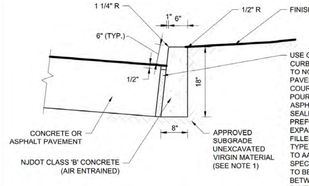
Signature East – Site Drawings



NOTES:
1. CONTRACTOR SHALL REFER TO THE GEOTECHNICAL REPORT PAVEMENT DESIGN RECOMMENDATIONS. IN CASE OF ANY DISCREPANCIES, THE GEOTECHNICAL REPORT RECOMMENDATIONS SHALL SUPERSEDE.

1 STANDARD PAVING (LAND SIDE)

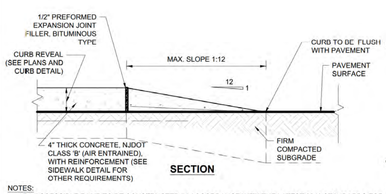
NOT TO SCALE (NJ-S010101 - 02/2024)



NOTES:
1. ANY EXCAVATION BELOW DESIRED GRADE DUE TO OVER EXCAVATION OR WET SOIL CONDITIONS SHALL BE BACKFILLED WITH 3/4" CLEAN CRUSHED STONE . ALL SUBGRADES SHALL BE APPROVED BY THE ENGINEER PRIOR TO POURING.
2. TRANSVERSE EXPANSION JOINTS 1/2" WIDE SHALL BE INSTALLED IN THE CURB 20'-0" APART AND SHALL BE FILLED WITH PREFORMED, BITUMINOUS-IMPREGNATED FIBER JOINT FILLER, COMPLYING WITH THE REQUIREMENTS OF AASHTO M-33, RECESSED 1/4" FROM THE FRONT FACE AND TOP OF THE CURB.
3. DUMMY JOINTS (FORMED) SHALL BE INSTALLED MIDWAY BETWEEN EXPANSION JOINTS.
4. WIDTH OF JOINT FILLER STRIP EQUAL TO THE THICKNESS OF THE PAVEMENT LESS 1/2".
5. THESE SPECIFICATIONS ALSO MEET RSIS DESIGN STANDARDS.
6. THE 6" CURB REVEAL IS TYPICAL. CONTRACTOR TO REVIEW GRADING PLAN FOR AREAS WHERE REVEAL IS TO BE MODIFIED.

2 CONCRETE CURB 6" REVEAL

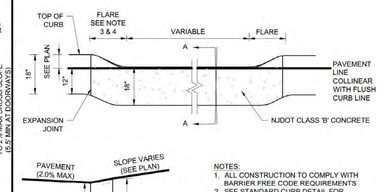
NOT TO SCALE (NJ-S020202 - 02/2024)



NOTES:
1. ADA ACCESSIBLE RAMP TO BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST 2010 STANDARDS FOR ON-SITE LOCATIONS AND PROWAG GUIDELINES (WITHIN ROW LOCATIONS)
2. CONTRACTOR TO CONSTRUCT DETECTABLE WARNINGS WHEN SIDEWALK INTERSECTS A HAZARDOUS VEHICULAR AREA.
3. DETECTABLE WARNING SURFACES SHALL CONSIST OF RAISED TRUNCATED DOMES WITH A BOTTOM DIAMETER OF NOMINAL 0.9 INCH, A TOP DIAMETER OF 0.4 INCH, A HEIGHT OF NOMINAL 0.2 INCH, A CENTER TO CENTER SPACING OF NOMINAL 2.35 INCH, AND SHALL CONTRAST VISUALLY WITH ADJOINING SURFACES, EITHER LIGHT ON DARK OR DARK ON LIGHT. (SEE DETAIL)
4. PROVIDE UNOBSTRUCTED PATH OF TRAVEL NOT LESS THAN 36" WIDE.
5. WALKWAY WIDTH TO COMPLY WITH ADA DOOR OPENING REQUIREMENTS WHEN ADJACENT TO DOORWAYS.
6. IF A WALK CROSSES OR ADJOINS A VEHICULAR WAY WHERE THE WALKING SURFACE AND PAVEMENT ARE NOT SEPARATED BY CURBS, RAILING OR OTHER ELEMENTS, THE BOUNDARY BETWEEN THE AREA SHALL BE DEFINED BY A CONTINUOUS DETECTABLE WARNING WHICH IS MIN. 36" WIDE (ADA ACCESSIBLE GUIDELINES PRINTED 11-4-06) AND MIN. 24" DEPTH.
7. BROOM FINISH PERPENDICULAR TO PATH OF TRAVEL.

3 ADA RAMP IN SIDEWALK WITH BROOM FINISH

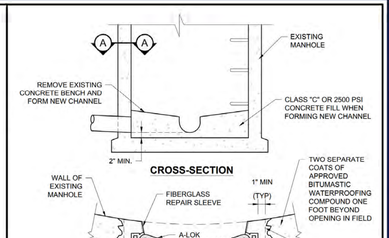
NOT TO SCALE (NJ-S030503 - 05/2024)



NOTES:
1. ALL CONSTRUCTION TO COMPLY WITH BARRIER FREE CODE REQUIREMENTS
2. SEE STANDARD CURB DETAIL FOR OTHER REQUIREMENTS
3. WHEN ADJACENT TO A WALKWAY, FLARED SIDE SHALL NOT BE SLOPED MORE THAN 1:12.
4. WHEN NOT ADJACENT TO A HARD SURFACE WALKWAY, FLARE CAN BE REDUCED TO 18".
5. CURB REVEAL TYPICALLY 6" BUT CONTRACTOR SHALL REFER TO PLAN AND CURB DETAIL FOR CURB REVEAL SPECIFIC TO SITE LOCATION.

4 ADA FLUSH CURB

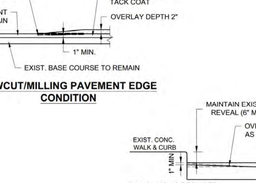
NOT TO SCALE (NJ-S029901 - 03/2024)



NOTE:
CLEAN AND LUBRICATE A-LOK CONNECTOR AND THE PIPE END WHICH WILL BE INSERTED INTO A-LOK PRIOR TO MAKING CONNECTION.

5 PIPE TO EXISTING SANITARY MANHOLE

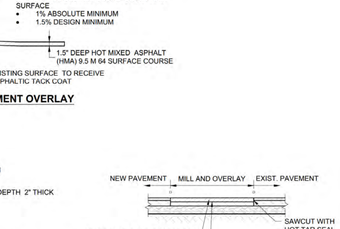
NOT TO SCALE (NJ-U020402 - 08/2023)



NOTES:
1. USE EPOXY TRAFFIC PAINT MEETING DOT SPECIFICATIONS.

6 STANDARD STRIPING

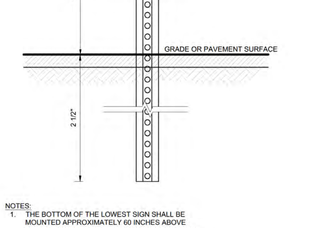
NOT TO SCALE (NJ-S050202 - 08/2023)



NOTES:
1. PARKING SPACES AND PARKING AISLE SLOPE MUST NOT EXCEED 1:48 (¼" PER FOOT OR 2%) IN ANY DIRECTION.
2. A MINIMUM ACCESSIBLE ACCESS ROUTE WIDTH OF 36 INCHES MUST BE PROVIDED AND MAINTAINED. A SIGN WITH BOLLARD BASE CAN BE PROVIDED WHERE NECESSARY TO PREVENT VEHICLE OVERHANG FROM REDUCING WIDTH OF THE PATH OF TRAVEL TO LESS THAN 36".

7 ADA PARKING STALL MARKING

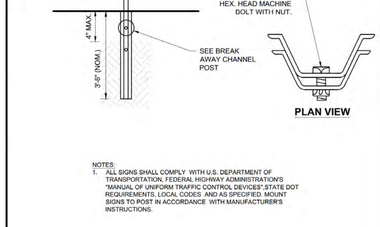
NOT TO SCALE (NJ-S050103 - 05/2024)



NOTE:
1. MAX CROSS SLOPE ¼" PER FOOT MIN ⅛" PER FOOT PITCHED TOWARDS ROADWAY.
2. PROVIDE 1/2" PREMOLDED BITUMINOUS EXPANSION JOINT AT 20' INTERVALS, TO BE RECESSED 1/4" - 1/2" FROM SIDEWALK SURFACE.
3. REFER TO SITE PLAN FOR SIDEWALK WIDTH (W)
4. LONGITUDINAL SLOPE AND WIDTH TO COMPLY WITH ADA BARRIER FREE REQUIREMENTS.

8 CONCRETE SIDEWALK

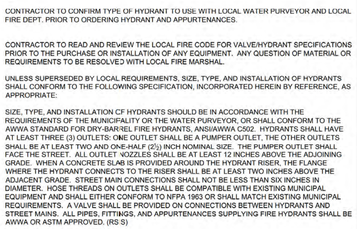
NOT TO SCALE (NJ-S030201 - 09/2024)



NOTE:
1. TRANSVERSE EXPANSION JOINTS 1/2" WIDE SHALL BE PROVIDED AT INTERVALS OF NOT MORE THAN 20' AND FILLED WITH PREFORMED BITUMINOUS CELLULAR TYPE JOINT FILLER. LONGITUDINAL JOINTS 1/4" WIDE SHALL BE PROVIDED BETWEEN CURBS ABUTTING SIDEWALKS, AND SHALL BE FILLED WITH PREFORMED BITUMINOUS TYPE JOINT FILLER. THE TOP OF ALL JOINT FILLER SHALL BE 1/4" BELOW THE TOP OF THE SIDEWALK

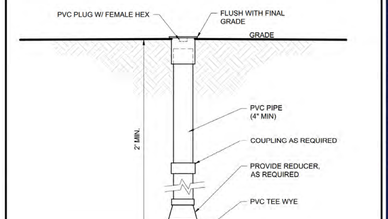
9 CONCRETE SIDEWALK AND CURB

NOT TO SCALE (NJ-S030202 - 09/2024)



10 FLOOD WARNING SIGN DETAIL

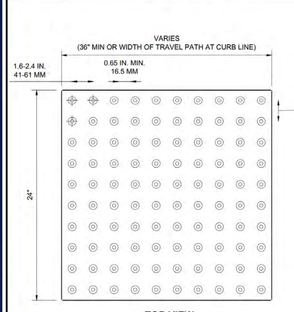
NOT TO SCALE (PORT AUTHORITY STANDARDS)



NOTE:
1. WHEN THE CLEANOUT OCCURS AT A BEND, THE BEND SHOULD BE A HORIZONTAL WYE WITH CLEANOUT IN LINE WITH DOWNSTREAM PIPE. RISER IS CONNECTED TO THE WYE VIA 90 DEGREE ELBOW.

11 SANITARY CLEANOUT LANDSCAPE AREAS

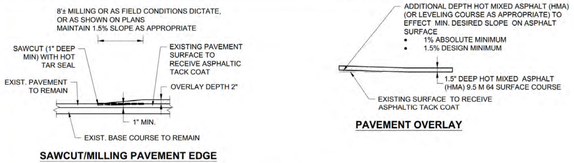
NOT TO SCALE (NJ-U020201 - 10/2023)

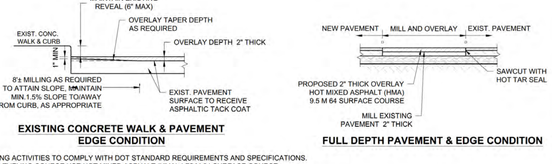


NOTES:
1. TRUNCATED DOMES THAT PROVIDE THE DETECTABLE WARNING SURFACE SHALL CONTRAST VISUALLY WITH ADJOINING SURFACES, EITHER LIGHT ON DARK OR DARK ON LIGHT.
2. CONTRACTOR TO INSTALL DETECTABLE WARNING SURFACES WHEN SIDEWALK IS WITHIN PUBLIC ROW AND WHERE INDICATED ON THE PLAN.
3. DOMES SHALL HAVE A BASE DIAMETER OF 0.9 IN (23 mm) MIN. TO 1.4 IN (36 mm) MAX, AND A TOP DIAMETER OF 50% TO 65% MAX. OF THE BASE DIAMETER.
4. TRUNCATED DOMES SHALL HAVE A HEIGHT OF 0.2" (5.1 mm).
5. TRUNCATED DOMES SHALL HAVE A CENTER TO CENTER SPACING OF 1.6 IN (41 mm) MIN. AND 2.4 IN (61 mm) MAX. AND A BASE TO BASE SPACING OF 0.65 IN (16.5 mm) MIN., MEASURED BETWEEN THE MOST ADJACENT DOMES ON THE GRID.
6. TRUNCATED DOMES SHALL BE AN INTEGRAL PART OF THE ADA CURB RAMP CONSTRUCTION CONSISTING OF CAST IN PLACE COMPOSITE TILES/MAT. THE TILE/MAT MATERIAL SHALL BE A HOMOGENEOUS GLASS AND CARBON REINFORCED COMPOSITE, COLOR FAST AND UV STABLE, COMP. STRENGTH 23,800 PSI ASTM D695 AND FLEXURAL STRENGTH 24,600 PSI ASTM D796. PRECAST CONCRETE PAVER BLOCKS HAVING COMPLIANT TRUNCATED DOMES, MAY ALSO BE USED FOR THE DETECTABLE WARNING SURFACE. RUBBERIZED MATERIAL TO BE GLUED TO RAMP SURFACE SHALL NOT BE ACCEPTABLE.
7. TRUNCATED DOMES SHALL EXTEND THE FULL WIDTH OF THE TRAVEL PATH EXCLUDING FLARES.

12 TRUNCATED DOME PATTERN

NOT TO SCALE (NJ-S030515 - 08/2023)





NOTE:
1. MILLING ACTIVITIES TO COMPLY WITH DOT STANDARD REQUIREMENTS AND SPECIFICATIONS.
2. FOR LEVELING COURSE USE HOT MIXED ASPHALT (HMA) 4.75 M 64 SURFACE COURSE

13 PAVEMENT MILLING

NOT TO SCALE (NJ-S010401 - 02/2024)

NOTES:
1. THE BOTTOM OF THE LOWEST SIGN SHALL BE MOUNTED APPROXIMATELY 60 INCHES ABOVE THE PARKING LOT OR SIDEWALK SURFACE WHEN SIGN IS PARALLEL TO SIDEWALK AND APPROXIMATELY 72 INCHES ABOVE THE PARKING LOT OR SIDEWALK WHEN THE SIGN IS PERPENDICULAR TO THE SIDEWALK.
2. THE PENALTY SIGN SHALL BE CENTERED AND MOUNTED AT THE HEAD OF EACH PARKING SPACE
3. WHERE VAN SPACES ARE SHOWN ON THE PLANS ADD R7-8aP SIGN

14 ADA PARKING SIGN

NOT TO SCALE (NJ-S060103 - 05/2024)

NOTES:
1. ALL SIGNS SHALL COMPLY WITH U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION'S "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES",STATE DOT REQUIREMENTS, LOCAL CODES AND AS SPECIFIED. MOUNT SIGNS TO POST IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

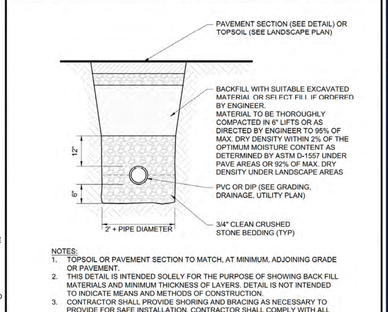
15 BREAKAWAY SIGN POST

NOT TO SCALE (NJ-S069902 - 08/2023)

NOTES:
1. CONTRACTOR TO CONFIRM TYPE OF HYDRANT TO USE WITH LOCAL WATER PURVEYOR AND LOCAL FIRE DEPT. PRIOR TO ORDERING HYDRANT AND APPURTENANCES.
2. CONTRACTOR TO READ AND REVIEW THE LOCAL FIRE CODE FOR VALVE/HYDRANT SPECIFICATIONS PRIOR TO THE PURCHASE OR INSTALLATION OF ANY EQUIPMENT. ANY QUESTION OF MATERIAL OR REQUIREMENTS TO BE RESOLVED WITH LOCAL FIRE MARSHAL.
3. UNLESS SUPERSEDED BY LOCAL REQUIREMENTS, SIZE, TYPE, AND INSTALLATION OF HYDRANTS SHALL CONFORM TO THE FOLLOWING SPECIFICATION, INCORPORATED HEREIN BY REFERENCE, AS APPROPRIATE:
4. SIZE, TYPE, AND INSTALLATION CF HYDRANTS SHOULD BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE MUNICIPALITY OR THE WATER PURVEYOR, OR SHALL CONFORM TO THE AWWA STANDARD FOR DRY-BARREL FIRE HYDRANTS, ANSI/AWWA C502. HYDRANTS SHALL HAVE AT LEAST THREE (3) OUTLETS: ONE OUTLET SHALL BE A PUMPER OUTLET, THE OTHER OUTLETS SHALL BE AT LEAST TWO AND ONE-HALF (2½) INCH NOMINAL SIZE. THE PUMPER OUTLET SHALL FACE THE STREET. ALL OUTLET NOZZLES SHALL BE AT LEAST 12 INCHES ABOVE THE ADJOINING GRADE. WHEN A CONCRETE SLAB IS PROVIDED AROUND THE HYDRANT RISER, THE FLANGE WHERE THE HYDRANT CONNECTS TO THE RISER SHALL BE AT LEAST TWO INCHES ABOVE THE ADJACENT GRADE. STREET MAIN CONNECTIONS SHALL NOT BE LESS THAN SIX INCHES IN DIAMETER. HOSE THREADS ON OUTLETS SHALL BE COMPATIBLE WITH EXISTING MUNICIPAL EQUIPMENT AND SHALL EITHER CONFORM TO NFPA 1963 OR SHALL MATCH EXISTING MUNICIPAL REQUIREMENTS. A VALVE SHALL BE PROVIDED ON CONNECTIONS BETWEEN HYDRANTS AND STREET MAINS. ALL PIPES, FITTINGS, AND APPURTENANCES SUPPLYING FIRE HYDRANTS SHALL BE AWWA OR ASTM APPROVED. (RS:S)
5. ALL FIRE HYDRANTS SHALL CONFORM TO NFPA STANDARD 291.
6. DISTANCE FROM CURB IS TYPICAL, HOWEVER CONTRACTOR MUST REFER TO UTILITY PLAN FOR HYDRANT LOCATION

16 FIRE HYDRANT

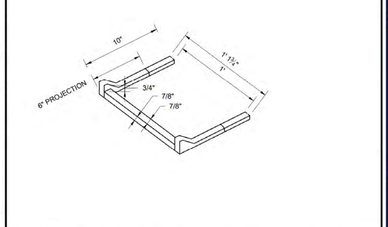
NOT TO SCALE (U030101 - 08/2023)



NOTES:
1. TOPSOIL OR PAVEMENT SECTION TO MATCH, AT MINIMUM, ADJOINING GRADE OR PAVEMENT.
2. THIS DETAIL IS INTENDED SOLELY FOR THE PURPOSE OF SHOWING BACK FILL MATERIALS AND MINIMUM THICKNESS OF LAYERS. DETAIL IS NOT INTENDED TO INDICATE MEANS AND METHODS OF CONSTRUCTION.
3. CONTRACTOR SHALL PROVIDE SHORING AND BRACING AS NECESSARY TO PROVIDE FOR SAFE INSTALLATION. CONTRACTOR SHALL COMPLY WITH ALL OSHA, STATE AND LOCAL REGULATIONS.
4. WHEN DIP IS USED, CRUSHED STONE NEED NOT EXTEND ABOVE PIPE.

17 SANITARY TRENCH

NOT TO SCALE (NJ-U029901 - 08/2023)



NOTES:
1. STEPS SHALL BE POLYPROPYLENE WITH ½" ASTM A-615 STEEL REINFORCEMENT MIN. 3" INBEDMENT IN ACCORDANCE WITH ASTM C-478 AND O.S.H.A. STANDARDS.
2. ALL MANHOLE STEPS TO MEET OR EXCEED ASTM AND O.S.H.A. REQUIREMENTS.
3. FOR ROADWAY LOCATIONS STEPS SHALL BE ORIENTED TO ALLOW VIEWING OF ONCOMING TRAFFIC WHEN EXITING STRUCTURE.

18 MANHOLE POLYPROPYLENE LADDER RUNG

NOT TO SCALE (NJ-U990101 - 08/2023)

BOHLER
SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABILITY SERVICES
PERMITTING SERVICES
TRANSPORTATION SERVICES
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PROJECT No.: NJC240059.00-0E
DRAWN BY: CTC
CHECKED BY: BE
DATE: 10/28/2025
CAD I.D.: P-CIVL-CNDS

PROJECT:

SITE DEVELOPMENT PLANS

FOR

SIGNATURE AVIATION USA, LLC

SIGNATURE AVIATION

PROPOSED EAST SIDE RAMP EXPANSION & HANGAR

TETERBORO AIRPORT
FRED WEHRAN DRIVE
BOROUGH OF TETERBORO
BERGEN COUNTY, NEW JERSEY

BOHLER
BOHLER ENGINEERING NJ, LLC
125 HALF MILE ROAD, SUITE 207
RED BANK, NJ 07701
Phone: (732) 825-6800
www.BohlerEngineering.com
NJ CERT. OF AUTHORIZATION NO. 24GA28161700 & MH000122

J.A. HOLZAPFEL
STATE OF NEW JERSEY JOSEPH A. HOLZAPFEL LICENSE NO. 24GE05000500
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. 24GE05000500

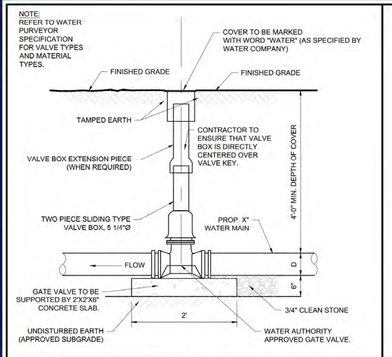
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CONSTRUCTION DETAILS

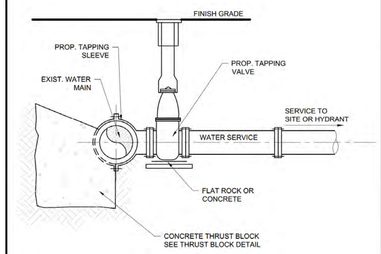
SHEET NUMBER: 9 OF 17

ORG. DATE - 10/28/2025

\\BOHLERENG.NET\SHAREENJ\PROJECTS\2024\NJC240059.00\CAD\DRAWINGS\PLAN SET\CIVIL SITE PLANS\P-CIVL-CNDS-NJC240059.00-0E-----LAYOUT C-901 DETL

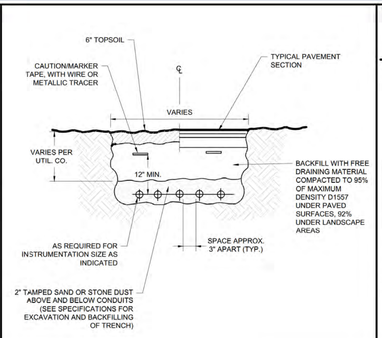


1 GATE VALVE AND BOX
NOT TO SCALE (NJ-U030201 - 08/2023)

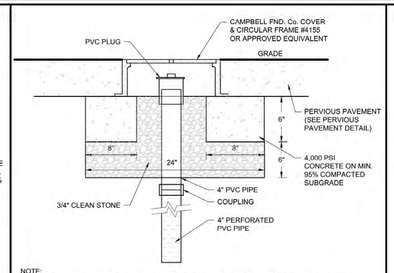


NOTE:
WET TAP AND VALVE MANUFACTURER SHALL BE DETERMINED BY GOVERNING MUA OR WATER SUPPLIER.

2 WET TAP
NOT TO SCALE (NJ-U039905 - 08/2023)

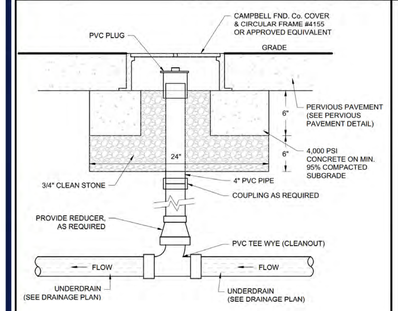


3 UNDERGROUND UTILITY CONDUIT
NOT TO SCALE (NJ-U990105 - 08/2023)



NOTE:
1. SEE PLAN FOR LOCATIONS. AT LEAST ONE INSPECTION PORT MUST BE PROVIDED IN THE STORAGE BED. THE INSPECTION PORT MUST BE PLACED AT LEAST 3 FEET FROM ANY EDGE & FLUSH WITH THE SURFACE OF THE SURFACE LAYER AND EXTEND DOWN 4 - 6 INCHES INTO THE STONE STORAGE BED, AND THE DEPTH OF RUNOFF FOR THE WATER QUALITY DESIGN STORM MUST BE MARKED ON EACH STRUCTURE. THE SIZE OF THE INSPECTION PORT MUST BE LARGE ENOUGH TO ALLOW FOR MAINTENANCE ACTIVITIES.

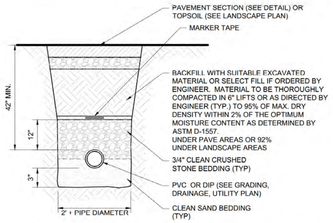
4 INSPECTION PORT FOR PERVIOUS PAVEMENT SURFACES
NOT TO SCALE (NJ-U019907 - 01/2025)



5 INSPECTION PORT FOR PERVIOUS PVMT SURFACES WITH UNDERDRAIN
NOT TO SCALE (NJ-U019908 - 01/2025)

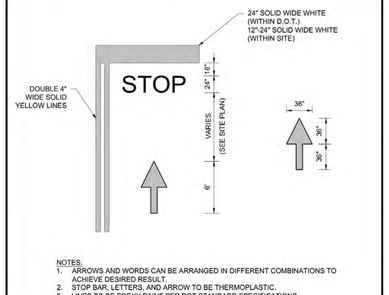


6 SITE SIGNAGE
NOT TO SCALE



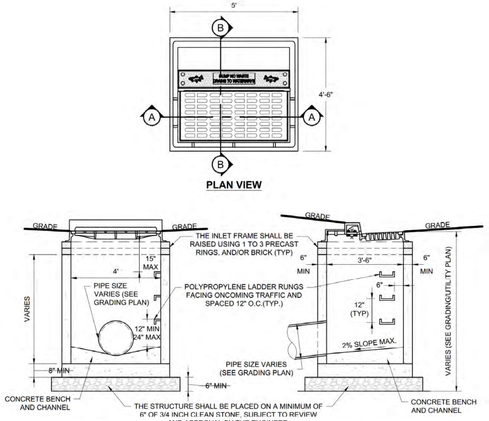
NOTES:
1. TOPSOIL OR PAVEMENT SECTION TO MATCH, AT MINIMUM, ADJOINING GRADE OR PAVEMENT.
2. THIS DETAIL IS INTENDED SOLELY FOR THE PURPOSE OF SHOWING BACK FILL MATERIALS AND MINIMUM THICKNESS OF LAYERS. DETAIL IS NOT INTENDED TO INDICATE MEANS AND METHODS OF CONSTRUCTION.
3. CONTRACTOR SHALL PROVIDE SHORING AND BRACING AS NECESSARY TO PROVIDE FOR SAFE INSTALLATION. CONTRACTOR SHALL COMPLY WITH ALL OSHA, STATE AND LOCAL REGULATIONS.
4. WHEN DIP IS USED, CRUSHED STONE NEED NOT EXTEND ABOVE PIPE.

7 WATER PIPE INSTALLATION
NOT TO SCALE (NJ-U030404 - 08/2023)



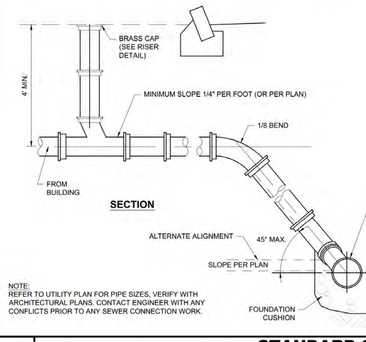
NOTES:
1. ARROWS AND WORDS CAN BE ARRANGED IN DIFFERENT COMBINATIONS TO ACHIEVE DESIRED RESULT.
2. STOP BAR, LETTERS, AND ARROW TO BE THERMOPLASTIC.
3. LINES TO BE EPOXY PAINT PER DOT STANDARD SPECIFICATIONS.

8 PAINTED MARKING
NOT TO SCALE (NJ-S050301 - 08/2023)



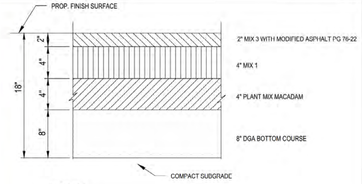
NOTES:
1. THE TYPE B INLET CONCRETE STRUCTURE SHALL BE PRECAST CONCRETE TO MEET A MINIMUM OF H-25 LOADING. ALL UNITS SHALL BE CONSTRUCTED AND REINFORCED IN ACCORDANCE WITH THE APPROPRIATE ASTM, ACI, NJPDES, AND AASHTO STANDARDS. ALL PRECAST SECTIONS SHALL BE JOINED USING A GASKET AND CEMENT GROUT TO PRODUCE A "LEAK-PROOF" JOINT.
2. THE INLET GRATE SHALL BE BICYCLE SAFE WITH A CURB PIECE OF TYPE "N-ECO" AS DEFINED BY CAMPBELL FOUNDRY COMPANY PATTERN NO. 2618, OR EQUIVALENT. CONTRACTOR TO VERIFY WITH MUNICIPALITY THE TYPE OF ECO CURB PIECE AND GRATE TO BE USED.
3. THE INLET FRAME AND GRATE/COVER SHALL BE FABRICATED TO MEET A MINIMUM OF H-25 LOADING, UNLESS PRE-APPROVED IN WRITING BY THE ENGINEER, OR UNLESS NOTED ON THE INDIVIDUAL STRUCTURE NOTES.
4. ALL PIPES SHALL EXTEND NO MORE THAN 1 INCH INTO THE STRUCTURE.
5. A 3000 PSI MIN. CONCRETE PIPE FLOW CHANNEL SHALL BE INSTALLED IN THE STRUCTURE BOTTOM, AFTER ALL THE PIPES ARE INSTALLED, OR THE FLOW CHANNELS CAN BE PRECAST WITH THE BASE.
6. THE CLEAR SPACE IN THE CURB OPENING (OR EACH INDIVIDUAL CLEAR SPACE, IF THE CURB OPENING HAS 2 OR MORE CLEAR SPACES) MUST HAVE AN AREA OF NO MORE THAN 7 SQUARE INCHES OR BE NO GREATER THAN 2 INCHES ACROSS THE SMALLEST DIMENSION.
7. STORM DRAIN INLET LABEL SHOULD READ "DUMP NO WASTE, DRAINS TO WATERWAYS" OR OTHERWISE APPROVED BY THE ENGINEER. FISH LOGOS SHALL ALSO BE INCLUDED ON BOTH SIDES OF THE LABEL.
8. DETAIL IS FOR CAST IRON CLASS 30B ONLY. ANY OTHER CLASS OF CAST IRON OR TYPE OF MATERIAL MUST BE ON THE BUREAU OF MATERIALS APPROVED PRODUCTS LIST OR NEW TECHNOLOGY'S AND PRODUCTS APPROVED PRODUCTS LIST.
9. LADDER RUNGS SHOULD NOT BE INSTALLED OVER PIPE OPENINGS.
10. INSIDE DIMENSIONS ARE NOMINAL AND ARE SUBJECT TO MODIFICATION BY PRE CASTER AS NECESSARY TO ACCOMMODATE ACTUAL PIPE SIZES AND ALIGNMENT. STRUCTURES LARGER THAN THAT SHOWN SHALL HAVE A SLAB TOP WHICH SHALL MEET THE SAME LOADING REQUIREMENTS.

9 TYPE 'B' INLET WITH ECO CURB PIECE
NOT TO SCALE (NJ-U010213 - 08/2023)



NOTE:
REFER TO UTILITY PLAN FOR PIPE SIZES, VERIFY WITH ARCHITECTURAL PLANS. CONTACT ENGINEER WITH ANY CONFLICTS PRIOR TO ANY SEWER CONNECTION WORK.

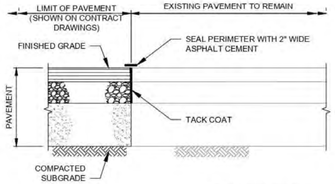
10 STANDARD SANITARY LATERAL CONNECTION
NOT TO SCALE (NJ-U020403 - 01/2025)



NOTE: TOP COURSE ASPHALT SHALL MEET REQUIREMENTS FOR PG 76-22 OF PROJECT SPECIFICATIONS.
NOTE: ASPHALT IS TO BE IN COMPLIANCE WITH ALL PORT AUTHORITY SPECIFICATIONS

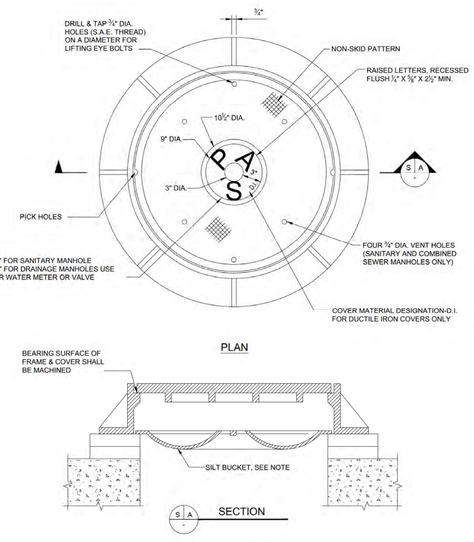
DETAIL REFERENCE:
DETAILS PROVIDED/PREPARED BY OTHERS AND IS FROM THE PORT AUTHORITY OF NY/NJ. REFER TO OUTSIDE NOTES ON SHEET 2.

11 STANDARD PAVING DETAIL (AIR SIDE)
NOT TO SCALE (PORT AUTHORITY STANDARDS)



DETAIL REFERENCE:
DETAILS PROVIDED/PREPARED BY OTHERS AND IS FROM THE PORT AUTHORITY OF NY/NJ. REFER TO OUTSIDE NOTES ON SHEET 2.

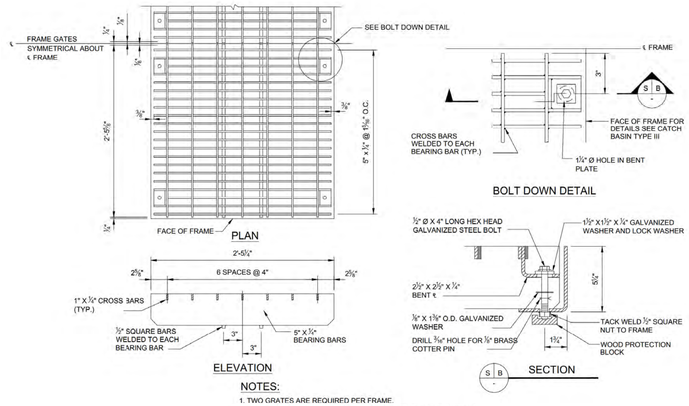
12 EXISTING ASPHALT CONNECTION DETAIL
NOT TO SCALE (PORT AUTHORITY STANDARDS)



NOTES
FOR SANITARY AND COMBINED SEWER MANHOLES FURNISH CAST ALUMINUM SILT BUCKETS.

DETAIL REFERENCE:
DETAILS PROVIDED/PREPARED BY OTHERS AND IS FROM THE PORT AUTHORITY OF NY/NJ. REFER TO OUTSIDE NOTES ON SHEET 2.

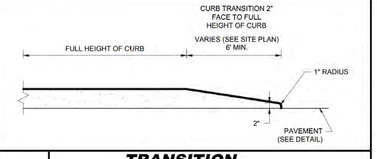
13 PORT AUTHORITY MANHOLE FRAME DETAIL (LAND SIDE)
NOT TO SCALE (PORT AUTHORITY STANDARDS)



NOTES:
1. TWO GRATES ARE REQUIRED PER FRAME.
2. FRAME AND GRATES SHALL BE IKG INDUSTRIES DRAWING DD285C, CAMPBELL FOUNDRY COMPANY PATTERN NUMBER 8301 0004 OR EAST JORDAN IRON WORKS NO. 90550025, FABRICATED OF A-36 STEEL.
3. FRAME AND GRATES SHALL BE WELDED CONSTRUCTION AND 2½ OUNCE PER SQUARE FOOT HOT DIP GALVANIZED THROUGHOUT AFTER FABRICATION.
4. CONTRACTOR SHALL PREPARE DETAILED SHOP DRAWINGS AND SUBMIT FOR THE ENGINEER'S APPROVAL PRIOR TO FABRICATION.

DETAIL REFERENCE:
DETAILS PROVIDED/PREPARED BY OTHERS AND IS FROM THE PORT AUTHORITY OF NY/NJ. REFER TO OUTSIDE NOTES ON SHEET 2.

14 HEAVY DUTY GRATING DETAIL (AIR SIDE)
NOT TO SCALE (PORT AUTHORITY STANDARDS)



15 TRANSITION CURB
NOT TO SCALE (NJ-S029903 - 03/2024)

PORT AUTHORITY OF NY/NJ SPECIFICATIONS SHALL GOVERN FRO ALL DETAILS AND MATERIALS

BOHLER
SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
INDUSTRIAL ENGINEERING
PERMITTING SERVICES
TRANSPORTATION SERVICES
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REV	DATE	COMMENT	DRAWN BY / CHECKED BY

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PROJECT No.:	NJC240059.00-0E
DRAWN BY:	CTC
CHECKED BY:	BE
DATE:	10/28/2025
CAD I.D.:	P-CIVL-CNDS

PROJECT:

SITE DEVELOPMENT PLANS
FOR
SIGNATURE AVIATION USA, LLC

SIGNATURE AVIATION

PROPOSED EAST SIDE RAMP EXPANSION & HANGAR
TETERBORO AIRPORT
FRED WEHRAN DRIVE
BOROUGH OF TETERBORO
BERGEN COUNTY, NEW JERSEY

BOHLER
BOHLER ENGINEERING NJ, LLC
125 HALF MILE ROAD, SUITE 207
RED BANK, NJ 07701
Phone: (732) 825-6800
www.BohlerEngineering.com
NJ CERT. OF AUTHORIZATION NO. 24GA28161700 & MH000122

J.A. HOLZAPFEL
STATE OF NEW JERSEY
JOSEPH A. HOLZAPFEL
No. 24GE05008300
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. 24GE05008300
PROFESSIONAL ENGINEER

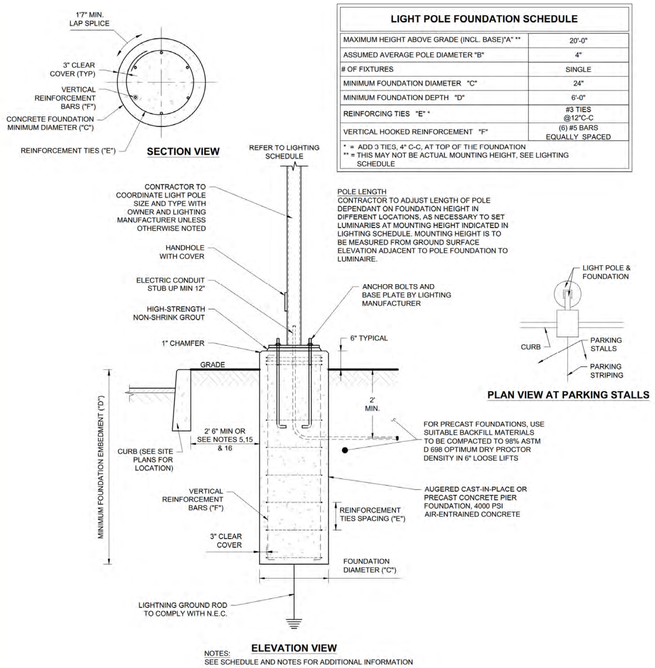
SHEET TITLE:

CONSTRUCTION DETAILS

SHEET NUMBER:
10
OF 17

ORG. DATE - 10/28/2025

\\BOHLERENG.NET\SHARE\ENJ-PROJECTS\2024\NJC240059.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVL-CNDS-NJC240059.00-0E-----LAYOUT C-902 DETL
CAUTION



LIGHT POLE FOUNDATION SCHEDULE	
MAXIMUM HEIGHT ABOVE GRADE (INCL. BASE)"A" **	20'-0"
ASSUMED AVERAGE POLE DIAMETER "B"	4"
# OF FIXTURES	SINGLE
MINIMUM FOUNDATION DIAMETER "C"	24"
MINIMUM FOUNDATION DEPTH "D"	6'-0"
REINFORCING TIES "E" *	#3 TIES @12"C-C (6) #5 BARS EQUALLY SPACED
VERTICAL HOOKED REINFORCEMENT "F"	

* = ADD 3 TIES, 4" C-C, AT TOP OF TIE FOUNDATION
** = THIS MAY NOT BE ACTUAL MOUNTING HEIGHT, SEE LIGHTING SCHEDULE

LIGHT POLE FOUNDATION NOTES

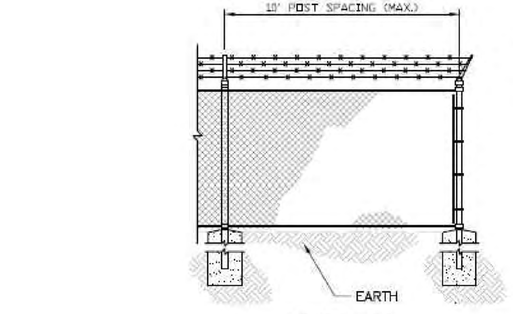
1. THE CONTRACTOR MUST VERIFY ALL DIMENSIONS AND CONDITIONS, COORDINATE WITH ALL CONTRACT DRAWINGS, PROJECT SHOP DRAWINGS AND FIELD CONDITIONS PRIOR TO CONSTRUCTION. CONTRACTOR MUST ENSURE NO CONFLICTS ARISE BETWEEN LIGHT POLE FOUNDATIONS, STRUCTURES, AND UTILITIES. IF ANY DISCREPANCIES BETWEEN FIELD CONDITIONS AND DESIGN PLANS ARISE, THE ENGINEER MUST BE NOTIFIED IMMEDIATELY IN WRITING.
2. THE CONTRACTOR IS TO HAVE A GEOTECHNICAL ENGINEER, LICENSED IN THE PROJECT'S STATE, ON SITE TO INSPECT FILL, MONITOR FILL COMPACTION AND TO VERIFY SUBGRADE ALLOWABLE BEARING CAPACITY AND SOIL DESIGN CRITERIA PRIOR TO CONSTRUCTION IN ACCORDANCE TO THE DESIGN ASSUMPTIONS STATED. UNSUITABLE MATERIALS FOUND MUST BE REMOVED OR BE REMEDIED AS PER THE DIRECTION OF THE ON SITE GEOTECHNICAL ENGINEER.
3. IF CONDITIONS IN THE FIELD ARE DIFFERENT THAN THOSE INDICATED, THE CONTRACTOR IS TO IMMEDIATELY NOTIFY THE ENGINEER IN WRITING.
4. CONTRACTOR IS RESPONSIBLE TO ENSURE THAT APPROPRIATE SELECT BACKFILL IS USED, AND THOROUGHLY COMPACTED TO 98% MAX. DENSITY ASTM D 698.
5. STRUCTURAL CONCRETE AND CONCRETING PRACTICES SHALL CONFORM WITH ACI-318, "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE." DETAILS ARE TO BE IN ACCORDANCE WITH ACI-315, "MANUAL OF STANDARD PRACTICE: DETAILS AND DETAILING OF CONCRETE REINFORCEMENT." FORM WORK SHALL CONFORM ACI-347 "GUIDE TO FORM WORK FOR CONCRETE", UNLESS OTHERWISE NOTED ON THE CONTRACT DOCUMENTS.
6. CONCRETE MUST BE NORMAL WEIGHT STONE AGGREGATE WITH THE STATED MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI A"' 28 DAYS. HISTORICAL DATA OR LABORATORY TESTS FOR THE PRELIMINARY DESIGN MIX IS TO BE SUBMITTED TO THE ENGINEER FOR REVIEW PRIOR TO CONSTRUCTION. THE WATER-CEMENT RATIO FOR THE PROPOSED MIX DESIGN MUST ACHIEVE AN AVERAGE 28-DAY STRENGTH OF 1,200 PSI GREATER THAN THE REQUIRED STRENGTH ON LABORATORY TEST RESULTS
7. CONCRETE IS TO HAVE A SLUMP NO GREATER THAN 4" TO WITHIN A TOLERANCE OF 1".
8. EXPOSED CONCRETE S TO BE AIR ENTRAINED, 6% (WITHIN 1% TOLERANCE), CONFORMING TO ASTM C260.
9. CONCRETE TO BE CONSOLIDATED IN PLACE USING AN INTERNAL VIBRATOR.
10. REINFORCING STEEL BARS SHALL BILLET STEEL ASTM A615, GRADE 60. ALL REINFORCEMENT TO BE SECURELY HELD IN PLACE WHILE PLACING CONCRETE. IF REQUIRED, ADDITIONAL BARS OR STIRRUPS TO BE PROVIDED BY THE CONTRACTOR TO FURNISH SUPPORT FOR ALL BARS. BAR SUPPORTS IN CONTACT WITH EXPOSED SURFACES TO BE PLASTIC TIPPED. ALL ACCESSORIES MUST BE GALVANIZED.
11. ALL SPLICES OF REINFORCING BARS NOT INDICATED ARE TO BE LTS AS PER THE REINFORCING SPLICE SCHEDULE OR 40 BAR DIAMETERS. DISCONTINUOUS ENDS OF CONTINUOUS BARS ARE TO BE STANDARD HOOKS.
12. IF CAVING OF DRILLED HOLES ARE ENCOUNTERED, CONTRACTOR SHALL PROVIDE BENTONITE SLURRY IN PERMANENT CASINGS FO'S DRILLED CONCRETE PIER FOUNDATIONS.
13. CONCRETE MUST ATTAIN 80% OF THE DESIGN STRENGTH OR CURE FOR A MINIMUM OF 7-DAYS PRIOR TO THE INSTALLATION OF TH LIGHT POLES OR ALL LIGHT POLES ARE TO BE SUITABLY BRACED AGAINST WIND LOADS DURING THE ABOVE MENTIONED TIMEFRAME.
14. ALL ELECTRICAL COMPONENTS TO COMPLY WITH N.E.C.
15. WHEN 2'-6" CLEARANCE CAN NOT BE PROVIDED, CONCRETE FOUNDATION MUST BE EXTENDED TO 36" ABOVE SURFACE, OR PROVIDE BOLLARD PROTECTION FOR LIGHT POLE.
16. VERIFY WITH LOCATIO'S SHOWN ON LIGHTING PLAN
17. CONTRACTOR IS TO RECORD ON A CLEAN COPY OF THE LIGHTING PLANS. THE LOCATION OF CONDUIT SUPPLYING POWER TO LIGHTS. A COMPLETED COPY OF THIS RECORD PLAN IS TO BE PROVIDED TO THE OWNER PRIOR TO FINAL ACCEPTANCE OF THE WORK.
18. UPON ACCEPTANCE O" THE COMPLETED WORK BY THE OWNER, THE OWNER IS RESPONSIBLE FOR APPROPRIATE MAINTENANCE OF THE LIGHTING SYSTEM

LIGHT POLE FOUNDATION DESIGN CRITERIA

- MINIMUM REQUIRED ALLOWABLE BEARING PRESSURE = 1,000 PSF - ASSUMED (TO BE VERIFIED IN FIELD)
- SOIL FRICTION ANGLE = 30 DEG - ASSUMED (TO BE VERIFIED IN FIELD)
- SOIL DRY UNIT WEIGHT = 120 PCF - ASSUMED (TO BE VERIFIED IN FIELD)
- WIND PRESSURE = 30 PSF.

1 LIGHT POLE FOUNDATION

NOT TO SCALE (MODIFIED) (NJ-I010101 - 01/2025)



NOTES:
1. ALL FENCE POST SHALL USE BREAKAWAY POST FOR THIS PROJECT.
2. ONE 45-DEGREE ANGLE BARBED WIRE FACING LANDSIDE OF THE AOA FENCE WITH 4 STRANDS TO BE USED FOR THIS PROJECT.
3. NO CONCERTINA WIRE TO BE USED FOR THIS PROJECT.

DETAIL REFERENCE: DETAILS PROVIDED/PREPARED BY OTHERS AND IS FROM THE PORT AUTHORITY OF NY/NJ. REFER TO OUTSIDE NOTES ON SHEET 2.

3 PERMANENT BARBED WIRE FENCE DETAIL

NOT TO SCALE (PORT AUTHORITY STANDARDS)

LITHONIA LIGHTING®

FEATURES & SPECIFICATIONS

INTENDED USE — These specifications are for USA standards only. Square Straight Steel is a general purpose light pole for up to 39-foot mounting heights. This pole provides a robust yet cost effective option for mounting area lights and floodlights.

CONSTRUCTION —

Pole Shaft: The pole shaft is of uniform dimension and wall thickness and is made of a weldable-grade, hot-rolled, commercial-quality steel tubing with a minimum yield of 55 KSI (11-gauge, 0.120"), or 50 KSI (7-gauge, 0.179"). Shaft is one-piece with a full-length longitudinal high-frequency electric resistance weld. Uniformly square in cross-section with flat sides, small corner radii and excellent torsional qualities. Available shaft widths are 4", 5" and 6".

Pole Top: Options include 4" tenon top, drilled for side mount fixture, tenon with drilling (includes extra handhole) and open top. Side-drilled and open top poles include a removable top cap.

Handhole: A reinforced handhole with grounding provision is provided at 18" from the base on side A. Positioning the handhole lower may not be possible and requires engineering review; consult Tech Support-Outdoor for further information. Every handhole includes a cover and cover attachment hardware. The handhole has a nominal dimension of 2.5" x 5".

Base Cover: A durable ABS plastic two-piece full base cover, finished to match the pole, is provided with each pole assembly. Additional base cover options are available upon request.

Anchor Base/Bolts: Anchor base is fabricated from steel that meets ASTM A36 standards and can be altered to match existing foundations; consult factory for modifications. Anchor bolts are manufactured to ASTM F1554 Standards grade 55, (55 KSI minimum yield strength and tensile strength of 75-95 KSI). Top threaded portion (nominal 12") is hot-dipped galvanized per ASTM A-153.

HARDWARE — All structural fasteners are high-strength galvanized carbon steel. All non-structural fasteners are galvanized or zinc-plated carbon steel or stainless steel.

FINISH — Extra durable painted finish is coated with TGIC (Triglycidyl Isocyanurate) Polyester powder that meets SAE and SB classifications of ASTM D3359. Powder-coat finishes include Dark Bronze, White, Black, and Natural Aluminum colors. Architectural Colors and Special Finishes are available by quote and include, but are not limited to Paint over Hot-dipped Galvanized, RAL Colors, Custom Colors and Extended Warranty Finishes.

GOVERNEMENT PROCUREMENT —

BAA – Buy America(n) Act: Product qualifies as a domestic end product under the Buy American Act as implemented in the FAR and DFARS. Product also qualifies as manufactured in the United States under DOT Buy America regulations.

BABA – Build America Buy America: Product qualifies as produced in the United States under the definitions of the Build America, Buy America Act.

Please refer to www.acuitybrands.com/buy-american for additional information.

INSTALLATION — Do not erect poles without having fixtures installed. Factory-supplied templates must be used when setting anchor bolts. Lithonia Lighting will not accept claim for incorrect anchorage placement due to failure to use Lithonia Lighting factory templates. If poles are stored outside, all protective wrapping must be removed immediately upon delivery to prevent finish damage. Lithonia Lighting is not responsible for the foundation design.

WARRANTY — 5-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at: www.acuitybrands.com/support/warranty/terms-and-conditions

NOTE: Actual performance may differ as a result of end-user environment and application.
Specifications subject to change without notice.

Catalog Number	
Notes	
Type	

Anchor Base Poles

SSS

SQUARE STRAIGHT STEEL

BAA BABA

SSS Square Straight Steel Poles

ORDERING INFORMATION Lead times will vary depending on options selected. Consult with your sales representative. **Example:** SSS 20 5C DM28AS DDBXD

SSS Series	Nominal fixture mounting height	Nominal shaft base size/wall thickness[1]	Mounting[2]	Options		Finish	
SSS	15'-39' (for 1/2 ft increments, add -6 to the pole height. Ex: 20-6 equals 20ft 6in.) (See technical information table for complete ordering information.)	4C 4" Tiq (0.120") 4G 4" 3q (0.179") 5C 5" 11q (0.120") 5G 5" 7q (0.179") 6G 6" 7q (0.179") (See technical information table for complete ordering information.)	Tenon mounting PT Open top (includes top cap) T20 2-3/8" O.D. (2" NPS) T25 2-7/8" O.D. (2-1/2" NPS) T30 3-1/2" O.D. (3" NPS) T35 4" O.D. (3-1/2" NPS) OSX/OSX/OMEGA[3] Drill mount[4] DM19AS 1 at 90° DM28AS 2 at 180° DM29AS 2 at 90° DM19AS 3 at 90° DM49AS 4 at 90° RAD drill mounting[5] DM19RAD 1 at 90° DM28RAD 2 at 180° DM29RAD 2 at 90° DM39RAD 3 at 90° DM49RAD 4 at 90° ESX Drill mounting[6] DM19ESX 1 at 90° DM28ESX 2 at 180° DM29ESX 2 at 90° DM39ESX 3 at 90° DM49ESX 4 at 90° Arm drill mounting To be added as series + drill orientations EX: SAA/19 for SAA/C arm drilling 1 at 90°	Shipped installed XD Vibration damper[7] JHxy J-Hook for cable strain relief[8] HAxy Horizontal arm bracket (1 fixture)[9] FOLxy Festoon outlet less electrical[7,10] FOLGFCIxy Festoon with GFCI outlet and in-use cover[7,10] CPL12Lxy 1/2" coupling[11] CPL34Lxy 3/4" coupling[11] CPLIxy 1" coupling[11] NPL12Lxy 1/2" threaded nipple[11] NPL34Lxy 3/4" threaded nipple[11] NPLIxy 1" threaded nipple[11] EHXkey Extra handhole[12] STLTMP Steel anchor bolt template (standard is paper) STLHHC Steel handhole cover (standard is plastic, finish is smooth)[13] FBCST12PC Fiber/STL 2-Piece steel base cover (standard is plastic)[13] IC Interior coating[14] LJAB Less anchor bolts (include when anchor bolts are not needed) TP Tamper resistant handhole cover fasteners NEC NEC 470.20 compliant gasketed handhole (Not UL Labeled) UL UL listed with label (includes NEC compliant cover) BAA Buy America(n) Act Compliant[15] WAIoriginal order# Match pole to prior order or project[16]	Super durable paint colors DDBXD Dark bronze DBLXD Black DNAXD Natural aluminum DWHXD White DSSXD Sandstone DGCXD Charcoal gray DTEXD Tennis green DBRXD Bright red DSBXD Steel blue DDBTXD Textured dark bronze DBLBXD Textured black DNATXD Textured natural aluminum DWHGXD Textured white Other finishes GALV Galvanized finish Architectural colors and special finishes[14] [PAINT] GALV Paint over galvanizing WP30 3 year warranty extension WP53 5 year warranty extension RAL#### Use designated Lithonia Lighting nomenclature in brochure Custom color Nomenclature assigned through Customer Care "Custom Color Process"

Accessories: Order as separate catalog number.	
PL DT20	Plugs for ESX drillings
PL DT8	Plugs for DMxxAS drillings
FXTxxFT	Field installed vibration damper (snake style)

CONTRACTOR TO COORDINATE LIGHT POLE SPECIFIC W/ MANUFACTURER
LIGHT POLE COLOR TO MATCH FIXTURE: BLACK

NOTES:
1. Wall thickness will be identified with a "C" (11 Gauge) or a "G" (7 Gauge) in nomenclature. "C" - 0.120" | "G" - 0.179".
2. PT open top poles include top cap. When ordering tenon mounting and drill mounting for the same pole, specify as drilling option/tenon option. The combination includes a required extra handhole. *Example: DM2H72A.*
3. Refer to the fixture spec sheet for the correct drilling template pattern and orientation compatibility.
4. On 6" and 7" poles, YO cannot be installed if penetrates (DHA, FDL, MPL, CPL) are located higher than 2/3 of the pole's total height.
Example: Pole height is 20ft, A penetration cannot be placed above 9ft.
5. Specify fixtures and orientation when ordering option.
For "x": Specify the height above the base of pole in feet or feet and inches; separate feet and inches with a "-".
Example: 6ft = 5 and 20ft 3in = 20-3
For "y": Specify orientation from handhole (A,B,C,D). Refer to the Handhole Orientation diagram below.
Example: 12" (mp)Mast of 7.8", orientation C = CPL12L-6C
6. Horizontal arm is 18" x 2-3/8" O.D. tenon standard, with radius curve providing 12" rise and 2-3/8" O.D. if ordering two horizontal arm at the same height, specify with RAxxy.
Example: AA2ABD
7. XDL does not come with GFCI outlet or handhole cover. These must be supplied by contractor or electrician.
8. Festoon option (but comes with GFCI and in-use cover. GFCI and in-use cover ship separately from pole.
9. Combination of tenon-top and drill mount includes extra handhole. SWH includes cover.
10. Plastic hand hole cover and base covers come standard with all poles. Items ship separately. Additional parts can be ordered as replacements.
11. N/A in NJ.
12. Arm-mount certifications are required.
13. Must add original order number. Not for replacement parts or post sales issues, contact tech support re post sales forms. Will be used to ensure poles match its appearance exactly from order to order, on a single project site. A common use case would be a multi-phase project with multiple orders. *Example: SWH DDBXD-36704*
14. Must be ordered through RAD. Finishes do not require WA. RAL colors available: are shown in "Architectural Colors brochure". Lead times may be extended up to 2 weeks due to paint procurement.

LITHONIA LIGHTING®

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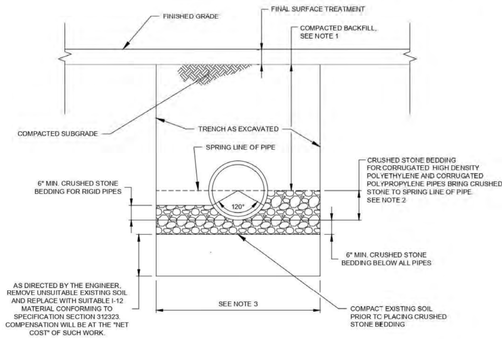
POLE-SSS

OUTDOOR

POLE-SSS

2 LIGHT POLE SPECIFICATION

SOURCE: LITHONIA LIGHTING



BEDDING DETAIL NOTES:

1. PLACE AND COMPACT BACKFILL TO THE SURROUNDING EXISTING GRADE OR THE COMPACTED SUBGRADE OF THE FINAL SURFACE TREATMENT (E.G. PAVEMENT, GRASS, ETC.), WHICHEVER IS LOWER.
2. FOR CORRUGATED HIGH DENSITY POLYETHYLENE AND CORRUGATED POLYPROPYLENE PIPES WORK IN AND TAMP THE CRUSHED STONE BEDDING IN THE UNDER SIDE OF THE PIPE PRIOR TO PLACING AND COMPACTING THE CRUSHED STONE BEDDING TO THE SPRING LINE AS SHOWN.
3. PIPE OUTSIDE DIAMETER + 2'-0" FOR THE PIPES UP TO AND INCLUDING 18" INSIDE DIAMETER, PIPE OUTSIDE DIAMETER + 3'-0" FOR PIPES OVER 18" INSIDE DIAMETER AND STRUCTURES.

DETAIL REFERENCE: DETAILS PROVIDED/PREPARED BY OTHERS AND IS FROM THE PORT AUTHORITY OF NY/NJ. REFER TO OUTSIDE NOTES ON SHEET 2.

4 BEDDING DETAIL

NOT TO SCALE (PORT AUTHORITY STANDARDS)

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2. WHERE AN ORIGINAL DETAIL BY OTHERS HAS BEEN MODIFIED, THE MODIFICATIONS ARE IDENTIFIED BY REVISION CLOUDS.
3. REFER TO OUTSIDE SOURCE NOTES ON THE GENERAL NOTES AND LEGEND SHEET.
4. WHEN THE SOURCE OF THE DETAIL IS A REVIEWING/REGULATORY AGENCY, FABRICATION AND INSTALLATION SHALL BE IN ACCORDANCE WITH APPLICABLE REQUIREMENTS AND SPECIFICATIONS. WHEN APPROPRIATE, SHOP DRAWINGS SHALL BE FORWARDED TO THE REVIEWING/REGULATORY AGENCY PRIOR TO FABRICATION.

DETAILS BY OTHERS DISCLAIMER

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PROJECT No.:	NJC240059.00-0E
DRAWN BY:	CTC
CHECKED BY:	BE
DATE:	10/28/2025
CAD I.D.:	P-CIVL-CNDS

PROJECT:

SITE DEVELOPMENT PLANS
FOR
SIGNATURE AVIATION USA, LLC

SIGNATURE AVIATION

PROPOSED EAST SIDE RAMP EXPANSION & HANGAR

TETERBORO AIRPORT
FRED WEHRAN DRIVE
BOROUGH OF TETERBORO
BERGEN COUNTY, NEW JERSEY

BOHLER
BOHLER ENGINEERING NJ, LLC
125 HALF MILE ROAD, SUITE 207
RED BANK, NJ 07701
Phone: (732) 825-6800
www.BohlerEngineering.com
NJ CERT. OF AUTHORIZATION NO. 24GA28161700 & MH000122

J.A. HOLZAPFEL
STATE OF NEW JERSEY
NO. 24GE50735
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. 24GE50735
PROFESSIONAL ENGINEER

SHEET TITLE:

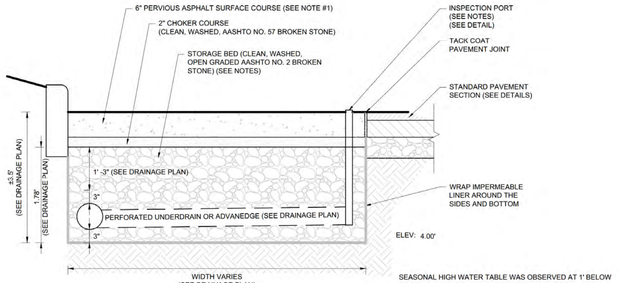
CONSTRUCTION DETAILS

SHEET NUMBER:

11
OF 17

ORG. DATE - 10/28/2025

I:\BOHLERENG.NET\SHARE\ENJ-PROJ\ECTS\2024\NJC240059.00\CAD\DRAWINGS\PLAN SET\SITE PLANS\P-CIVL-CNDTL-NJC240059.00-0E-----LAYOUT: C-903 DETL

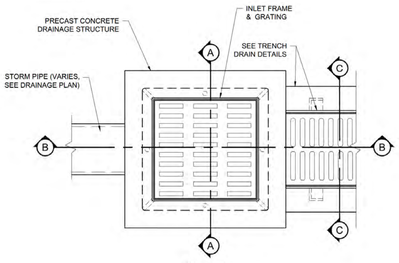


SEASONAL HIGH WATER TABLE WAS OBSERVED AT 1' BELOW EXISTING GRADE AND VARIES IN ELEVATION FROM ±5 TO 6. THE PROPOSED STORAGE BED OF THE PERVIOUS PAVEMENT SYSTEM IS TO BE WRAPPED IN AN IMPERMEABLE LINER TO PREVENT GROUNDWATER FROM SEEPING INTO THE SYSTEM.

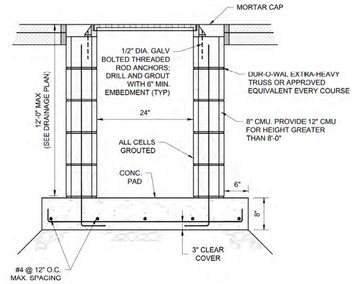
NOTES:
1. PERMEABLE ASPHALT SURFACE COURSE TO HAVE 15-25% POROSITY. FOR PARKING AREAS, A POLYMER MODIFIED BINDER PG 64E-22 MUST BE USED. PERVIOUS PAVEMENT SURFACE COURSE TO HAVE MINIMUM TESTED INFILTRATION RATE OF 6.4 IN/HR (20 IN/HR IF USED FOR STORMWATER QUALITY CONTROL). REFER TO GEOTECHNICAL ENGINEERING/REPORT FOR THICKNESS.
2. REFER TO NJ SWBMP MANUAL CHAPTER 9.6 AND NJDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION FOR OPEN-GRADED FRICTION COURSE COMPOSITION, MIX DESIGN, & INSTALLATION TEMPERATURE SPECIFICATIONS.
3. STORAGE BED AGGREGATE MUST BE PLACED IN LOOSE LIFTS NOT TO EXCEED 6 INCHES AND COMPACTED USING PLATE COMPACTORS PER NJ SWBMP MANUAL.
4. AT LEAST ONE INSPECTION PORT, WITH A REMOVABLE CAP, MUST BE PROVIDED AT THE UPSTREAM AND DOWNSTREAM ENDS OF THE PERFORATED SECTION OF THE NETWORK OF PIPES WITH ITS LOCATION DENOTED IN THE MAINTENANCE PLAN. THE INSPECTION PORT MUST BE PLACED AT LEAST 3 FEET FROM ANY EDGE. ADDITIONALLY, EACH INSPECTION PORT MUST BE FLUSH WITH THE SURFACE OF THE SURFACE LAYER AND EXTEND DOWN TO THE UNDERDRAIN PIPE NETWORK. THE SIZE OF THE INSPECTION PORT MUST BE LARGE ENOUGH TO ALLOW FOR MAINTENANCE ACTIVITIES.
5. SEALANT, TOP COAT, AND OTHER TREATMENTS SHALL NOT BE USED ON THE PERVIOUS ASPHALT PAVEMENT COURSE. CONSTRUCTION MAY NOT TAKE PLACE DURING RAIN OR SNOW, NOR WHEN THE SUBSOIL IS FROZEN.
6. POST-CONSTRUCTION TESTING OF THE PERMEABLE ASPHALT SURFACE COURSE IS REQUIRED AND MUST CONFORM TO THE METHODS OF EITHER ASTM C1701: STANDARD TEST METHOD FOR INFILTRATION RATE OF IN-PLACE PERVIOUS CONCRETE OR ASTM C1781: STANDARD TEST METHOD FOR SURFACE INFILTRATION RATE OF PERMEABLE UNIT PAVEMENT SYSTEMS. AT LEAST THREE LOCATIONS MUST BE USED FOR THE TEST, AND THEY SHOULD BE SPACED EVENLY ACROSS THE PERVIOUS PAVING SYSTEM. FAILURE TO ACHIEVE THE MINIMUM DESIGN INFILTRATION RATE OF THE SURFACE COURSE AT ONE OR MORE LOCATION INDICATES THE SYSTEM CANNOT BE PUT IN SERVICE UNTIL THE SYSTEM IS CORRECTED TO YIELD ALL PASSING VALUES. UNLIKE THE TEST METHODOLOGY OUTLINED IN THE ASTM STANDARDS, THE TEST RESULTS MUST NOT BE AVERAGED. INCLUDE A LOG FOR RECORDING EACH LOCATION AND ITS TEST RESULT FOR FUTURE REFERENCE IN THE MAINTENANCE PLAN.
7. PERVIOUS PAVEMENT AREA SHALL BE PROTECTED FROM SEDIMENT-LADEN RUNOFF DURING CONSTRUCTION TO AVOID REDUCED POROSITY.

1 PERVIOUS ASPHALT PAVEMENT WITH UNDERDRAIN

NOT TO SCALE (NJ-S010103 - 01/2025)

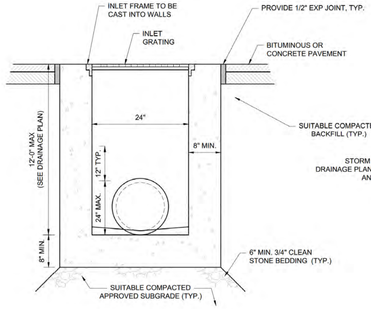


2X2 INLET PLAN VIEW

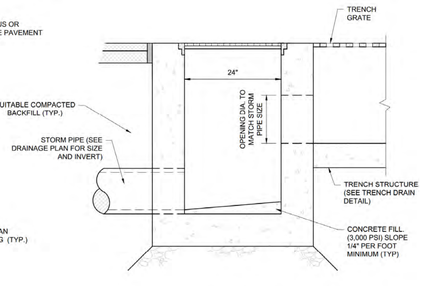


ALTERNATE MASONRY STRUCTURE SECTION C-C

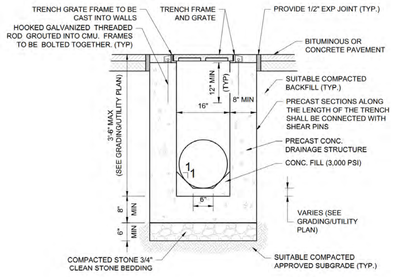
NOTES:
1. ALL CONCRETE SHALL HAVE A MINIMUM 28-DAY STRENGTH OF 4,000 PSI AND AIR-ENTRAINED.
2. SHOP DRAWINGS AND DESIGN OF PRECAST CONCRETE STRUCTURES SHALL BE PROVIDED TO THE ENGINEER OF RECORD FOR REVIEW PRIOR TO CONSTRUCTION AND SHALL BE SIGNED AND SEALED BY THE CONTRACTOR'S PROFESSIONAL ENGINEER LICENSED IN THE PROJECT'S STATE. PRECAST CONCRETE STRUCTURE SHALL BE DESIGNED FOR H-25 LOADING.
3. 2x2 INLET FRAME AND GRATE TO BE CAMPBELL FOUNDRY CO., SLAB TYPE NO 3247 OR APPROVED EQUIVALENT. FRAMES SHALL BE ANCHORED IN PLACE.
4. ALL REINFORCING BARS TO BE ASTM A615 GRADE 60.
5. TRENCH DRAIN AND GRATE SHALL BE CAMPBELL FOUNDRY CO., NO. 45240 OR APPROVED EQUIVALENT. FRAME TO BE CAST INTO PRECAST STRUCTURE.



PRECAST CONCRETE STRUCTURE SECTION A-A



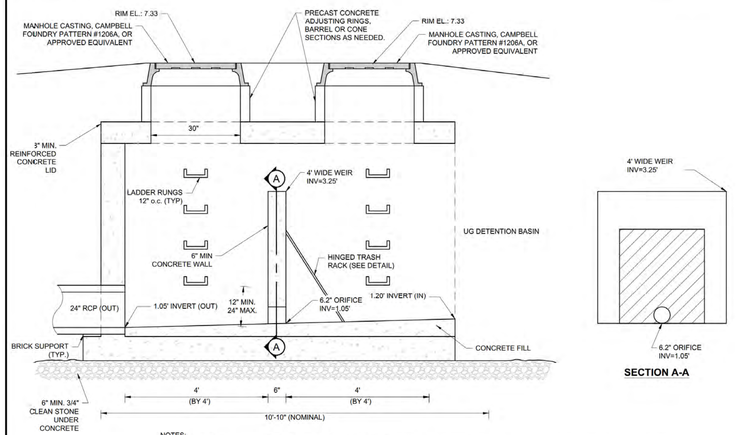
PRECAST CONCRETE STRUCTURE SECTION B-B



PRECAST CONCRETE STRUCTURE SECTION C-C

2 TRENCH DRAIN WITH 2' x 2' INLET

NOT TO SCALE (NJ-U010206 - 07/2024)



SECTION A-A

NOTES:
1. FOR INVERTS, PIPE SIZES AND ELEVATIONS, SEE PLANS.
2. THE CONCRETE STRUCTURE SHALL BE PRECAST CONCRETE TO MEET A MINIMUM OF H-25 LOADING. ALL UNITS SHALL BE CONSTRUCTED AND REINFORCED IN ACCORDANCE WITH THE APPROPRIATE ASTM, ACI, NJPDES, AND AASHTO STANDARDS. ALL PRECAST SECTIONS SHALL BE JOINED USING A GASKET AND CEMENT GROUT TO PRODUCE A "LEAK-PROOF" JOINT.
3. ALL STRUCTURAL CONCRETE TO BE NJDOT CLASS 'B', A/E.
4. THE INLET GRATE SHALL BE BICYCLE SAFE WITH A CURB PIECE OF TYPE "N-ECO". CONTRACTOR TO VERIFY WITH MUNICIPALITY THE TYPE OF ECO CURB PIECE AND GRATE TO BE USED.
5. THE INLET FRAME AND GRATE/COVER AND MANHOLE FRAME/RIM SHALL BE FABRICATED TO MEET A MINIMUM OF H-25 LOADING, UNLESS PRE-APPROVED IN WRITING BY THE ENGINEER, OR UNLESS NOTED ON THE INDIVIDUAL STRUCTURE NOTES.
6. ALL PIPES SHALL EXTEND NO MORE THAN 1 INCH INTO THE STRUCTURE.
7. A CONCRETE PIPE FLOW CHANNEL SHALL BE INSTALLED IN THE STRUCTURE BOTTOM, AFTER ALL THE PIPES ARE INSTALLED, OR THE FLOW CHANNELS CAN BE PRECAST WITH THE BASE.
8. STORM DRAIN INLET LABEL SHOULD READ "NO DUMPING, DRAINS TO WATERWAYS" OR OTHERWISE APPROVED BY THE ENGINEER. FISH LOGOS SHALL ALSO BE INCLUDED ON BOTH SIDES OF THE LABEL.
9. UNLESS INDICATED OTHERWISE ALL CONSTRUCTION TO COMPLY WITH DOT SPECIFICATIONS.
10. ROCK SCREEN SHALL BE STAINLESS STEEL WITH ≤ 1/2 INCH OPENINGS.
11. CONTRACTOR AND/OR PRECASTER TO PROVIDE SHOP DRAWINGS FOR REVIEW BY ENGINEER PRIOR TO FABRICATION.

3 OUTLET STRUCTURE FOR PERVIOUS PAVEMENT

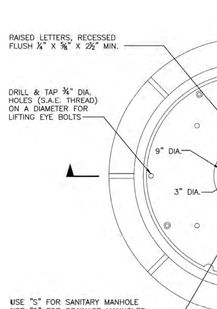
NOT TO SCALE (NJ-U010408 - 09/2023)

SECTION A-A

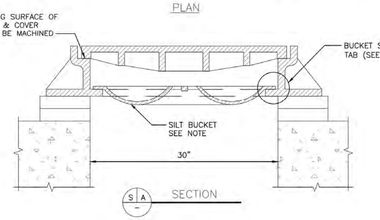
NOTES:
1. FOR INVERTS, PIPE SIZES AND ELEVATIONS, SEE PLANS.
2. THE TYPE B INLET CONCRETE STRUCTURE SHALL BE PRECAST CONCRETE TO MEET A MINIMUM OF H-25 LOADING. ALL UNITS SHALL BE CONSTRUCTED AND REINFORCED IN ACCORDANCE WITH THE APPROPRIATE ASTM, ACI, NJPDES, AND AASHTO STANDARDS. ALL PRECAST SECTIONS SHALL BE JOINED USING A GASKET AND CEMENT GROUT TO PRODUCE A "LEAK-PROOF" JOINT.
3. THE INLET GRATE SHALL BE BICYCLE SAFE WITH A CURB PIECE OF TYPE "N-ECO" AS DEFINED BY CAMPBELL FOUNDRY COMPANY PATTERN NO. 2618, OR EQUIVALENT. CONTRACTOR TO VERIFY WITH MUNICIPALITY THE TYPE OF ECO CURB PIECE AND GRATE TO BE USED.
4. THE INLET FRAME AND GRATE/COVER SHALL BE FABRICATED TO MEET A MINIMUM OF H-25 LOADING, UNLESS PRE-APPROVED IN WRITING BY THE ENGINEER, OR UNLESS NOTED ON THE INDIVIDUAL STRUCTURE NOTES.
5. ALL PIPES SHALL EXTEND NO MORE THAN 1 INCH INTO THE STRUCTURE.
6. A 2500 PSI MIN. CONCRETE PIPE FLOW CHANNEL SHALL BE INSTALLED IN THE STRUCTURE BOTTOM, AFTER ALL THE PIPES ARE INSTALLED, OR THE FLOW CHANNELS CAN BE PRECAST WITH THE BASE.
7. THE CLEAR SPACE IN THE CURB OPENING (OR EACH INDIVIDUAL CLEAR SPACE, IF THE CURB OPENING HAS 2 OR MORE CLEAR SPACES) MUST HAVE AN AREA OF NO MORE THAN 7 SQUARE INCHES OR BE NO GREATER THAN 2 INCHES ACROSS THE SMALLEST DIMENSION.
8. STORM DRAIN INLET LABEL SHOULD READ "NO DUMPING, DRAINS TO WATERWAYS" OR OTHERWISE APPROVED BY THE ENGINEER. FISH LOGOS SHALL ALSO BE INCLUDED ON BOTH SIDES OF THE LABEL.
9. DETAIL IS FOR CAST IRON CLASS 30B ONLY. ANY OTHER CLASS OF CAST IRON OR TYPE OF MATERIAL MUST BE ON THE BUREAU OF MATERIALS APPROVED PRODUCTS LIST OR NEW TECHNOLOGY'S AND PRODUCTS APPROVED PRODUCTS LIST.
10. UNLESS INDICATED OTHERWISE ALL CONSTRUCTION TO COMPLY WITH DOT SPECIFICATIONS.
11. TYPICAL DETAIL IS INTENDED FOR PIPE SIZES 30" DIAM. OR SMALLER FOR PIPE 30" OR LARGER AN OVERSIZE INLET WITH SLAB TOP WILL BE REQUIRED. SHOP DRAWING SHALL BE PROVIDED TO ENSURE THE APPROVAL PRIOR TO FABRICATION.
12. WHEN PRE-CAST, PRECASTER TO PROVIDE SHOP DRAWING FOR REVIEW BY ENGINEER PRIOR TO FABRICATION.
13. ALL STRUCTURAL CONCRETE TO BE MIN. 4000 PSI.

4 OUTLET STRUCTURE WITH MANHOLES

NOT TO SCALE (NJ-U010410 - 09/2023)



PLAN



NOTE:
FOR SANITARY AND COMBINED SEWER MANHOLES FURNISH CAST ALUMINUM SILT BUCKETS AND PROVIDE BUCKET SUPPORT TABS IN FRAME.

DETAIL REFERENCE:
DETAILS PROVIDED/PREPARED BY OTHERS AND IS FROM THE PORT AUTHORITY OF NY/NJ. REFER TO OUTSIDE NOTES ON SHEET 2.

5 PORT AUTHORITY MANHOLE MANHOLE FRAME DETAIL (AIR SIDE)

NOT TO SCALE (PORT AUTHORITY STANDARDS)

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DRAWN BY: CTC
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CAD I.D.: P-CIVL-CNDS

PROJECT:

SITE DEVELOPMENT PLANS

FOR

SIGNATURE AVIATION USA, LLC

SIGNATURE AVIATION

PROPOSED EAST SIDE RAMP EXPANSION & HANGAR

TETERBORO AIRPORT
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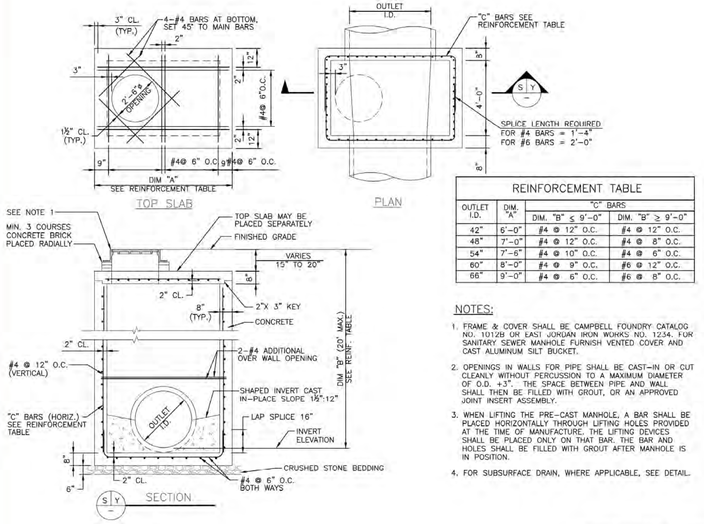
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PROFESSIONAL ENGINEER

SHEET TITLE:

CONSTRUCTION DETAILS

SHEET NUMBER: 12 OF 17

ORG. DATE - 10/28/2025



REINFORCEMENT TABLE			
OUTLET I.D.	DIM. "A"	"C" BARS	
		DIM. "B" ≤ 9'-0"	DIM. "B" > 9'-0"
42"	6'-0"	#4 @ 12" O.C.	#4 @ 12" O.C.
48"	7'-0"	#4 @ 12" O.C.	#4 @ 8" O.C.
54"	7'-6"	#4 @ 10" O.C.	#4 @ 6" O.C.
60"	8'-0"	#4 @ 9" O.C.	#6 @ 12" O.C.
66"	9'-0"	#4 @ 6" O.C.	#6 @ 8" O.C.

NOTES:

1. FRAME & COVER SHALL BE CAMPBELL FOUNDRY CATALOG NO. 1012B OR EAST JORDAN IRON WORKS NO. 1234. FOR SANITARY SEWER MANHOLE FURNISH VENTED COVER AND CAST ALUMINUM SILT BUCKET.
2. OPENINGS IN WALLS FOR PIPE SHALL BE CAST-IN OR CUT CLEANLY WITHOUT PERCUSSION TO A MAXIMUM DIAMETER OF O.D. +3". THE SPACE BETWEEN PIPE AND WALL SHALL THEN BE FILLED WITH GROUT, OR AN APPROVED JOINT INSERT ASSEMBLY.
3. WHEN LIFTING THE PRE-CAST MANHOLE, A BAR SHALL BE PLACED HORIZONTALLY THROUGH LIFTING HOLES PROVIDED AT THE TIME OF MANUFACTURE. THE LIFTING DEVICES SHALL BE PLACED ONLY ON THAT BAR. THE BAR AND HOLES SHALL BE FILLED WITH GROUT AFTER MANHOLE IS IN POSITION.
4. FOR SUBSURFACE DRAIN, WHERE APPLICABLE, SEE DETAIL.

DETAIL REFERENCE:
DETAILS PROVIDED/PREPARED BY OTHERS AND IS FROM THE PORT AUTHORITY OF NY/NJ. REFER TO OUTSIDE NOTES ON SHEET 2.

1 **'A' DETAIL (LAND SIDE)** — NOT TO SCALE — (PORT AUTHORITY STANDARDS)

GENERAL INLET NOTES

1. INLETS SHALL MEET H-25 LOADING.
2. INLETS MAY BE CONSTRUCTED OF BRICK, CONCRETE SOLID, CONCRETE BLOCK OR PRECAST CONCRETE. WALLS SHALL BE 8 INCHES THICK IF BRICK AND 6 INCHES THICK IF CONCRETE. CONCRETE BLOCK OR PRECAST CONCRETE. INLET FOUNDATIONS AND INVERTS SHALL BE CLASS B CONCRETE.
3. CORBELLING OF INLET WALLS WILL BE PERMITTED AT THE RATE OF ½ INCH PER 8 INCHES OF HEIGHT; MAXIMUM CORBEL 6 INCHES PER WALL.
4. EXCEPT FOR INLETS TYPE A AND C, FOUNDATIONS AND INVERTS SHALL BE CONSTRUCTED IN TWO STAGES, AND THE BOTTOM OF THE FOOTINGS SHALL BE 8 INCHES BELOW THE OUTER WALL OF THE LOWEST PIPE IN THE INLET.
5. WHEN THE DEPTH OF AN INLET THAT IS NOT PRECAST EXCEEDS 10 FEET AS MEASURED FROM TOP OF GRATE TO INVERT, WALLS BELOW A DEPTH OF 8 FEET SHALL BE 12 INCHES THICK AND THE DEPTH OF FOUNDATION INCREASED TO 12 INCHES. WHEN ROCK IS ENCOUNTERED, THE DEPTH OF THE FOUNDATIONS SHALL NOT BE INCREASED.
6. INLET FOUNDATIONS WHICH ARE PRECAST SHALL BE PLACED ON A 6 INCH THICK BED OF COMPACTED COARSE AGGREGATE SIZE NO. 57. THE COARSE AGGREGATE SHALL EXTEND 6 INCHES BEYOND THE HORIZONTAL LIMITS OF THE INLET FOUNDATION.
7. CASTINGS FOR PRECAST INLETS SHALL BE ADJUSTED TO GRADE WITH COURSES OF BRICK, AS REQUIRED, 12 INCHES MAXIMUM.
8. WHEN THE DEPTH OF A PRECAST INLET EXCEEDS 10 FEET AS MEASURED FROM TOP OF GRATE TO INVERT, THE FOUNDATION SHALL BE INCREASED TO 12 INCHES. WHEN ROCK IS ENCOUNTERED, THE DEPTH OF THE FOUNDATION SHALL NOT BE INCREASED.
9. MINIMUM WALL REINFORCEMENT FOR PRECAST INLETS TYPES A, B, C, E, D-1, AND B MODIFIED:

DEPTH BELOW TOP OF GRATE	HORIZONTAL REINF.	VERTICAL REINF.	WALL THK.
0' TO 10'-0"	#4 @ 10" C.C.	#4 @ 18" C.C.	6"
10'-1" TO 15'-0"	#4 @ 8" C.C.	#4 @ 18" C.C.	6"
15'-1" TO 20'-0"	#4 @ 6" C.C.	#4 @ 18" C.C.	6"

REINFORCING SHOWN FOR PRECAST INLETS IS THE MINIMUM REQUIRED. ADDITIONAL REINFORCING FOR HANDLING IS THE RESPONSIBILITY OF THE CONTRACTOR.

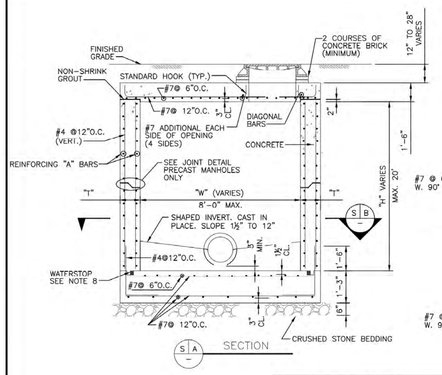
ALTERNATE REINFORCEMENT DEPTH BELOW TOP OF GRATE	
0' TO 10'-0"	WWF 3X6 W6 WIRES SPACED AT 3" TO RUN HORIZONTAL IN ALL CASES.
10'-1" TO 15'-0"	WWF 3X6 W6 ADD #10 BAR @ 18" HORIZONTAL.
15'-1" TO 20'-0"	WWF 3X6 ADD #10 BAR @ 9" HORIZONTAL OR ADD #13 BAR AT 15" HORIZONTAL.

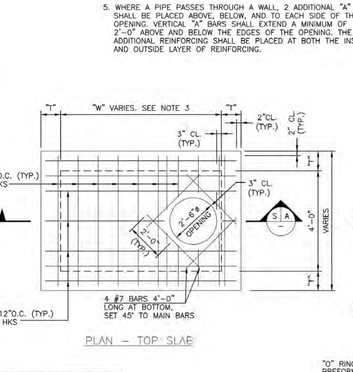
10. ALL INLETS AND MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT NJDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION AND ITS AMENDMENTS.
11. FOR CAST IRON CLASS 30 B ONLY. ANY OTHER CLASS OF CAST IRON OR TYPE OF MATERIAL MUST BE ON THE BUREAU OF MATERIALS APPROVED PRODUCTS LIST OR NEW TECHNOLOGIES AND PRODUCTS APPROVED PRODUCTS LIST.
12. ALL PIPES SHALL EXTEND NO MORE THAN 1 INCH INTO THE STRUCTURE.
13. A 2500 PSI MIN. CONCRETE PIPE FLOW CHANNEL SHALL BE INSTALLED IN THE STRUCTURE BOTTOM, AFTER ALL THE PIPES ARE INSTALLED, OR THE FLOW CHANNELS CAN BE PRECAST WITH THE BASE.
14. INSIDE DIMENSIONS OF STRUCTURES ARE NOMINAL AND ARE SUBJECT TO MODIFICATION BY PRE CASTER AS NECESSARY TO ACCOMMODATE ACTUAL PIPE SIZES AND ALIGNMENT. STRUCTURES LARGER THAN THAT SHOWN SHALL HAVE A SLAB TOP WHICH SHALL MEET THE SAME LOADING REQUIREMENTS AS THE FRAME.

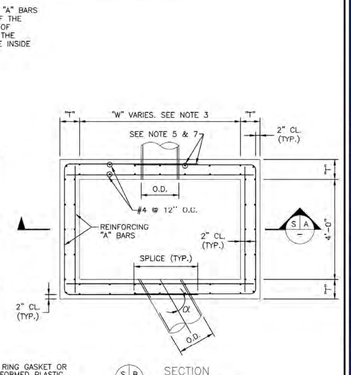
2 **GENERAL INLET NOTES** — NOT TO SCALE — (NJ-U010201 - 07/2023)

NOTES:

1. C.I. FRAME WITH D.I. COVER SHALL BE CAMPBELL NO. 1511 OR EAST JORDAN IRON WORKS NO. 1240. FOR SANITARY MANHOLE FURNISH VENTED COVER AND CAST ALUMINUM SILT BUCKET.
2. ALL MANHOLE COVERS SHALL BE BOLTED TO THE FRAME. FOR MANHOLE COVER SYMBOLS SEE DETAIL.
3. MINIMUM INSIDE WALL DIMENSION "W" SHALL BE DETERMINED BY THE FORMULA $W=(O.D./\sin\Theta)+2'$, BUT IN NO CASE SHALL THE DIMENSION "W" BE LESS THAN 4 FEET NOR MORE THAN 8 FEET: IN THE CASE OF A RECTANGULAR MANHOLE, THE LONGER WALL SHALL BE USED FOR THE DIMENSION "W" FOR THE PURPOSE OF DETERMINING THE REINFORCING STEEL ACCORDING TO THE ACCOMPANYING TABLE.
4. OPENINGS IN THE WALLS FOR PIPE SHALL BE CAST-IN OR CUT CLEANLY WITHOUT PERCUSSION TO A MAXIMUM DIAMETER OF O.D. ±3". THE SPACE BETWEEN PIPE AND WALL SHALL THEN BE FILLED WITH NON-SHRINK GROUT, MORTAR OR APPROVED JOINT INSERT ASSEMBLY.
5. WHERE A PIPE PASSES THROUGH A WALL, 2 ADDITIONAL "A" BARS SHALL BE PLACED ABOVE, BELOW, AND TO EACH SIDE OF THE OPENING. VERTICAL "A" BARS SHALL EXTEND A MINIMUM OF 2'-0" ABOVE AND BELOW THE EDGES OF THE OPENING. THE ADDITIONAL REINFORCING SHALL BE PLACED AT BOTH THE INSIDE AND OUTSIDE LAYER OF REINFORCING.
6. WHEN LIFTING THE PRE-CAST MANHOLE, A BAR SHALL BE PLACED HORIZONTALLY THROUGH THE LIFTING HOLES, PROVIDED AT THE TIME OF MANUFACTURE. THE LIFTING DEVICES SHALL BE PLACED ONLY ON THAT BAR. THE BAR AND HOLES SHALL BE AS APPROVED BY THE ENGINEER. THE LIFTING HOLES SHALL BE FILLED WITH NON-SHRINK GROUT OR MORTAR AFTER THE MANHOLE IS IN POSITION.
7. SPLICE LENGTHS REQUIRED FOR REINFORCING BARS: #4 BAR, 1'-4"; #5 BAR, 1'-8"; #6 BAR, 2'-0"; #7 BAR, 2'-6".
8. JOINT AND WATERSTOP ARE AN OPTION FOR CAST-IN PLACE MANHOLES ONLY. PRECAST MANHOLES SHALL NOT BE JOINTED AT THIS LOCATION.
9. REINFORCING SHALL CONFORM TO ASTM A615, GRADE 60.
10. FOR SUBSURFACE DRAIN, WHERE APPLICABLE, SEE DETAIL.

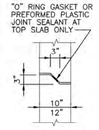






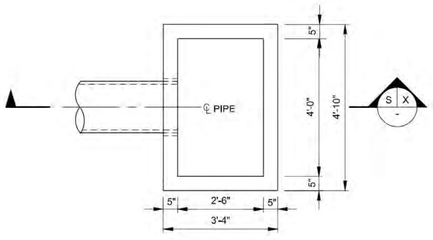
REINFORCING "A" BARS				WALL THICKNESS "T"	
DIMENSION "H"	DIMENSION "W"			PRECAST CONCRETE	CAST-IN PLACE
	4' TO 6'	6' TO 7'	7' TO 8'		
UP TO 10'	#5 @ 12"	#6 @ 12"	#7 @ 12"	10"	10"
10' TO 15'	#5 @ 10"	#6 @ 10"	#7 @ 10"	10"	12"
15' TO 20'	#6 @ 12"	#6 @ 9"	#7 @ 9"	10"	12"

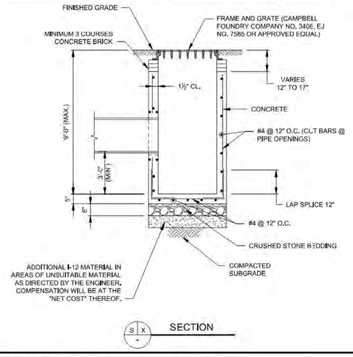
MANHOLE-AIRCRAFT
010.010-A AIRMH



DETAIL REFERENCE:
DETAILS PROVIDED/PREPARED BY OTHERS AND IS FROM THE PORT AUTHORITY OF NY/NJ. REFER TO OUTSIDE NOTES ON SHEET 2.

3 **DETAIL (RAMP AREA ONLY)** — NOT TO SCALE — (PORT AUTHORITY STANDARDS)





CATCH BASIN TYPE II PRECAST NOTE:

OPENINGS IN WALLS FOR PIPE SHALL BE CAST-IN OR CUT CLEANLY WITHOUT PERCUSSION TO MAXIMUM DIAMETER OF PIPE O.D. PLUS THREE (3) INCHES. FILL SPACE BETWEEN PIPE AND WALL WITH HYDRAULIC CEMENT GROUT (NON-SHRINK). MORTAR CEMENT OR AN APPROVED RESILIENT CONNECTORS CONFORMING TO ASTM C923.

DETAIL REFERENCE:
DETAILS PROVIDED/PREPARED BY OTHERS AND IS FROM THE PORT AUTHORITY OF NY/NJ. REFER TO OUTSIDE NOTES ON SHEET 2.

4 **CATCH BASIN TYPE II PRECAST** — NOT TO SCALE — (THE PORT AUTHORITY OF NY & NJ - LAST REV. 04/11/2019)

BOHLER
SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN
PERMITTING SERVICES
TRANSPORTATION SERVICES

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REVISIONS

REV	DATE	COMMENT	DRAWN BY / CHECKED BY

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THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY REVIEW AND APPROVAL. IT IS NOT INTENDED AS A CONSTRUCTION DOCUMENT UNLESS INDICATED OTHERWISE.

PROJECT No.:	NJC240059.00-0E
DRAWN BY:	CTC
CHECKED BY:	BE
DATE:	10/28/2025
CAD I.D.:	P-CIVL-CNDS

PROJECT:

SITE DEVELOPMENT PLANS

FOR

SIGNATURE AVIATION USA, LLC

SIGNATURE AVIATION

PROPOSED EAST SIDE RAMP EXPANSION & HANGAR

TETERBORO AIRPORT
FRED WEHRAN DRIVE
BOROUGH OF TETERBORO
BERGEN COUNTY, NEW JERSEY

BOHLER
BOHLER ENGINEERING NJ, LLC
125 HALF MILE ROAD, SUITE 207
RED BANK, NJ 07701
Phone: (732) 825-6800
www.BohlerEngineering.com
NJ CERT. OF AUTHORIZATION NO. 24GA28161700 & MH000122

J.A. HOLZAPFEL
STATE OF NEW JERSEY — JOSEPH A. HOLZAPFEL — LICENSE NO. GE50735 — PROFESSIONAL ENGINEER
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. GE50735

SHEET TITLE:

CONSTRUCTION DETAILS

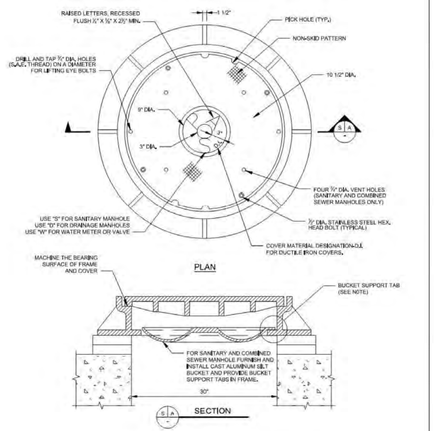
SHEET NUMBER:

13 OF 17

ORG. DATE - 10/28/2025

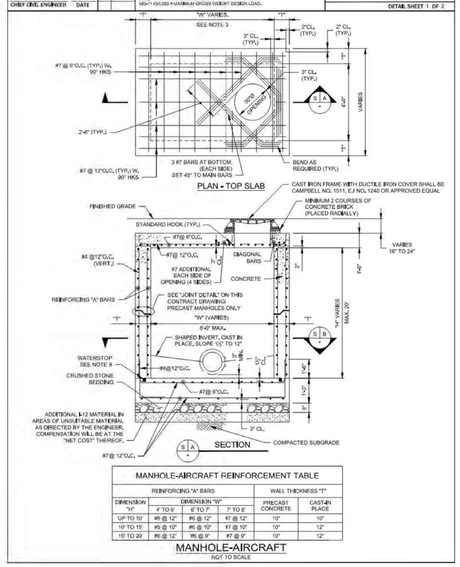
I:\BOHLER\ENG.NET\SHAREENJ-PROJECTS\2024\NJC240059.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVL-CNDS-NJC240059.00-0E-----LAYOUT: C-305 DETL

THE PORT AUTHORITY OF NY & NJ	REVISION NO.	DATE	CIVIL DESIGN TYPICAL DETAILS	TYPICAL DETAIL NO.	011J002
ENGINEERING DEPARTMENT/CIVIL DESIGN SECTION	#6	4/11/19	NOTES FOR DESIGNER: FOR USE WITH AIRCRAFT MANHOLE DETAIL.	TITLE:	**MANHOLE FRAME AND COVER-AIRCRAFT TYPE**
DATE CREATED: 01/02/1985				DETAIL SHEET 1 OF 1	
APPROVED BY: 06/20/2019					
CHIEF CIVIL ENGINEER DATE					



MANHOLE FRAME AND COVER-AIRCRAFT TYPE
NOT TO SCALE

THE PORT AUTHORITY OF NY & NJ	REVISION NO.	DATE	CIVIL DESIGN TYPICAL DETAILS	TYPICAL DETAIL NO.	010J010-A
ENGINEERING DEPARTMENT/CIVIL DESIGN SECTION	#6	4/11/19	NOTES FOR DESIGNER: AIRBUS A380-800F 1,300,125 # MAXIMUM BOEING 747-400F 970,000 # MAXIMUM BOEING 747-400 ER 970,000 # MAXIMUM BOEING 747-8 978,000 # MAXIMUM BOEING 777-200LR 766,000 # MAXIMUM BOEING 777-300ER 780,000 # MAXIMUM MD-11 630,000 # MAXIMUM GROSS WEIGHT DESIGN LOAD.	TITLE:	**MANHOLE - AIRCRAFT**
DATE CREATED: 01/02/1985				DETAIL SHEET 1 OF 2	
APPROVED BY: 06/20/2019					
CHIEF CIVIL ENGINEER DATE					

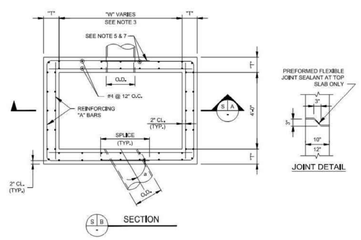


MANHOLE-AIRCRAFT
NOT TO SCALE

MANHOLE-AIRCRAFT REINFORCEMENT TABLE

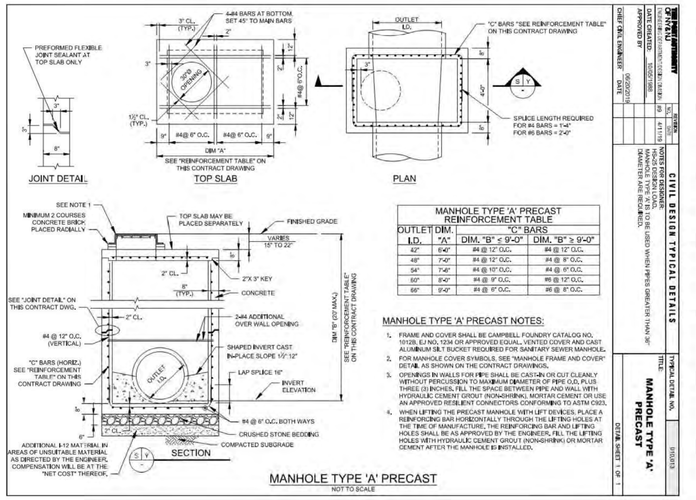
REINFORCING "A" BARS			WALL THICKNESS "T"	
DIMENSION "H"	DIMENSION "W"		PRECAST CONCRETE	CAST-IN PLACE
"H"	4'-0" TO 6'	6' TO 7'	7' TO 8'	
12" TO 15"	#5 @ 12"	#6 @ 12"	#7 @ 12"	10"	10"
15" TO 19"	#5 @ 10"	#6 @ 10"	#7 @ 10"	10"	12"
19" TO 29"	#6 @ 12"	#6 @ 9"	#7 @ 9"	10"	12"

THE PORT AUTHORITY OF NY & NJ	REVISION NO.	DATE	CIVIL DESIGN TYPICAL DETAILS	TYPICAL DETAIL NO.	010J010-B
ENGINEERING DEPARTMENT/CIVIL DESIGN SECTION	#10	4/11/19	NOTES FOR DESIGNER: AIRBUS A380-800F 1,300,125 # MAXIMUM BOEING 747-400F 970,000 # MAXIMUM BOEING 747-400 ER 970,000 # MAXIMUM BOEING 747-8 978,000 # MAXIMUM BOEING 777-200LR 766,000 # MAXIMUM BOEING 777-300ER 780,000 # MAXIMUM MD-11 630,000 # MAXIMUM GROSS WEIGHT DESIGN LOAD. CHECK 8" VAPOR TIGHT THAT IS REQUIRED, SEE CURVED BARS.	TITLE:	**MANHOLE - AIRCRAFT**
DATE CREATED: 01/02/1985				DETAIL SHEET 2 OF 2	
APPROVED BY: 06/20/2019					
CHIEF CIVIL ENGINEER DATE					



MANHOLE-AIRCRAFT NOTES:

1. BOLT ALL MANHOLE COVERS TO THE FRAME, FOR MANHOLE COVER SYMBOLS, SEE "MANHOLE FRAME AND COVER-AIRCRAFT TYPE" DETAIL AS SHOWN ON THE CONTRACT DRAWINGS.
2. DETERMINE MINIMUM INSIDE WALL DIMENSION "W" BY THE FORMULA
   W=(O.D./SIN θ) + 2", BUT IN NO CASE SHALL THE DIMENSION "W" BE LESS THAN 4 FEET NOR MORE THAN 5 FEET. IN THE CASE OF A RECTANGULAR MANHOLE, USE THE LONGER WALL FOR THE DIMENSION "W" FOR THE PURPOSE OF DETERMINING THE REINFORCING STEEL ACCORDING TO THE "MANHOLE-AIRCRAFT REINFORCEMENT TABLE".
3. OPENINGS IN THE WALLS FOR PIPE SHALL BE CAST-IN OR CUT CLEANLY WITHOUT PERCUSSION TO A MAXIMUM DIAMETER OF PIPE O.D. PLUS THREE (3) INCHES. FILL THE SPACE BETWEEN PIPE AND WALL WITH HYDRAULIC CEMENT GROUT (NONSHRINK). MORTAR CEMENT OR USE AN APPROVED RESILIENT CONNECTORS CONFORMING TO ASTM C923.
4. WHERE A PIPE PASSES THROUGH A WALL, IN ADDITION TO THE REINFORCING INDICATED IN THE "REINFORCEMENT TABLE", PLACE 2 "A" BARS ABOVE, BELOW, AND TO EACH SIDE OF THE OPENING, VERTICAL "A" BARS SHALL EXTEND A MINIMUM OF 2'-0" ABOVE AND BELOW THE EDGES OF THE OPENING. THE ADDITIONAL REINFORCING SHALL BE PLACED AT BOTH THE INSIDE AND OUTSIDE LAYER OF REINFORCING.
5. WHEN LIFTING THE PRECAST MANHOLE WITH LIFT DEVICES, PLACE A REINFORCING BAR HORIZONTALLY THROUGH THE LIFTING HOLES AT THE TIME OF MANUFACTURE, THE REINFORCING BAR AND LIFTING HOLES SHALL BE AS APPROVED BY THE ENGINEER, FILL THE LIFTING HOLES WITH HYDRAULIC CEMENT GROUT (NONSHRINK) OR MORTAR CEMENT AFTER THE MANHOLE IS INSTALLED.
6. SPLICE LENGTHS REQUIRED FOR REINFORCING BARS:
   #4 BAR, 1'-4"; #5 BAR, 1'-6"; #6 BAR, 2'-0"; #7 BAR, 2'-6".
7. JOINT AND WATERSTOP ARE ACCEPTABLE FOR CASTIN PLACE MANHOLES ONLY, PRECAST MANHOLES SHALL NOT BE JOINTED AT THIS LOCATION, WATERSTOP SHALL BE SWELLSEAL JOINT AS MANUFACTURED BY DENSEP CONSTRUCTION CHEMICALS, INC. OF WALLER TEXAS, HYDROLITE CJ-1020 AS MANUFACTURED BY MITSUBISHI INTERNATIONAL CORPORATION USA OR APPROVED EQUAL.
8. ALL HOOKS SHALL BE STANDARD 90 DEGREES UNLESS OTHERWISE NOTED.
9. ALL REINFORCING BARS SHALL BE EPOXY COATED.
10. DEVELOPMENT LENGTH AND SPLICES OF BAR REINFORCEMENT SHALL CONFORM TO CLASS B, UNLESS OTHERWISE NOTED.



MANHOLE TYPE 'A' PRECAST
NOT TO SCALE

MANHOLE TYPE 'A' PRECAST REINFORCEMENT TABLE

OUTLET I.D.	DIM. "C" BARS "A"	DIM. "B" ≤ 9'-0"	DIM. "B" > 9'-0"
42"	6'-0"	#4 @ 12" O.C.	#4 @ 12" O.C.
48"	6'-6"	#4 @ 12" O.C.	#4 @ 8" O.C.
54"	7'-0"	#4 @ 10" O.C.	#4 @ 8" O.C.
60"	8'-0"	#4 @ 9" O.C.	#6 @ 12" O.C.
66"	9'-0"	#4 @ 8" O.C.	#6 @ 8" O.C.

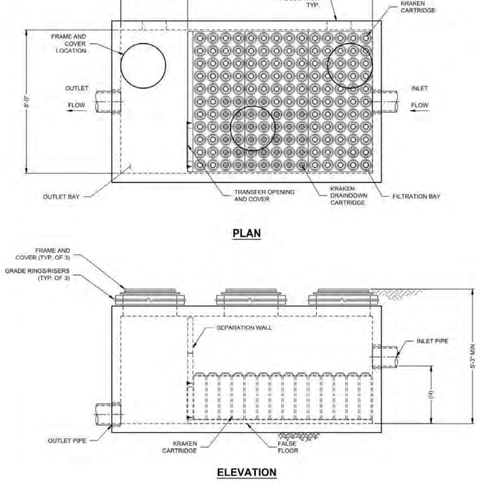
MANHOLE TYPE 'A' PRECAST NOTES:

1. FRAME AND COVER SHALL BE CAMPBELL FOUNDRY CATALOG NO. 1012B, E.J NO. 1234 OR APPROVED EQUAL, VENTED COVER AND CAST ALUMINUM SILT BUCKET REQUIRED FOR SANITARY SEWER MANHOLE.
2. FOR MANHOLE COVER SYMBOLS, SEE "MANHOLE FRAME AND COVER" DETAIL AS SHOWN ON THE CONTRACT DRAWINGS.
3. OPENINGS IN WALLS FOR PIPE SHALL BE CAST-IN OR CUT CLEANLY WITHOUT PERCUSSION TO MAXIMUM DIAMETER OF PIPE O.D. PLUS THREE (3) INCHES, FILL THE SPACE BETWEEN PIPE AND WALL WITH HYDRAULIC CEMENT GROUT (NONSHRINK), MORTAR CEMENT OR USE AN APPROVED RESILIENT CONNECTORS CONFORMING TO ASTM C923.
4. WHEN LIFTING THE PRECAST MANHOLE WITH LIFT DEVICES, PLACE A REINFORCING BAR HORIZONTALLY THROUGH THE LIFTING HOLES AT THE TIME OF MANUFACTURE, THE REINFORCING BAR AND LIFTING HOLES SHALL BE AS APPROVED BY THE ENGINEER, FILL THE LIFTING HOLES WITH HYDRAULIC CEMENT GROUT (NONSHRINK) OR MORTAR CEMENT AFTER THE MANHOLE IS INSTALLED.

CHIEF CIVIL ENGINEER	DATE	REVISIONS	NO.	BY
	06/20/2019	UPDATED TO CURRENT STANDARDS	10	CTC
	04/11/2019	REVISED PER CURRENT STANDARDS	9	CTC

THE PORT AUTHORITY OF NY & NJ
CIVIL DESIGN TYPICAL DETAILS
TYPICAL DETAIL NO. 010J010
TITLE: MANHOLE TYPE 'A' PRECAST
DIVISION
DETAIL SHEET 1 OF 1

KRAKEN FILTER DESIGN NOTES			
• KRAKEN FILTER TREATMENT CAPACITY VARIES BY CARTRIDGE COUNT AND LOCALLY APPROVED SURFACE AREA SPECIFIC FLOW RATE. PEAK CONVEYANCE CAPACITY TO BE DETERMINED BY ENGINEER OF RECORD • A 8' x 14' OFFLINE STYLE KRAKEN FILTER (KFOV0814) IS SHOWN WITH THE MAXIMUM NUMBER OF CARTRIDGES (154) • ALL PARTS AND INTERNAL ASSEMBLY PROVIDED BY CONTECH UNLESS NOTED OTHERWISE			
CARTRIDGE HEIGHT	30"	20"	10"
RECOMMENDED HYDRAULIC DROP (H):	38.5"	28.5"	18.5"
SPECIFIC FLOW RATE (gpm/sf)	0.10	0.10	0.10
CARTRIDGE FLOW RATE (gpm)	17	10.6	4.9



FRAME AND GRATE
(SIZE MAY VARY)
(NOT TO SCALE)

FRAME AND COVER
(DIAMETER MAY VARY)
(NOT TO SCALE)

SITE SPECIFIC DATA REQUIREMENTS			
STRUCTURE ID			*
WATER QUALITY FLOW RATE (cfs)			*
PEAK FLOW RATE (cfs)			*
RETURN PERIOD OF PEAK FLOW (yrs)			*
CARTRIDGE HEIGHT (SEE TABLE ABOVE)			*
# OF CARTRIDGES REQUIRED			*
PIPE DATA:	I.E.	MATERIAL	DIAMETER
INLET PIPE	*	*	*
OUTLET PIPE	*	*	*
UPSTREAM RIM ELEVATION			*
DOWNSTREAM RIM ELEVATION			*
ANTI-FLOTATION BALLAST		WIDTH	HEIGHT
		*	*
NOTES/SPECIAL REQUIREMENTS: *			
* PER ENGINEER OF RECORD *			

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
3. ALTERNATE DIMENSIONS ARE IN MILLIMETERS [mm] UNLESS NOTED OTHERWISE.
4. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH REPRESENTATIVE: www.ContechES.com
5. KRAKEN FILTER WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
6. STRUCTURE SHALL MEET AASHTO H20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 8.75' AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO.

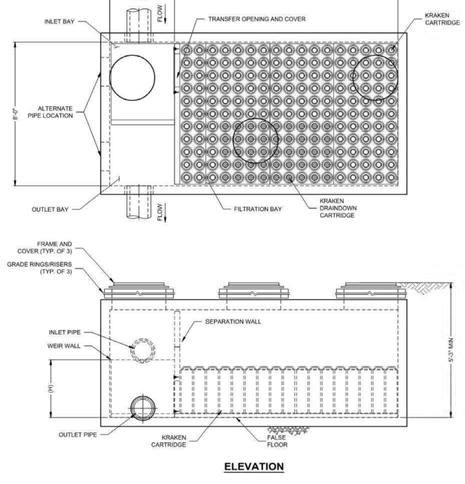
INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE KRAKEN FILTER STRUCTURE.
C. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL SECTIONS AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH OUTLET PIPE INVERT WITH OUTLET BAY FLOOR.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT CARTRIDGES FROM CONSTRUCTION-RELATED EROSION RUNOFF.

THE KRAKEN

CONTECH ENGINEERED SOLUTIONS LLC
9100 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

HIGH CAPACITY (HC) KRAKEN FILTER
8' x 14' OFFLINE KRAKEN FILTER
STANDARD DETAIL

KRAKEN FILTER DESIGN NOTES			
• KRAKEN FILTER TREATMENT CAPACITY VARIES BY CARTRIDGE COUNT AND LOCALLY APPROVED SURFACE AREA SPECIFIC FLOW RATE. PEAK CONVEYANCE CAPACITY TO BE DETERMINED BY ENGINEER OF RECORD • A 8' x 16' PEAK DIVERSION STYLE KRAKEN FILTER (KFPD0816) IS SHOWN WITH THE MAXIMUM NUMBER OF CARTRIDGES (187) AND IS AVAILABLE IN • A LEFT INLET (AS SHOWN) OR A RIGHT INLET CONFIGURATION • ALL PARTS AND INTERNAL ASSEMBLY PROVIDED BY CONTECH UNLESS NOTED OTHERWISE			
CARTRIDGE HEIGHT	30"	20"	10"
RECOMMENDED HYDRAULIC DROP (H)	38.5"	28.5"	18.5"
SPECIFIC FLOW RATE (gpm/sf)	0.10	0.10	0.10
CARTRIDGE FLOW RATE (gpm)	17	10.6	4.9





FRAME AND GRATE
(SIZE MAY VARY)
(NOT TO SCALE)



FRAME AND COVER
(DIAMETER MAY VARY)
(NOT TO SCALE)

SITE SPECIFIC DATA REQUIREMENTS			
STRUCTURE ID			*
WATER QUALITY FLOW RATE (cfs)			*
PEAK FLOW RATE (cfs)			*
RETURN PERIOD OF PEAK FLOW (yrs)			*
CARTRIDGE HEIGHT (SEE TABLE ABOVE)			*
# OF CARTRIDGES REQUIRED			*
PIPE DATA:	I.E.	MATERIAL	DIAMETER
INLET PIPE	*	*	*
OUTLET PIPE	*	*	*
UPSTREAM RIM ELEVATION			*
DOWNSTREAM RIM ELEVATION			*
ANTI-FLOTATION BALLAST		WIDTH	HEIGHT
		*	*
NOTES/SPECIAL REQUIREMENTS: *			
* PER ENGINEER OF RECORD *			

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
3. ALTERNATE DIMENSIONS ARE IN MILLIMETERS [mm] UNLESS NOTED OTHERWISE.
4. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH REPRESENTATIVE: www.ContechES.com
5. KRAKEN FILTER WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
6. STRUCTURE SHALL MEET AASHTO H20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 10' AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO.

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE KRAKEN FILTER STRUCTURE.
C. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL SECTIONS AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH OUTLET PIPE INVERT WITH OUTLET BAY FLOOR.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT CARTRIDGES FROM CONSTRUCTION-RELATED EROSION RUNOFF.
F. CONTRACTOR TO REMOVE THE TRANSFER OPENING COVER WHEN THE SYSTEM IS ACTIVATED.

THE KRAKEN

CONTECH ENGINEERED SOLUTIONS LLC
9100 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

HIGH CAPACITY (HC) KRAKEN FILTER
8' x 16' PEAK DIVERSION KRAKEN FILTER
STANDARD DETAIL

DETAIL REFERENCE:
DETAILS PROVIDED/PREPARED BY OTHERS AND IS FROM CONTECH ENGINEERED SOLUTIONS LLC. REFER TO OUTSIDE NOTES ON SHEET 2.

KRAKEN FILTER DETAILS AND SPECIFICATIONS
NOT TO SCALE

(CONTECH)

1

BOHLER
SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
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PLANNING SERVICES
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PROJECT No.: NJC240059.00-0E
DRAWN BY: CTC
CHECKED BY: BE
DATE: 10/28/2025
CAD I.D.: P-CIVL-CNDS

PROJECT:

SITE DEVELOPMENT PLANS

FOR

SIGNATURE AVIATION USA, LLC

SIGNATURE AVIATION

PROPOSED EAST SIDE RAMP EXPANSION & HANGAR

TETERBORO AIRPORT
FRED WEHRAN DRIVE
BOROUGH OF TETERBORO
BERGEN COUNTY, NEW JERSEY

BOHLER
BOHLER ENGINEERING NJ, LLC
125 HALF MILE ROAD, SUITE 207
RED BANK, NJ 07701
Phone: (732) 825-6800
www.BohlerEngineering.com
NJ CERT. OF AUTHORIZATION NO. 24GA28161700 & MH000122

STATE OF NEW JERSEY
J.A. HOLZAPFEL
LICENSED
NO. GE50735
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. 37500

SHEET TITLE:

CONSTRUCTION DETAILS

SHEET NUMBER:

14
OF 17

ORG. DATE - 10/28/2025

I:\BOHLER\ENG NET\SHARE\ENJ-PROJECTS\2024\NJC240059.00\CAD\[DRAWINGS]PLAN SET\CIVIL SITE PLANS\P-CIVL-CNDS-NJC240059.00-0E-----A1LAYOUT C-905 DETL

STRUCTURAL DESIGN LOADING CRITERIA

LIVE LOADING: AASHTO HS-20 HIGHWAY LOADING
ADDITIONAL LOADING: AIRCRAFT
GROUND WATER TABLE: BELOW INVERT OF SYSTEM
SOIL BEARING PRESSURE: 3000PSF
SOIL DENSITY: 135 PCF
EQUIVALENT UNSATURATED
LATERAL ACTIVE EARTH PRESSURE: 40 PSF / FT.
EQUIVALENT SATURATED
LATERAL ACTIVE EARTH PRESSURE: N/A PSF/FT. (IF WATER TABLE PRESENT)
APPLICABLE CODES: ASTM C857
ACI-318
BACKFILL TYPE: SEE SHEET 4.0 FOR BACKFILL OPTIONS

STORMTRAP SYSTEM INFORMATION

UNIT HEADROOM:	3'-0" SINGLETRAP
TOTAL STORAGE PROV:	102,602.57 CUBIC FEET

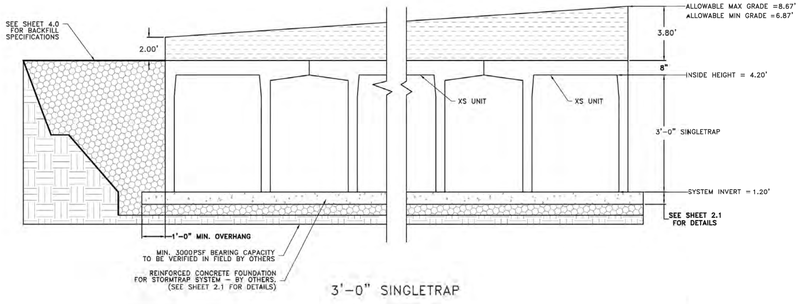
	GLOBAL 7500
AIRCRAFT DESIGN WEIGHT	110,000 LBS.
PERCENT ON MAIN GEARS	100%
NUMBER OF MAIN GEARS	2
WHEELS PER MAIN GEAR	2
MAIN GEAR WHEEL LDG.	27,500 LBS.
WHEEL CONTACT AREA	16.5in x 10in
ADDITIONAL LOADING	SURCHARGE
LATERAL SURCHARGE	700 PSF

AIRCRAFT LOADING GENERAL NOTES:

1. THE MAXIMUM VEHICLE WEIGHT OF THE GLOBAL 7500 AIRCRAFT CONSIDERED HEREIN SHALL NOT EXCEED 110,000 LBS. THE CALCULATIONS HERE CONSIDER 100% OF THIS WEIGHT TO BE DISTRIBUTED EQUALLY TO THE (2) MAIN GEARS; THE LOAD ON EACH MAIN GEAR IS DISTRIBUTED EQUALLY TO (2) WHEELS PER MAIN GEAR, IN TURN, THE MAXIMUM WHEEL LOAD SHALL NOT EXCEED 27,500 LBS.
2. THE AREA OF EACH MAIN GEAR WHEEL TIRE TAKEN TO BE IN CONTACT WITH THE GROUND SURFACE IS 16.5 IN X 10 IN.
3. THE MAIN GEAR CENTER-TO-CENTER SPACING CONSIDERED HERE IS 14 FT 5 IN. THE CENTER-TO-CENTERER SPACING OF EACH MAIN GEAR WHEEL PAIR CONSIDERED HERE IS 30 IN.
4. WHEEL LOADS ARE DISTRIBUTED OVER A PROJECTED AREA WHICH INCREASES WITH DEPTH OF OVERHEAD SOIL COVER OR PAVEMENT. THIS PROJECTED AREA IS DEFINED BY ASTM C857. THE DISTRIBUTED WHEEL LOAD AND PROJECTED AREA HAVE BEEN CONSIDERED IN THE ROOF SLAB DESIGN.
5. AN IMPACT LOAD FACTOR EQUAL TO 1.0 HAS BEEN CONSIDERED IN THE ROOF SLAB DESIGN.
6. THE SYSTEM HAS NOT BEEN DESIGNED TO SUPPORT ANY LATERAL THRUST OR HORIZONTAL LOADING RESULTING FROM AIRCRAFT MOVEMENT OR ACCELERATION. AIRCRAFT SHALL NOT TAKE OFF OR LAND ON TOP OF THE SYSTEM.
7. UNITS SUPPORTING MANHOLES SHALL BE DESIGNED TO SUPPORT AN EQUIVALENT POINT LOAD EQUIVALENT TO A SINGLE AIRCRAFT TIRE (27,500 LBS) WHICH IS TRANSFERRED TO THE MODULE VIA THE MANHOLE RISER.
8. THE SOIL DENSITY CONSIDERED IN THIS DESIGN SHALL NOT EXCEED 135PCF.
9. THE DESIGN OWE CONSIDERED HERE IS LOCATED BELOW THE SYSTEM INVERT.
10. THE SYSTEM HAS BEEN DESIGNED FOR GRANULAR BACKFILL WITH A CORRESPONDING UNSATURATED ACTIVE LATERAL EARTH PRESSURE OF 40PSF.
11. LATERAL SURCHARGE LOADS ASSOCIATED WITH THE GLOBAL 7500 SHALL NOT EXCEED 700PSF. EOR TO VERIFY.
12. THE STORMTRAP SYSTEM SHALL NOT BE SUBJECTED TO LOADS FROM THE HANGAR, OTHER NEARBY STRUCTURES, OR ANY OTHER ITEMS NOT EXPLICITLY LISTED IN THE NOTES AND DESIGN CRITERIA ABOVE.

SITE SPECIFIC DESIGN CRITERIA

1. STORMTRAP UNITS SHALL BE MANUFACTURED AND INSTALLED ACCORDING TO SHOP DRAWINGS APPROVED BY THE INSTALLING CONTRACTOR AND ENGINEER OF RECORD. THE SHOP DRAWINGS SHALL INDICATE SIZE AND LOCATION OF ROOF OPENINGS AND INLET/ OUTLET PIPE TYPES, SIZES, INVERT ELEVATIONS AND SIZE OF OPENINGS.
2. COVER RANGE: MIN. 2.00" MAX. 3.80" CONSULT STORMTRAP FOR ADDITIONAL COVER OPTIONS.
3. ALL DIMENSIONS AND SOIL CONDITIONS, INCLUDING BUT NOT LIMITED TO GROUNDWATER AND SOIL BEARING CAPACITY ARE REQUIRED TO BE VERIFIED IN THE FIELD BY OTHERS PRIOR TO STORMTRAP INSTALLATION.
4. FOR STRUCTURAL CALCULATIONS THE GROUND WATER TABLE IS ASSUMED TO BE BELOW INVERT OF SYSTEM IF WATER TABLE IS DIFFERENT THAN ASSUMED, CONTACT STORMTRAP.
5. SYSTEM DESIGN MAY ALLOW FOR INCIDENTAL LEAKAGE AND WILL NOT BE SUBJECT TO LEAKAGE TESTING.



3'-0" SINGLETRAP

StormTrap
PATENTS LISTED AT: [HTTP://STORMTRAP.COM/PATENT]
1287 WINDHAM PARKWAY
ROMEOVILLE, IL 60446
P:815-941-4549 / F:331-318-5347

ENGINEER INFORMATION:
Bohler Engineering
30 Independence Blvd
Suite 200
Warren, NJ
908-668-8300

PROJECT INFORMATION:
Signature Flight Support
100-Yr Future Storage
Teterboro, NJ

CURRENT ISSUE DATE:
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REV.	DATE:	ISSUED FOR:	DWN BY:
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SCALE:
NTS

SHEET TITLE:
SINGLETRAP DESIGN CRITERIA

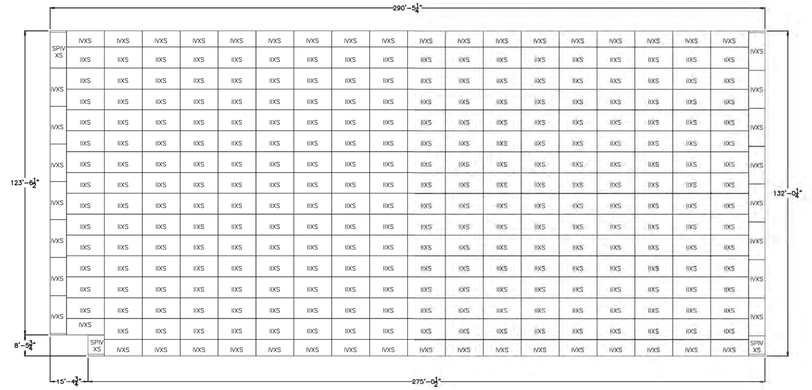
SHEET NUMBER:
1.1

BILL OF MATERIALS

QTY.	UNIT TYPE	DESCRIPTION	WEIGHT
0	I	3'-0" SINGLETRAP	--
251	IIXS	3'-0" SINGLETRAP	18112
0	III	3'-0" SINGLETRAP	--
51	IVXS	3'-0" SINGLETRAP	15728
0	VII	3'-0" SINGLETRAP	--
0	VII-1	3'-0" SINGLETRAP	--
0	VII-2	3'-0" SINGLETRAP	--
0	VII-3	3'-0" SINGLETRAP	--
0	VII-4	3'-0" SINGLETRAP	--
0	SPIII	3'-0" SINGLETRAP	VARIES
3	SPIVXS	3'-0" SINGLETRAP	VARIES
0	T2 PANEL	6" THICK PANEL	--
5	T4 PANEL	8" THICK PANEL	2319
0	T7 PANEL	6" THICK PANEL	--
55	JOINTWRAP	150' PER ROLL	
72	JOINTTAPE	14.5' PER ROLL	
	TOTAL PIECES = 305		
	TOTAL PANELS = 5		
	HEAVIEST PICK WEIGHT = 18,112		

DESIGN CRITERIA
ALLOWABLE MAX GRADE = 8.67"
ALLOWABLE MIN GRADE = 6.87"
INSIDE HEIGHT ELEVATION = 4.20'
SYSTEM INVERT = 1.20'

NOTES:
1. DIMENSIONING OF STORMTRAP SYSTEM SHOWN BELOW ALLOW FOR A 3/4" GAP BETWEEN EACH MODULE.
2. ALL DIMENSIONS TO BE VERIFIED IN THE FIELD BY OTHERS.
3. SEE SHEET 3.0 FOR INSTALLATION SPECIFICATIONS.
4. SP - INDICATES A MODULE WITH MODIFICATIONS.
5. P - INDICATES A MODULE WITH A PANEL ATTACHMENT.
6. CONTRACTORS RESPONSIBILITY TO ENSURE CONSISTENCY/ACCURACY TO FINAL ENGINEER OF RECORD PLAN SET.
7. IN ORDER FOR STORMTRAP TO GENERATE APPROVAL DRAWINGS, CIVIL ENGINEERING DRAWINGS MUST BE PROVIDED TO STORMTRAP AND SHALL INCLUDE ALL PIPE SIZES, PIPE MATERIAL, PIPE INVERT ELEVATIONS, ACCESS OPENING SIZE AND SHAPE. IN ADDITION, FINAL GRADING PLANS SHALL ALSO INCLUDE MINIMUM AND MAXIMUM GRADES OVER THE TOP OF THE STORMTRAP SYSTEM.



StormTrap
PATENTS LISTED AT: [HTTP://STORMTRAP.COM/PATENT]
1287 WINDHAM PARKWAY
ROMEOVILLE, IL 60446
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ENGINEER INFORMATION:
Bohler Engineering
30 Independence Blvd
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Warren, NJ
908-668-8300

PROJECT INFORMATION:
Signature Flight Support
100-Yr Future Storage
Teterboro, NJ

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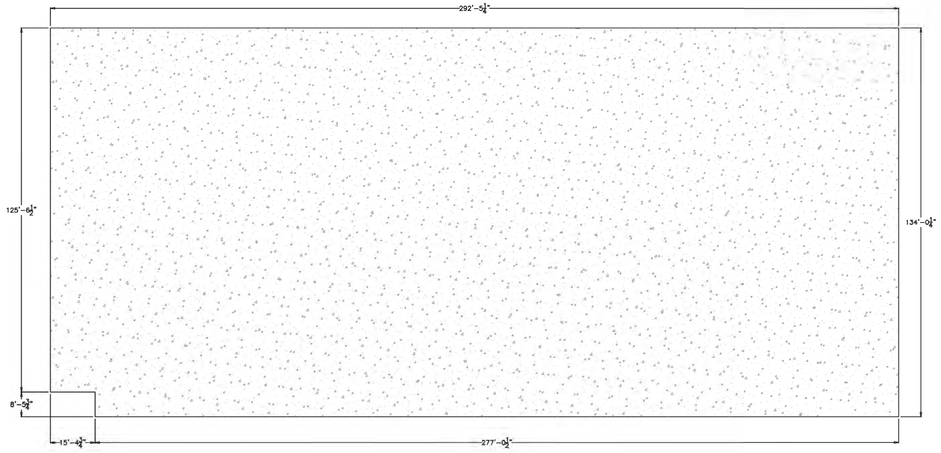
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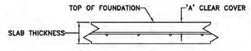
SCALE:
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SHEET TITLE:
SINGLETRAP SYSTEM LAYOUT

SHEET NUMBER:
2.0



CONCRETE FOUNDATION NOTES:
1. CONCRETE FOUNDATION TO BE SUPPLIED AND INSTALLED BY OTHERS.
2. CONCRETE STRENGTH @ 28 DAYS, 5%-8% ENTRAINED AIR, 3"-5" MAX SLUMP.
3. NET ALLOWABLE SOIL PRESSURE AS INDICATED ON SHEET 1.1
4. SOIL CONDITIONS TO BE VERIFIED ON SITE BY OTHERS.
5. REBAR: ASTM A615 GRADE 60, BLACK BAR.
6. DIMENSION OF FOUNDATION MUST HAVE 1'-0" OVERHANG BEYOND EXTERNAL FACE OF MODULE.
7. DIMENSION OF STORMTRAP SYSTEM ALLOW FOR A 3/4" GAP BETWEEN EACH MODULE.
8. ALL DIMENSIONS TO BE VERIFIED IN THE FIELD BY OTHERS.
9. SEE SHEET 3.0 FOR INSTALLATION SPECIFICATIONS.



STORMTRAP FOUNDATION DETAIL

HS-20 & AIRCRAFT LOADING - (ACI 318, ST2)				
MAXIMUM SYSTEM COVER	SLAB THICKNESS	CONCRETE STRENGTH	REINFORCEMENT (BOTH DIRECTIONS)	"A" CLEAR COVER
3'-1" - 4'-0"	8"	4500 PSI	#5 @ 12" O.C.	3.375"

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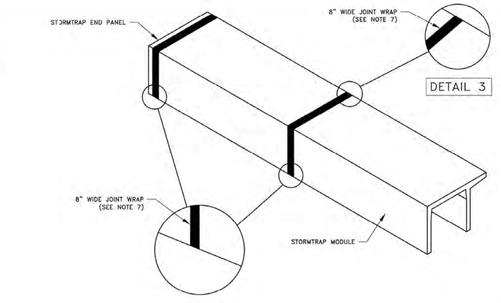
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SHEET TITLE:
SINGLETRAP FOUNDATION LAYOUT

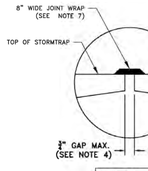
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STORMTRAP INSTALLATION SPECIFICATION

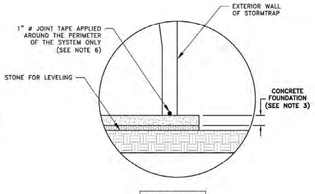
1. STORMTRAP SHALL BE INSTALLED IN ACCORDANCE WITH ASTM C891 (STANDARD PRACTICE FOR INSTALLATION OF UNDERGROUND PRECAST CONCRETE UTILITY STRUCTURES). THE FOLLOWING ADDITIONS AND/OR EXCEPTIONS ARE PROVIDED FOR EMPHASIS. THE MENTION OF THESE ITEMS DOES NOT PRECLUDE THE INSTALLING CONTRACTOR FROM FOLLOWING ASTM C891 IN ITS ENTIRETY AND IMPLEMENTING ALL APPROPRIATE MEASURES. THE INSTALLING CONTRACTOR OWNS AND IS RESPONSIBLE FOR THE STORMTRAP SYSTEM UPON REMOVAL OF THE MODULES FROM THE DELIVERY TRUCK THROUGH 'FINAL CONSTRUCTION'. FINAL CONSTRUCTION IS ACHIEVED WHEN ALL MODULES ARE SET, FULLY BACKFILLED, AND WHEN FINAL FINISHED GRADES ARE REACHED. THE CONTRACTOR IS RESPONSIBLE FOR ANY COUNTERMEASURES NECESSARY TO RESIST UPLIFT/BUOYANCY BEFORE 'FINAL CONSTRUCTION' IS ACHIEVED.
2. IT IS THE RESPONSIBILITY OF THE INSTALLING CONTRACTOR TO ENSURE THAT PROPER/ADEQUATE EQUIPMENT IS USED TO SET/INSTALL THE MODULES.
3. STORMTRAP MODULES SHALL BE PLACED ON A LEVEL CONCRETE FOUNDATION (SEE SHEET 2.1) WITH A 1'-0" OVERHANG ON ALL SIDES THAT SHALL BE POURED IN PLACE BY INSTALLING CONTRACTOR. A QUALIFIED GEOTECHNICAL ENGINEER WILL BE EMPLOYED, BY OWNER, TO PROVIDE ASSISTANCE IN EVALUATING THE EXISTING SOIL CONDITIONS TO ENSURE THAT THE SOIL BEARING PRESSURE MEETS OR EXCEEDS THE STRUCTURAL DESIGN LOADING CRITERIA AS SPECIFIED ON SHEET 1.1.
4. THE STORMTRAP MODULES SHALL BE PLACED SUCH THAT THE MAXIMUM SPACE BETWEEN ADJACENT MODULES DOES NOT EXCEED 3" (SEE DETAIL 2). IF THE SPACE EXCEEDS 3", THE MODULES SHALL BE RESET WITH APPROPRIATE ADJUSTMENT MADE TO LINE AND GRADE TO BRING THE SPACE INTO SPECIFICATION.
5. STORMTRAP MODULES ARE NOT WATERTIGHT.
6. THE PERIMETER HORIZONTAL JOINT BETWEEN THE STORMTRAP MODULES AND THE CONCRETE FOUNDATION SHALL BE SEALED TO THE FOUNDATION WITH PRE-FORMED MASTIC JOINT SEALER ACCORDING TO ASTM C891, 8.8 AND 8.12 (SEE DETAIL 1). THE MASTIC JOINT TAPE DOES NOT PROVIDE A WATERTIGHT SEAL.
7. ALL EXTERIOR ROOF AND EXTERIOR VERTICAL WALL JOINTS BETWEEN ADJACENT STORMTRAP MODULES SHALL BE SEALED WITH 8" WIDE PRE-FORMED, COLD-APPLIED, SELF-ADHERING ELASTOMERIC RESIN, BONDED TO A WOVEN , HIGHLY PUNCTURE RESISTANT POLYMER WRAP, CONFORMING TO ASTM C891 AND SHALL BE INTEGRATED WITH PRIMER SEALANT AS APPROVED BY STORMTRAP (SEE DETAILS 2, 3, & 4). THE JOINT WRAP DOES NOT PROVIDE A WATERTIGHT SEAL. THE SOLE PURPOSE OF THE JOINT WRAP IS TO PROVIDE A SILT AND SOIL TIGHT SYSTEM. THE ADHESIVE EXTERIOR JOINT WRAP SHALL BE INSTALLED ACCORDING TO THE FOLLOWING INSTALLATION INSTRUCTIONS:
   7.1. USE A BRUSH OR WET CLOTH TO THOROUGHLY CLEAN THE OUTSIDE SURFACE AT THE POINT WHERE JOINT WRAP IS TO BE APPLIED.
   7.2. A RELEASE PAPER PROTECTS THE ADHESIVE SIDE OF THE JOINT WRAP. PLACE THE ADHESIVE TAPE (ADHESIVE SIDE DOWN) AROUND THE STRUCTURE, REMOVING THE RELEASE PAPER AS YOU GO. PRESS THE JOINT WRAP FIRMLY AGAINST THE STORMTRAP MODULE SURFACE WHEN APPLYING.
8. IF THE CONTRACTOR NEEDS TO CANCEL ANY SHIPMENTS, THEY MUST DO SO 48 HOURS PRIOR TO THEIR SCHEDULED ARRIVAL AT THE JOB SITE. IF CANCELED AFTER THAT TIME, PLEASE CONTACT THE PROJECT MANAGER.
9. IF THE STORMTRAP MODULE(S) IS DAMAGED IN ANY WAY PRIOR, DURING, OR AFTER INSTALL, STORMTRAP MUST BE CONTACTED IMMEDIATELY TO ASSESS THE DAMAGE AND DETERMINE WHETHER OR NOT THE MODULE(S) WILL NEED TO BE REPLACED. IF ANY MODULE ARRIVES AT THE JOBSITE DAMAGED DO NOT UNLOAD IT; CONTACT STORMTRAP IMMEDIATELY. ANY DAMAGE NOT REPORTED BEFORE THE TRUCK IS UNLOADED WILL BE THE CONTRACTOR'S RESPONSIBILITY.
10. STORMTRAP MODULES CANNOT BE ALTERED IN ANY WAY AFTER MANUFACTURING WITHOUT WRITTEN CONSENT FROM STORMTRAP.



DETAIL 4



DETAIL 2



DETAIL 1

DETAIL REFERENCE:
DETAILS PROVIDED/PREPARED BY OTHERS AND IS FROM STORMTRAP. REFER TO OUTSIDE NOTES ON SHEET 2.

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SINGLETRAP INSTALLATION SPECIFICATION

SHEET NUMBER:
3.0

BOHLER
SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
INDUSTRIAL ARCHITECTURE
PERMITTING SERVICES
TRANSPORTATION SERVICES

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DRAWN BY: CTC
CHECKED BY: BE
DATE: 10/28/2025
CAD I.D.: P-CIVL-CNDS

PROJECT:
SITE DEVELOPMENT PLANS
FOR
SIGNATURE AVIATION USA, LLC
SIGNATURE AVIATION
PROPOSED EAST SIDE RAMP EXPANSION & HANGAR
TETERBORO AIRPORT
FRED WEHRAN DRIVE
BOROUGH OF TETERBORO
BERGEN COUNTY, NEW JERSEY

BOHLER
BOHLER ENGINEERING NJ, LLC
125 HALF MILE ROAD, SUITE 207
RED BANK, NJ 07701
Phone: (732) 825-6800
www.BohlerEngineering.com
NJ CERT. OF AUTHORIZATION NO. 24GA28161700 & MH000122

J.A. HOLZAPFEL
STATE OF NEW JERSEY
LICENSED PROFESSIONAL ENGINEER
NO. GE49506
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. GE49500
PROFESSIONAL ENGINEER

SHEET TITLE:
CONSTRUCTION DETAILS

SHEET NUMBER:
15
OF 17

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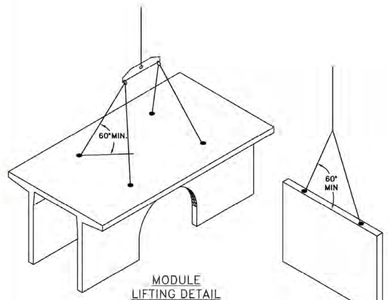
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STORMTRAP DETENTION BASIN DETAILS AND SPECIFICATIONS
NOT TO SCALE
(STORMTRAP)

I:\BOHLER ENG NET\SHARE\ENG\PROJECTS\SOX\ENG\C240059 GWC\ADDENDA\WINGSPLAN SETS\CIVIL SITE PLANS\P-CIVL-CNDS-N-C240059.00-0E ---- LAYOUT: C-307 DETL

STORMTRAP MODULE LIFTING SPECIFICATION

1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT ALL (4) CHAINS/CABLES ARE SECURED PROPERLY TO THE LIFTING ANCHORS AND IN EQUAL TENSION WHEN LIFTING THE STORMTRAP MODULE.
2. MINIMUM 7'-0" CHAIN/CABLE LENGTH TO BE USED TO LIFT STORMTRAP MODULES (SUPPLIED BY CONTRACTOR).
3. CONTRACTOR TO ENSURE MINIMUM LIFTING ANGLE IS 60° FROM TOP SURFACE OF STORMTRAP MODULE. SEE DETAIL.
4. IT IS UNDERSTOOD AND AGREED THAT AT ALL TIMES DURING WHICH HOISTING AND RIGGING EQUIPMENT IS BEING SUPPLIED TO THE PURCHASER, OPERATOR OF SUCH EQUIPMENT SHALL BE IN CHARGE OF HIS ENTIRE EQUIPMENT AND SHALL AT ALL TIMES BE THE JUDGE OF THE SAFETY AND PROPERTY OF ANY SUGGESTION TO HIM FROM THE SELLER, ITS AGENTS OR EMPLOYEES. PURCHASER AGREES TO SAVE, INDEMNIFY AND HOLD HARMLESS SELLER FROM ALL LOSS, CLAIMS, DEMANDS OR CAUSES OF ACTION, WHICH MAY ARISE FROM THE EXISTENCE OR OPERATION OF SAID EQUIPMENT.

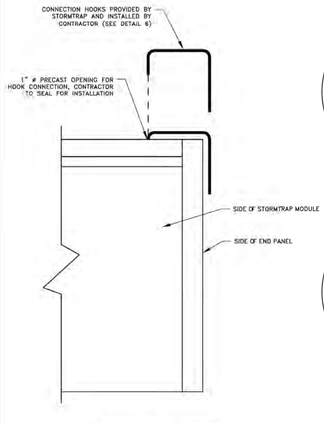


MODULE LIFTING DETAIL

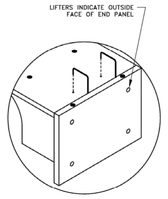
END PANEL LIFTING DETAIL

END PANEL ERECTION/INSTALLATION SPECIFICATION

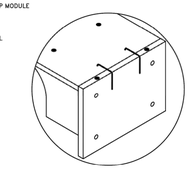
1. END PANELS WILL BE SUPPLIED TO CLOSE OFF OPEN ENDS OF ROWS.
2. PANELS SHALL BE INSTALLED IN A TILT UP FASHION DIRECTLY ADJACENT TO OPEN END OF MODULE (REFER TO SHEET 2.0 FOR END PANEL LOCATIONS). SIDE WITH LIFTERS INDICATES OUTSIDE FACE.
3. CONNECTION HOOKS WILL BE SUPPLIED WITH END PANELS TO SECURELY CONNECT PANEL TO ADJACENT STORMTRAP MODULE (SEE PANEL CONNECTION ELEVATION VIEW).
4. ONCE CONNECTION HOOK IS ATTACHED, LIFTING CLUTCHES MAY BE REMOVED.
5. JOINT WRAP SHALL BE PLACED AROUND PERIMETER JOINT PANEL (SEE SHEET 3.0).



PANEL CONNECTION ELEVATION VIEW



STEP 1



STEP 2

DETAIL 6

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ENGINEER INFORMATION:
Bohler Engineering
30 Independence Blvd
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Warren, NJ
908-668-8300

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NTS

SHEET TITLE:
SINGLETRAP INSTALLATION SPECIFICATION

SHEET NUMBER:
3.1

ZONE CHART

ZONES	ZONE DESCRIPTIONS	REMARKS
ZONE 1	FOUNDATION AGGREGATE	#5 (3") STONE ANGULAR AGGREGATE (SEE NOTE 4)
ZONE 2	BACKFILL	UNIFIED SOILS CLASSIFICATION (GW, GP, SW, SP) OR SEE BELOW FOR APPROVED BACKFILL OPTIONS
ZONE 3	FINAL COVER OVERTOP	MATERIALS NOT TO EXCEED 120 PCF

APPROVED ZONE 2 BACKFILL OPTIONS

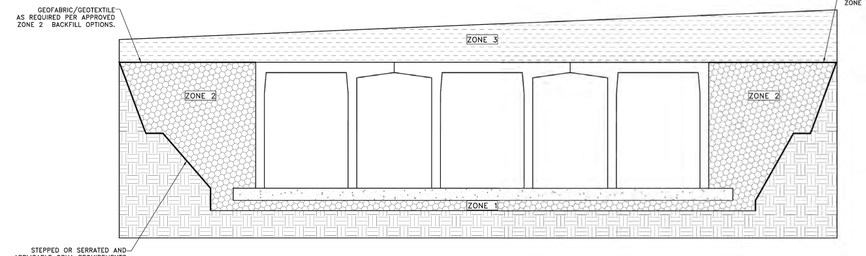
OPTION	REMARKS
3" STONE AGGREGATE	THE STONE AGGREGATE SHALL CONSIST OF CLEAN AND FREE DRAINING ANGULAR MATERIAL. THE SIZE OF THIS MATERIAL SHALL HAVE 100% PASSING THE 4" SIEVE WITH ON TO 5% PASSING THE #8 SIEVE. THIS MATERIAL SHALL BE SEPARATED FROM NATIVE MATERIAL USING GEOFABRIC AROUND THE PERIMETER OF THE BACKFILL (ASTM SIZE #57) AS DETERMINED BY THE GEOTECHNICAL ENGINEER.
SAND	IMPORTED PURE SAND IS PERMITTED TO BE USED AS BACKFILL IF IT IS CLEAN AND FREE DRAINING. THE SAND USED FOR BACKFILLING SHALL HAVE LESS THAN 40% PASSING #40 SIEVE AND LESS THAN 5% PASSING #200 SIEVE. THIS MATERIAL SHALL BE SEPARATED FROM NATIVE MATERIAL USING GEOFABRIC AROUND THE PERIMETER OF THE SAND BACKFILL.
CRUSHED CONCRETE AGGREGATE	CLEAN, FREE DRAINING CRUSHED CONCRETE AGGREGATE MATERIAL CAN BE USED AS BACKFILL FOR STORMTRAP'S MODULES. THE SIZE OF THIS MATERIAL SHALL HAVE 100% PASSING THE 1" SIEVE WITH ON TO 5% PASSING THE #8 SIEVE. THIS MATERIAL SHALL BE SEPARATED FROM NATIVE MATERIAL USING GEOFABRIC AROUND THE PERIMETER OF THE BACKFILL.
ROAD PACK	STONE AGGREGATE 100% PASSING THE 1-1/2" SIEVE WITH LESS THAN 12% PASSING THE #200 SIEVE (ASTM SIZE #467). GEOFABRIC AS PER GEOTECHNICAL ENGINEER RECOMMENDATION.

FILL DEPTH	TRACK WIDTH	MAX VEHICLE WEIGHT (KIPS)	MAX GROUND PRESSURE
12"	12"	51.8	1890 psf
	18"	56.1	1219 psf
	24"	68.1	1111 psf
	30"	76.7	1000 psf
	36"	85.0	924 psf

NOTE:
TRACK LENGTH NOT TO EXCEED 15'-4".
ONLY TWO TRACKS PER VEHICLE.

STORMTRAP ZONE INSTALLATION SPECIFICATION/PROCEDURE

1. THE FILL PLACED AROUND THE STORMTRAP MODULES MUST BE DEPOSITED ON BOTH SIDES AT THE SAME TIME AND TO APPROXIMATELY THE SAME ELEVATION. AT NO TIME SHALL THE FILL BEHIND ONE SIDE WALL BE MORE THAN 2'-0" HIGHER THAN THE FILL ON THE OPPOSITE SIDE. BACKFILL SHALL EITHER BE COMPACTED AND/OR VIBRATED TO ENSURE THAT BACKFILL AGGREGATE/STONE MATERIAL IS WELL SEATED AND PROPERLY INTER LOCKED. CARE SHALL BE TAKEN TO PREVENT ANY WEDGING ACTION AGAINST THE STRUCTURE, AND ALL SLOPES WITHIN THE AREA TO BE BACKFILLED MUST BE STEPPED OR SERRATED TO PREVENT WEDGING ACTION. CARE SHALL ALSO BE TAKEN AS NOT TO DISRUPT THE JOINT WRAP FROM THE JOINT DURING THE BACKFILL PROCESS. BACKFILL MUST BE FREE-DRAINING MATERIAL. SEE ZONE 2 BACKFILL CHART ON THIS PAGE FOR APPROVED BACKFILL OPTIONS. IF NATIVE EARTH IS SUSCEPTIBLE TO MIGRATION, CONFIRM WITH GEOTECHNICAL ENGINEER AND PROVIDE PROTECTION AS REQUIRED (PROVIDED BY OTHERS). ALL MODULES MUST BE SET AND ALL SIDES MUST BE FULLY BACKFILLED BEFORE TRAVEL OVERTOP THE SYSTEM IS PERMITTED. SEE NOTE 2 FOR EXCEPTIONS AND LIMITATIONS.
2. THE FILL PLACED OVERTOP THE SYSTEM SHALL BE PLACED IN MINIMUM 6" LIFTS. AT NO TIME SHALL MACHINERY OR VEHICLES GREATER THAN THE DESIGN LIVE LOAD LISTED ON SHEET 1.1 TRAVEL OVERTOP THE SYSTEM. IF TRAVEL OVER THE SYSTEM OCCURS BEFORE THE MINIMUM DESIGN COVER IS ACHIEVED, IT MAY BE NECESSARY TO REDUCE THE ULTIMATE LOAD/BURDEN OF THE OPERATING MACHINERY SO AS TO NOT EXCEED THE DESIGN CAPACITY OF THE SYSTEM. VEHICLES AND MACHINERY USED TO PLACE FILL MATERIAL ON TOP OF THE SYSTEM SHALL TRAVEL PARALLEL TO THE LONGITUDINAL AXIS OF THE STORMTRAP MODULES WHENEVER POSSIBLE.
3. THE VIBRATORY FUNCTION OF ANY ROLLER, COMPACTOR, VEHICLE, ETC. SHALL NOT BE USED OVERTOP THE SYSTEM WITHOUT PRIOR APPROVAL FROM STORMTRAP. IN SOME CASES, HAND COMPACTION MAY BE NECESSARY TO ENSURE THAT THE ALLOWABLE DESIGN LOADING IS NOT EXCEEDED.
4. STONE AGGREGATE FOUNDATION IN ZONE 1 IS FOR LEVELING PURPOSES.



BACKFILL DETAIL

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ROMEOVILLE, IL 60446
P:815-941-4549 / F:331-318-5347

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SINGLETRAP BACKFILL SPECIFICATION

SHEET NUMBER:
4.0

ACCESS OPENING SPECIFICATION

1. A TYPICAL ACCESS OPENING FOR THE STORMTRAP SYSTEM ARE 2'-0" IN DIAMETER. ACCESS OPENINGS LARGER THAN 4'-0" IN DIAMETER NEED TO BE APPROVED BY STORMTRAP. ALL OPENINGS MUST RETAIN AT LEAST 2'-0" OF CLEARANCE FROM THE END OF THE STORMTRAP MODULE UNLESS NOTED OTHERWISE. ALL ACCESS OPENINGS TO BE LOCATED ON INSIDE LEG UNLESS OTHERWISE SPECIFIED. SEE SHEET 2.0 FOR SIZES AND LOCATIONS.
2. UNLESS OTHERWISE SPECIFIED, PLASTIC COATED STEPS ARE PROVIDED INSIDE ANY MODULE WHERE DEEMED NECESSARY. THE HIGHEST STEP IN THE MODULE IS TO BE PLACED A DISTANCE OF 1'-0" FROM THE INSIDE EDGE OF THE STORMTRAP MODULES. ALL ENSUING STEPS SHALL BE PLACED AT A DISTANCE BETWEEN 10" MIN AND 14" MAX BETWEEN THEM. STEPS MAY BE MOVED OR ALTERED TO AVOID OPENINGS OR OTHER IRREGULARITIES IN THE MODULE.
3. STORMTRAP LIFTING INSERTS MAY BE RELOCATED TO AVOID INTERFERENCE WITH ACCESS OPENINGS OR THE CENTER OF GRAVITY OF THE MODULE AS NEEDED.
4. STORMTRAP ACCESS OPENINGS MAY BE RELOCATED TO AVOID INTERFERENCE WITH INLET AND/OR OUTLET PIPE OPENINGS SO PLACEMENT OF STEPS IS ATTAINABLE.
5. ACCESS OPENINGS SHOULD BE LOCATED IN ORDER TO MEET THE APPROPRIATE MUNICIPAL REQUIREMENTS. STORMTRAP RECOMMENDS AT LEAST TWO ACCESS OPENINGS PER SYSTEM FOR ACCESS AND INSPECTION.
6. USE PRECAST ADJUSTING RINGS AS NEEDED TO MEET GRADE. STORMTRAP RECOMMENDS FOR COVER OVER 2' TO USE PRECAST BARREL OR CONE SECTIONS. (PROVIDED BY OTHERS)

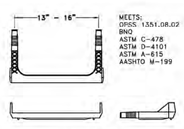
PIPE OPENING SPECIFICATION

1. MINIMUM EDGE DISTANCE FOR AN OPENING ON THE OUTSIDE WALL SHALL BE NO LESS THAN 1'-0".
2. CONNECTING PIPES MAY BE INSTALLED WITH A 1'-0" CONCRETE COLLAR AND AN AGGREGATE CRADLE (AS REQUIRED) FOR AT LEAST ONE PIPE LENGTH (SEE PIPE CONNECTION DETAIL). A STRUCTURAL GRADE CONCRETE OR HIGH STRENGTH, NON-SHRINK GROUT WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3000 PSI MAY BE USED.
3. THE ANNULAR SPACE BETWEEN THE PIPE AND THE HOLE SHALL BE FILLED WITH HIGH STRENGTH NON-SHRINK GROUT.

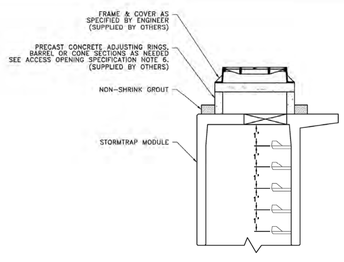
PIPE INSTALLATION INSTRUCTIONS

1. CLEAN AND LIGHTLY LUBRICATE ALL OF THE PIPE TO BE INSERTED INTO STORMTRAP.
2. IF PIPE IS CUT, CARE SHOULD BE TAKEN TO ALLOW NO SHARP EDGES. BEVEL AND LUBRICATE LEAD END OF PIPE.
3. ALIGN CENTER OF PIPE TO CORRECT ELEVATION AND INSERT INTO OPENING.

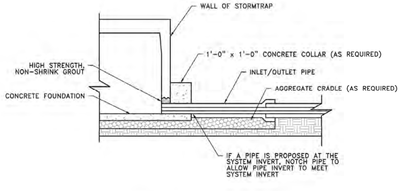
NOTE: ALL ANCILLARY PRODUCTS/SPECIFICATIONS RECOMMENDED AND SHOWN ON THIS SHEET INCLUDING BUT NOT LIMITED TO CONCRETE COLLARS, AGGREGATE CRADLES, GRADE RINGS, RISER SECTIONS, ETC., ARE RECOMMENDATIONS ONLY AND SUBJECT TO CHANGE PER THE INSTALLING CONTRACTOR AND/OR PER LOCAL MUNICIPAL CODE/REQUIREMENTS.



STEP DETAIL



RISER/STAIR DETAIL



NOTCHED PIPE CONNECTION DETAIL
WHEN PIPE INVERT IS AT
INVERT OF STORMTRAP SYSTEM

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ROMEOVILLE, IL 60446
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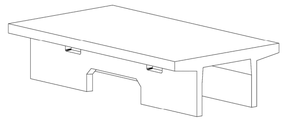
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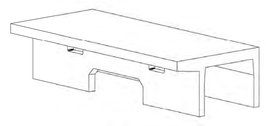
SCALE:
NTS

SHEET TITLE:
PIPE / ACCESS OPENING SPECIFICATION

SHEET NUMBER:
5.0



TYPE IIXS



TYPE IVXS



TYPE IV
END PANEL

NOTES:
1. OPENING LOCATIONS AND SHAPES MAY VARY.
2. SP – INDICATES A MODULE WITH MODIFICATIONS.
3. P – INDICATES A MODULE WITH A PANEL ATTACHMENT.
4. POCKET WINDOW OPENINGS ARE OPTIONAL.

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SCALE:
NTS

SHEET TITLE:
SINGLETRAP MODULE TYPES

SHEET NUMBER:
6.0

DETAIL REFERENCE:
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CAD I.D.: 3 &,9/ &1

PROJECT:

SITE DEVELOPMENT PLANS
FOR
SIGNATURE AVIATION USA, LLC

SIGNATURE AVIATION

PROPOSED EAST SIDE RAMP EXPANSION & HANGAR

TETERBORO AIRPORT
FRED WEHRAN DRIVE
BOROUGH OF TETERBORO
BERGEN COUNTY, NEW JERSEY

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J.A. HOLZAPFEL
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LICENSED PROFESSIONAL ENGINEER
NO. 24GE04639600
PROFESSIONAL ENGINEER
PROFESSIONAL ENGINEER

SHEET TITLE:
CONSTRUCTION DETAILS

SHEET NUMBER:
16
2)

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